West Pasco County Landfill Expansion Cells A-3 and SW-2 Certification of Construction Completion

GEOSYNTHETIC MANUFACTURERES CERTIFICATION DOCUMENTATION VOLUME 3 OF 4

SECTION 1

GEOTEXTILE

SECTION 2

BENTOMAT

SECTION 3

CLAYMAX

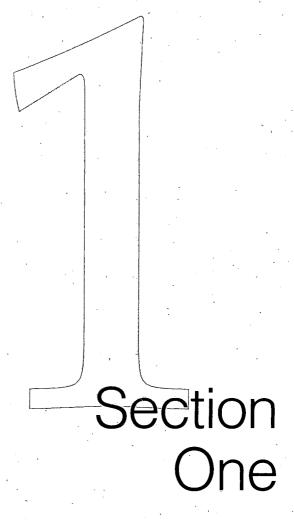
SECTION 4

GEOMEMBRANE

SECTION 5

GEOCOMPOSITE NET LOTS 1-8

VOLUME 3



TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

consulting, engineering, construction, operations

Date: <u>2/27/02</u>



To:	Handex of Florida, Inc.		Job:	06104-28936-	_	
10.	2306 Gravel Drive			W. Pasco County Landfill Expansion Cells A-3 and SW-2		
	Ft. Worth, TX 76118-					
Attn:	Gary Conaway, V.P.					
	4_ print(s) each of the following Sub Test	mittal: ting Re	ا مغانیم	(GEOTEX 861 Rolls Quality Assurance		
	which are:	1.	APPROVED		<u>√</u>	
		2.	APPROVED	AS NOTED		
		3.	APPROVED	AS NOTED/CONFIRM		
		4.	APPROVED	AS NOTED/RESUBMIT		
		5.	NOT APPRO	VED		
		6.	COMMENTS	ATTACHED		
		7.	FOR YOUR II	NFORMATION		
		8.	FOR YOUR F	REVIEW		
Com	ments:					
					_	
		-				
					_	
					<u> </u>	
CC:	1 - Jack McHugh/CDM 1 - Construction File	***************************************				

Ву

Abdul Mulla-Sale

Roll#	Style	Batch	Thick	Weight	MD Tens	sile XMD	MD Elong	ation XMD	MD Trap	Tear XMD	Punct	Burst
BOL#'S			D5199	D5261	D4632	D4632	D4632	D4632	D4533	D4533	D4833	
	80153384	_	mils	oz/yd2	lbs	lbs	%	%	lbs			D3786
A641540A	861	60940	100	8.0	240	236				lbs	lbs	psi
4641560A	861	60940	102				58	65	100	101	141	420
				8.2	255	252	59	65	95	120	153	451
A641680A	861	60 940	109	8 .6	289	26 2	63	68	135	140		
4641785A	861	60940	116	8.7	268	272	58				149	494
4641800A	861	60940	113	8.6				76	179	186	15 9	453
A649230A	861				263	260	58	72	180	129	163	487
		60976	99	8.3	225	246	56	63	133	138	141	
4649234A	861	60976	110	9.1	265	249	62					487
A649250A	861	60976	104	8.5				66	134	182	157	526
	551	00070	104	0.5	275	271	61	64	125	193	136	51 3

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence, test results listed above may include data from rolls which were not shipped and rolls listed may or may not be the actual rolls tested. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

SHOP DRAWING REVIEW

ENGMEER'S REVIEW	RESPONSE REQUIRED OF CONTRACTOR
Approved as Noted Comments	Confirm 🗀
Attached []	Reoutbmit □

The Engineer's review of this shop drowing is limited to the review of dimensiona, equipment and materials as presented in the Contract plens, specifications and for dealin concept. This review does not relieve the Contractor from orders or emissions in the submittal or from the Contractor's responsibility of addressing any devictions from the Contract Decements. The Contractor is responsible for the details and dimensions of fortication and menufacture, the means, methods, techniques, sequences or procedures of construction and performing his work in a cuts manner.

NA ve

Date 2/20/02

HUGHES SUPPLY a

1 423 899 5005

2/25/2002

Ø 002/004 . P.Ø1

SI[®] Geosolutions

Hughes Supply

FL

Mike

3319 US Highway 301 N

Tampa

FL 33619

BOL

FL 33619

BOL

80153384 PO 46822063

Ref: Contractor: Handex Construction Service Job: West Pasco County Landfill

This is to certify that Product GEOTEX 861, a nonwoven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

Physical Property	Test:Method	US Units	Si Unit
Mass Per Unit Area Thickness Tensile Strength Elongation Trapezoidal Tear Mullen Burst Puncture Strength A.O.S. Permittivity Permeability Vater Flow Rate JV Resistance	ASTM D-5261 ASTM D-6199 ASTM D-4632 ASTM D-4533 ASTM D-3786 ASTM D-4833 ASTM D-4751 ASTM D-4491 ASTM D-4491 ASTM D-4491 ASTM D-4455	8.0 oz/yd2 90 mils 220 lbs 50 % 95 psi 420 lbs 135 Sieve 80 sec-1 1.5 cm/sec 0.38 gpm/ft2 130 %	(271.2) g/m2 (2.286) mm (979) N 50 % (422.75) N (2895.4 kPa (600.75) N 0.18 mm 1.5 sec-1 0.38 lpm/m2 (5296.811 %

Strength Renained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely

John D. Cannon, P.E.

Regional Engineer SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished horoundor other than at the time of delivery it that the of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED makes no workingly of results to be obtained. If the product deep not make to workingly of results to be obtained. If the product deep not make it is comparation of the contraction before the product, then it is comparation with replace the product without charge or refund the purchase gifes. The object supersedes all previous Data Sheets for this style and its subject to charge

1/23/2001

SHOP DRAWING REVIEW

ENGINEER'S REVIEW	RESPONSE REQUIRED OF CONTRACTOR
Approved Not Asproved Approved as Noted Comments	Confirm 🗀
Attached □	Filmduseff

The Engineer's review of this shop drawing is limited to the review of dimensiona, equipment and materials so presented in the Contract plans, specifications and for deeligh concept. This review does not relieve the Contractor from arrow or emissions in this submittel or from the Contractor's responsibility of addressing any deviations from the Contract Documents. The Contractor is responsible for the details and dimensions of fabrication and menufacture, line messas, methods, techniques, sequences or procedures of construction and participating his work in a safe manner.

6025 Lee Highway, Suite 435 • Chattanooga, TN 37421 Ph. 423-899-0444 • Fax: 423-899-7619

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TMS

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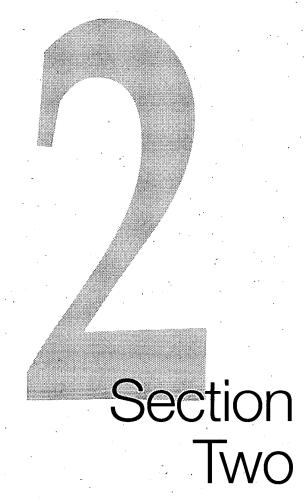
Synthetic Industries - Bill of Lading Roll List

Blirot Lagridit.	0153384				Cate/Shipped, 2/22/2002
ltems and bisiship					15 ()
Rall#	Style		Lusei Field	1 : Liseafie de 1	
A641544A	861		60940	A641544	- 170 F
A641549A	861	:	60940	A641549	
A641557A	861	:	60940	A641557	
A641565A	861	••	60940	A641565	· ·
A641681A	861	·	60940	A641681	;
A641797A	861		60940	A641797	
A641798A	861		60940	A641798	
A641802A	861		60940	A641802	1
A649242A	861		60976	A649242	:
A649243A	861		60976	A649243	
A649244A	861	··	60976	A649244	,
A649248A	861		60976	A649248	
A649256A	861	1	60976	A649256	

SHOP DRAWING REVIEW

ENGINEER'S REVIEW	RESPONSE REQUIRED OF CONTRACTOR			
Approved Not Approved	Confirm □			
Approved/os Noted	Pro ou⇔mit □			

The Engineer's review of this shop drawing is limited to the review of dimensiona, equipment and motorials as presented in the Contract clans, specifications and for design concept. This review does not relieve the Contractor from errors or emissions in this submittal or from the Contractor's responsibility of addressing any deviation. from the Contract Documents. The Contractor is responsibility of the details and dimensions of the friends and dimensions of the friends and dimensions of the friends and the first processing and the first pr



TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

consulting, engineering, construction, operations

Date: 12/5/01



To:	Handex of Florida, Inc.		Job:	06104-28936-
	2306 Gravel Drive			W. Pasco County Landfill Expansion Cells A-3 and SW-2
	Ft. Worth, TX 76118-			
Attn:	Gary Conaway, V. P.			
	6_ print(s) each of the following Subr (60 r	mittal: olls) (S	D-02275-014-A (Set 1 of 1))	(QA/QC Roll Certificates: Bentomat ST
	which are:	1.	APPROVED	
		2.	APPROVED	AS NOTED
		3.	APPROVED	AS NOTED/CONFIRM
		4.	APPROVED	AS NOTED/RESUBMIT
-		5.	NOT APPRO	VED
		6.	COMMENTS	ATTACHED
		7.	FOR YOUR II	NFORMATION
		8.	FOR YOUR R	REVIEW
		ı		
Comi	ments:			
	neno.			
CC:	1 - Jack McHugh/CDM 1 - Construction File			

Ву

Abaul Mulla-Sale

GOMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

		DETUL EATAINS	SION - CELLS A-	3 AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager;	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
COMPLETED	BY CONTRACTOR:		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
Certification Stat	By this submittal, I hereby materials, dimensions, ca applicable approved shop of	talog numbers and	similar data and I h	fied all field measuremen ave checked and coordi	nts, field construction criter inated each item with otl
	Signature:	-11		_ Date:	11-19-01
Submittal Identif	ier: D-02275-014-A	Original Su	bmittal	Supplement	t
Submitted:	November 19, 2001				
No. of Copies:	8	Resubmitta		Information	Only
Submittal Descrip	otion: QA/QC Roll Certificates:	Bentomat ST (6)	0 rolls) (Set 1 of 1)		
Specification Idea	ontifier: 01300, 02275 Section 1.03			·	
Manufacturer:	CETCO Lining Technologi				·
Installer:	COMANCO Environmenta				
No. of Copies Red					
			No. of Co	Opies Returned:	d Ac Noted Decuberit
Status:	Code 1 - Approved		No. of Co		d As Noted, Resubmit
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	Code 1 - Approved		No. of Co	Code 4 - Approve	roved
Status:	Code 1 - Approved Code 2 - Approved As No Code 3 - Approved As No or Remarks Area:	oted, Confirm		Code 4 - Approve	roved
Status:	Code 1 - Approved As No Code 2 - Approved As No Code 3 - Approved As No or Remarks Area:	oted, Confirm P DRAWING	REVIEW	Code 4 - Approve Code 5 - Not App Code 6 - Commen	roved
Status:	Code 1 - Approved Code 2 - Approved As No Code 3 - Approved As No or Remarks Area:	oted, Confirm P DRAWING	REVIEW SPONSE REQUIRE	Code 4 - Approve Code 5 - Not App Code 6 - Commen	roved
Status:	Code 1 - Approved As No Code 2 - Approved As No Code 3 - Approved As No or Remarks Area: SHO ENGINEER'S RE Approved R Not Approved C Rotad C Cd	P DRAWING VIEW RS	REVIEW	Code 4 - Approve Code 5 - Not App Code 6 - Commen	roved



GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME: GSE/Pasco County LF.

PREPARED FOR: Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

PREPARED BY: Kelly Miller

CETCO

234 Gordon St. S.E.

Fairmount, GA 30139

TELEPHONE: (706

(706) 337-5316

FAX:

(706) 337-2215







GEOSYNTHETIC CLAY LINER

DAILY MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

GSE/PASCO COUNTY LF.
SPRING HILL, FL
PURCHASE ORDER # 3256-000-OD
CETCO ORDER(S) #148665, 148668-148670

CONTENTS:

- 1. DAILY GCL PRODUCTION CERTIFICATION
- 2. GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
- 3. GCL MQA TRACKING FORM





DAILY GEOSYNTHETIC CLAY LINER PRODUCTION CERTIFICATION



GEOSYNTHETIC CLAY LINER MANUFACTURING **CERTIFICATION**

CETCO JOB:

GSE/PASCO COUNTY LF.

DATE:

NOVEMBER 7, 2001

ORDER#(S):

148665, 148668-148670

PRODUCT:

BENTOMAT ST

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the Geosynthetic Clay Liner (GCL) manufactured in this lot achieves the physical and chemical criteria listed on the attached sheets.

Kelly Miller

Quality Analysis Coordinator

CETCO-Colloid Environmental Technologies CO

Subscribed and sworn to before me this ______day of ______

Notary Public



BENTOMAT ST MANUFACTURING CERTIFICATION

TO:

Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

PROJECT: GSE/Pasco County LF.

ORDER #: 148665, 148668-148670

CETCO hereby affirms and certifies that Bentomat ST material supplied to this project will meet the physical criteria listed below:

PROPERTY	TEST METHOD	REQUIRED VALUE
Bentonite		
Free Swell	ASTM D 5890	24 min.
Fluid Loss	ASTM D 5891	18 max.
Finished Product		
Bentonite Mass/Area	ASTM D 5993*	0.75 lb/sq.ft. min.
Grab Strength	ASTM D 4632	90 lbs. MARV
Index Flux	ASTM D 5887	1 x 10(-8) m3/m2/sec (max.)
Peel Strength	ASTM D 4632(modified)	15 lbs. min.
Permeabilty	ASTM D 5084	max. 5 x 10(-9) cm/sec

^{*} Reported at 0% moisture content.

GAI Lab Accredited Test Methods were followed during conformance testing for :

ASTM D 5993 - Bentonite Mass/Area

ASTM D 4632 - Grab Strength and Grab Elongation

CETCO-Colloid Environmental Tech. CO

Subscribed and sworn to before me this

day of /

20 0 (

CCREDITATION) CERTIFICATION

RESEARCH

Notary Public

Note of the last o

A Wholly Owned Subsidiary of AMCOL International

Printed on recycled paper.

^{*}GCL has been continuously inspected for broken needles.



GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

QCG#TF1 QCT#TF1 11/06/01 15:57:03

CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL
FL

ORDER NUMBER 000148665

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY
LOT# 2001 00000566	ARELL TZ TAMOTNAB-AR	1.50	2250	3500	18337251	IVF KULL#			LOT#
LOT# 2003		130	2230	7300	T033(C2)		200104VR	00000537	423520
	FA-BENTOMAT ST	150	2250	2835	18583971		20015PAK	00001674	455842
L0T# 2001 00004467		1.50	7750	2012	4000000				
	==	150	2250	3087	80007365		500733AK	00002278	454641
00004468	FA-BENTOMAT ST	150	2250	3073	80007365		500133AK	00002278	454641
00004478	FA-BENTOMAT ST	150	2250	2928	80007362		200133VR	00002253	454641
00004494	FA-BENTOMAT ST	150	2250	3014	80007362		A529756A		454641
L0T# 2001									
00004560	TZ TAMOTNAB-A7	150	2250	2755	18982641		300075640		454730
00004561	FA-BENTOMAT ST	150	2250	2760	18982641		300075640		454730
00004562	FA-BENTOMAT ST	150	2250	2751	18982641		300075640		454730
00004568	FA-BENTOMAT ST	150	2250	2770	18996981		300075627		454730
00004571	FA-BENTOMAT ST	150	2250	2755	18996981		300075627		454730
00004598	FA-BENTOMAT ST	150	2250	2755	18996981		300075630		454730
L0T# 2001									
00002072	TZ TAMOTNAB-AF	150	2250	3105	8421820		300075860		422436
LOT# 2001 00005837	EA724. TZ TAMOTN38-A7	150	2250	3437	19059421		200140VR	00002711	446142
ТОТ	AL SQUARE FEET			31, 50	30				

TOTAL PAGES 1

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PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F FL

ORDER NUMBER DOOL48668

	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
60000141 60000141	FA-BENTOMAT ST	150	2250	3775	8416089		200705AK	00000064	458610
LOT# 20011 00001427	EARP TZ TAMOTNAB-AR	150	2250	2715	18663941		200770^K	00000591	422358
L0T# 20012 00001878	ARA TA TAMOTNAB	150	2250	2882	8445798			22202 7	
	FA-BENTOMAT ST						9115111777		423219
		150	2250	2852	8445798		9115111765		423219
00001990 00001990	FA-BENTOMAT ST	150	2250	2920	8493931		200117VR	00001117	453335
00002215	FA-BENTOMAT ST	150	2250	2741	18658141		200125VR	00007F7F	422476
00005538	FA-BENTOMAT ST	150	2250	2845	19295577		50075PAK	00001712	422476
LOT# 20013									
	FA-BENTOMAT ST	150	2250	3785	01867870		200134VK	00002303	455957
00004299	FA-BENTOMAT ST	150	2250	3700	01867870		200734AK	00002303	455957
00004300	TZ TAMOTN38-AF	150	2250	3703	01867870		200134VR	00002303	455957
00004477	TZ TAMOTN3B-AF	1.50	2250	317P	80007362		200133AK	00002253	454641
00004493	FA-BENTOMAT ST	150	2250	9808	80007362		A529756A		454641
LOT# 20013									
NUUU42P3 1	FA-BENTOMAT ST	150	2250	2766	18982641		300075627		454730
00004564 8	FA-BENTOMAT ST	150	2250	2795	18982641		300075627		454730
00004567 f	FA-BENTOMAT ST	150	2250	2776	18996981		300075627		454730
00004570	TZ TAMOTN38-AF	150	2250	2770	18996981		300075627		454730
TOTAL	SQUARE FEET	•••••		36,00	מכ				

TOTAL PAGES

QCG#TF1 QCT#TF1 11/07/01 8:43:10 CETCO GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER 000148669

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	CLAY
LOT# 200		CENTRI	I LL1	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00003897	FA-BENTOMAT ST	150	2250	2875	18957291		200134VR	00005305	446336
8P8E0000	FA-BENTOMAT ST	1,50	2250	2950	18957291		200134VR	00005305	446336
25PE0000	FA-BENTOMAT ST	150	2250	2958	18742131		A529701A		446336
ESPE0000	FA-BENTOMAT ST	150	2250	2823	18742131		A529701A		446336
00003924	FA-BENTOMAT ST	150	2250	2845	18742131		A529701A		446336
00003925	FA-BENTOMAT ST	150	2250	2858	18742131		A529701A		446336
00003932	FA-BENTOMAT ST	150	2250	EP85	18742131		A529710A		446336
00003933	FA-BENTOMAT ST	150	2250	2002	18742131		A529710A		446336
PEPE0000	FA-BENTOMAT ST	150	2250	2960	18351417		A529706A		446336
00003940	FA-BENTOMAT ST	150	2250	8695	18351411		A529706A		446336
00003950	FA-BENTOMAT ST	150	2250	2953	18950361		B873545A		446336
00003951	FA-BENTOMAT ST	150	2250	2975	18950361		B873545A		446336
00003952	FA-BENTOMAT ST	150	2250	2864	18950361		B873545A		446336
00003953	FA-BENTOMAT ST	150	2250	2907	18950361		A529724A		446336
00003957	FA-BENTOMAT ST	150	2250	2855	18950361		A529724A		446336
тот	`AL SQUARE FEET	• • •		3317	50				

TOTAL PAGES 1

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PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

ORDER NUMBER 000148670

ROLL# MATERIAL	ROLL SQUARE LENGTH FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
47P200129FA TZ TAMOTNAB-AR 1EP20000	150 2250	2946	18831901		200159AVK	00001897	423104
LOT# 200133FA							
TZ TAMOTM38-A7 BPG40000	150 2250	2867	18361461		200733AK	00002234	423279
TZ TAMOTNAB-A7 45540000	150 2250	2988	18671671		300074519		422076
DOOD4227 FA-BENTOMAT ST	150 2250	2943	18671671		300074519		422076
TZ TAMOTNAB-AR PSS40000	150 2250	2933	18671671		300074519		422076
TZ TAMOTNAB-AR DESPOOD	150 2250	2880	18671671		300074519		422076
TZ TAMOTNAB-A7 7E540000	150 2250	3040	18671671		300074514		422076
TZ TAMOTNAB-A7 14540000	720 5520	3027	18671671		300074514	•	422076
TZ TAMOTNAB-A7 SPSP0000	150 2250	3019	18631531		300074514		42207L
TZ TAMOTNAB-A7 EPSPOODO	150 2250	3050	18631531		300074514		422076
TZ TAMOTNAB-A7 BPSP0000	150 2250	3039	18631531		300074533		422076
TZ TAMOTNAB-A7 PPS40000	150 2250	3074	18631531		300074533		422076
LOT# 200134FA							
ODDO4261 FA-BENTOMAT ST	150 2250	3465	18F37237		300074521		422076
OOOO4466 FA-BENTOMAT ST	150 2250	2918	80007365		500733AK	00002278	422548
TZ TAMOTNAB-AF EJZZODOO	150 2250	3137	19014641		50013PAK	00002418	446150
TOTAL SQUARE FEET		33,7	'50				

TOTAL PAGES 1

QCG#TF3 11/06/01 @CT#TF3 14:45:35 CETCO GEOTEXTILE QC DATA

PAGE: 1

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

0 R D E R # 000148665

MATERIAL	LOT#	R0LL#	GEOTEXTILE	GRAB STRENGTH
FA-NON-WOVEN	A529756A 200104VR 200125VR 200139VR 200139VR 200140VR 300075627 300075640 300075640	00000231, 00001674 00002253 00002278 00002711	L.Ooz/sy mv ASTM D 5261 L.3 L.5 7.1 L.6 L.6 L.6 7.0 7.0	6.0 1bs marv ASTM D 4632 169.2 33.2 37.2 61.2 47.8 39.9 63.9 63.9
			тот	AL DACES 1

TOTAL PAGES

@CG#TF3 11/06/01 @CT#TF3 ጔዛ፡ዛЬ፡ጔዛ

CETC0 GEOTEXTILE QC DATA

PAGE: 1

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL F

FL

0 R D E R # 000148668

MATERIAL	LOT#	ROLL#	GEOTEXTILE	GRAB Strength
FA-NON-WOVEN	A52975LA 200110VR 200117VR 200125VR 200126VR 200134VR 200134VR 300075627 9115111765	00000591 00001117 00001616 00001712 00002253 00002303	L.Qoz/sy mv ASTM D 5261 L.3 7.3 L.6 7.2 7.1 L.6 L.9 7.0 L.5	L-0 lbs marv ASTM D 4632 169.2 57.6 66.5 44.0 66.3 61.2 60.9 63.9 22.7 22.7

I ZƏDAY JATOT

QCG#TF3 11/06/01 @CT#TF3 14:46:46

CETCO . GEOTEXTILE QC DATA

PAGE: 1

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

0 R D E R # 000148670

MATERIAL	LOT#	ROLL#	GEOTEXTILE	GRAB STRENGTH
FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN FA-NON-WOVEN	200128 VR 200133 VR 200133 VR 20013 L VR 300074514 300074519 300074521 300074533	00001857 00002234 00002278 00002418	L.Ooz/sy mv ASTM D 5261 L.E L.7 L.E H.9 7.0 7.0 7.0 7.0	6.0 1bs marv ASTM D 4632 42.2 71.3 47.8 42.8 42.8 42.9 63.9 63.9

TOTAL PAGES 1



GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

QCG#FT2 QCT#FT2 11/06/01 9:41:27 Initials: Km #:
Date: 1117

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

han han

0 R D E R # 000148665

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA	GRAB Strength	PEEL Strength
			0.75 lb/sqft	90 lbs	
			EPP2 D MT2A		15 lbs
			ברכ ע ווובא	SEJP G MTZA	SEAR D WIZA
FA-BENTOMAT ST	200145FA3	00005837	. 95	125.80	34.40
FA-BENTOMAT ST	200138FA3	00005015	. 99	153.70	
FA-BENTOMAT ZT	EARLEGOS	00004598	.89		31.50
FA-BENTOMAT ST	EA44E1005		= -	153.20	0E · 85
		00004571	- 85	148.60	08.96
FA-BENTOMAT ST	50073PEY3	00004568	.85	148.60	99.80
FA-BENTOMAT ST	20013F43	00004562	- 85	148.60	36.90
FA-BENTOMAT ST	EA74E1005	00004561	.85	148.60	36.90
FA-BENTOMAT ST	200136FA3	00004560	- 8.5	148.60	36.90
FA-BENTOMAT ST	20013464	00004494	. 90	141.50	
FA-BENTOMAT ST	200134FA	00004478	· -		25.90
FA-BENTOMAT ST			. 97	113.70	35.20
	A46EE005	00004468	. 97	113.70	32.20
FA-BENTOMAT ST	200134FA	00004467	. 97	113.70	32.20
TZ TAMOTN3B-AF	200157FA	00002577	. 88	127.10	41.30
FA-BENTOMAT ST	200113FA	00000566	1.00		
		22000300	J. 00	92.10	36.70

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE

COMANCO/HANDEX

SPRING HILL

FL

QCG#FT2 QCT#FT2 11/06/01 9:42:19 midis: hn #:
Date: 117

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

COMANCO/HANDEX SPRING HILL PAGE: 1

FL

SHIP TO: PASCO COUNTY LF / GSE

0 R D E R # 000148668

MATERIAL	LOT No.	ROLL No	BTINOTNAB ABAR\ZZAM Thps\df 25.0 EPP2 G MTZA	GRAB HTONITS 2df OP 26df D MTZA	J339 HTƏN3ЯTZ 2df 2d 5Edp d MT2A
FA-BENTOMAT 2T	200136FA3	00004570	. 85	148.60	39.80
FA-BENTOMAT ST	50073PLY3	00004567	.85	148.60	39.80
FA-BENTOMAT ST	50013PLV3	00004564	-85	148.60	36.90
FA-BENTOMAT ST	50073PLV3	00004563	- A 5	148.60	36.90
FA-BENTOMAT ST	A3PEEOOS	00004493	. 90	141.50	25.90
FA-BENTOMAT ST	A34E4005	00004477	- 97	113.70	32.20
FA-BENTOMAT ST	A4FEGOOS	00004300	· 85	129.80	40.70
FA-BENTOMAT ST	200134FA	00004299	· 85	129.80	40.70
FA-BENTOMAT ST	A46£005	8954000	- A 5	129.80	40.70
FA-BENTOMAT ST	20015PLV	8E550000	- 88	113.60	41.40
FA-BENTOMAT ST	20015FE	00005572	- 88	173.70	42.20
FA-BENTOMAT ST	50075PŁV	00001990	.87*	99.90	42.00*
FA-BENTOMAT ST	200125FA	00001886	. АЬ	200.00	30.50
FA-BENTOMAT ST	200125FA	00001878	.89	200.00	28.50
TZ TAMOTNAB-AR	EARP11005	00001427	. 84	10b.80	22.20
FA-BENTOMAT ZT	200105EA	00000141	1.02	120.54	25.90

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2 11/06/01 9:42:19 Initials: An #:
Date: U17

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

0 R D E R.# 000148668

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA O·75 lb/sqft	GRAB STRENGTH 90 lbs	PEEL STRENGTH 15 16s
			EPP2 0 MTZA	SEAP D MT2A	SEA# 0 MTZA
TZ TAMOTN38-A7	50073Ptv3	00004570	. 85	148.60	39.80
FA-BENTOMAT ST	50073PŁV3	00004567	. 85	148.60	39.80
FA-BENTOMAT 2T	500J3F43	00004564	. 8 5	148.60	36.90
FA-BENTOMAT ST	50073PLY3	00004563	. A 5	148.60	36.90
FA-BENTOMAT ST	200134FA	00004493	. 90	141.50	25.90
FA-BENTOMAT ZT	200134FA	00004477	. 97	113.70	32.20
FA-BENTOMAT ST	A34E1002	00004380	. A S	129.80	40.70
FA-BENTOMAT ST	200134FA	00004299	- 85	08.254	40.70
FA-BENTOMAT ST	200134FA	8P540000	- 85	129.80	40.70
FA-BENTOMAT ST	20015PLV	AES50000	- 8 B	113.60	41.40
FA-BENTOMAT ST	50015PLV	00002215	- 88	173.70	42.20
FA-BENTOMAT ST	20015FE	00001440	.87*	99.90	42.00*
FA-BENTOMAT ST	200125FA	00001886	- 86	200.00	30.50
FA-BENTOMAT ST	200125FA	00001878	.89	200.00	28.50
FA-BENTOMAT ST	200119FA3	00001427	. 84	10b.80	25.50
FA-BENTOMAT 2T	200102FA	00000141	1.02	120.54	25.90

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture Content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE

COMANCO/HANDEX

SPRING HILL FL

QCG#FT2 QCT#FT2 11/06/01 9:40:38 Initials: KM #: Data: 11/7

CETC0

GCL QUALITY DATA

FAIRMOUNT CETCO

0 R D E R # 000148670

MATERIAL	LOT No.	ROLL No	BINOTNAB ABASS/ARA ABASS/ABASS	BARD HTDNERTZ 2dl OP 26JP U MTZA	J339 HTDN3772 2df 2d 2edf d MT2A
FA-BENTOMAT ST	200138FA	00005263	. 8ь	156.10	16.10
FA-BENTOMAT ST	A464002	00004466	. 97	113.70	35.20
T2 TAMOTM38-A3	A34E1002	000045PJ	- 87	129.80	25.80
FA-BENTOMAT ST	A 16 £ 1005	00004249	.87	130.60	24.40
FA-BENTOMAT ST	200133FA	00004248	.87	130.60	24.40
TZ TAMOTN38-A7	A REE £005	: 00004243	-87	130.60	24.40
FA-BENTOMAT ST	200133FA	00004242	.87	130·FO	24.40
FA-BENTOMAT ST	A REE LOOS	00004241	-87	130.60	24.40
FA-BENTOMAT ST	A SEE LOOS	.00004237	. A?	130.60	24.40
TZ TAMOTN38-A7	A4EE1002	:00004230	. 84	130.60	29.40
TZ TAMOTN3B-A7	AJEE1002	00004229	- 84	130.60	29.40
TZ TAMOTN38-A7	200133FA	00004227	. 84	130.60	29.40
FA-BENTOMAT ST	200133FA	00004556	. 84	130.60	29.40
FA-BENTOMAT 2T	A 4EE 1005	00004098	. 84	104.40	23.30
FA-BENTOMAT 2T	200154EV	1EP50000	.88*	132.80*	40.20*

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at DX moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX

SPRING HILL

FL

PAGE: 1

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

07-Nov-01

TO:

CETCO - CLAYMAX CORP.

P.O. BOX 86

FAIRMOUNT, GA. 30139

ATTN:

CYNTHIA WILLIX

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

29-Jul-00

in

BN 446336

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

D.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO - CLAYMAX CORP.

P.O. BOX 86

FAIRMOUNT, GA. 30139

ATTN:

CYNTHIA WILLIX

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

23-Jun-99

in

BNSF 446142

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % M AX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	8.4
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.C.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

D 4 TT	
DATE	06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of CG 50

left our Lovell, WY plant on 26-Jul-01

in **BN 455957**

as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By: C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:	06-Nov-01
DA IE:	UB-NOV-UT

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

22-Aug-01

in

BNSF 422436

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	27
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By: A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

12-Mar-01

in

BNSF 423520

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	10.4
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

21-Aug-01

in

BN 446150

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8.4
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.6

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

29-Jul-01

in

BNSF 422076

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	7.6
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	16

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

23-Jul-01

in

BNSF 423279

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.7
MOISTURE	ASTM D 2216	12.0% MAX.	8.4
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC-

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

24-Jun-01

in

BNSF 423104

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	9.6
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 M AX.	12.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

03-Aug-01

in

BNSF 422548

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

11-Jun-01

in

BN 455842

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % M AX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE: 06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

06-Jun-01

in

BN 453335

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.9
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

07-Jun-01

in

BNSF 422476

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.6

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO - CLAYMAX CORP.

P.O. BOX 86

FAIRMOUNT, GA. 30139

ATTN:

CYNTHIA WILLIX

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

30-May-00

in

BN 458610

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0%.	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	16

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN.

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

22-May-01

in

BNSF 423219

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % M AX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

21-Apr-01

in

BNSF 422358

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.6

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE: 06-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

01-Aug-01

in

BN 454641

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.6

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DAT	r c.	06-Nov-01
UMI	LE.	UD-INOV-U I

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of CG 50

left our Lovell, WY plant on 31-Jul-01

in

BN 454730

as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.8
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	16

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By: A.J.

Approved By: MOSES BRISENO

ACC



9855 Greenville Highway Building F Spartanburg, SC 29301 800-867-5181 fax: 864-949-6222

August 15, 2001 REF: TNS N060

Quantity Shipped: 12 rolls

BOL#: 000801534

Location: Fairmount GA

Fairmount Cetco

234 Gordon Street Fairmount GA 30139

Dear Sir/Madam

This is to certify that TNS N060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS N060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS N060 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	120
Grab Tensile	ASTM D 4632	lbs	75
Grab Elongation (MD)	ASTM D 4632	%	90(min)
Puncture	ASTM D 4833	lbs	65

Marshall O. Gaddy

Marshall O. Gaddy Quality Control Manager DATE: 8/15/01 PAGE: 1 INQD001R

TNS MILLS, INC.
NONWOVEN QUALITY DATA

ROLL #	STYL 	WDT LNG	FABR WGHT	THCK	GRAB MD	GRAB XMD	FOR ELNG MD	BOL# ELNG XMD	000801 TRAP MD	TRAP XMD	PUNC REST	BRST STRG	FLOW RATE	PERM -ABL	PERM -ITY	AOS
300074475 300074476 300074512 300074517 300074518 300074520 300074522 300074527 300074529 300074533	N060 N060 N060 N060 N060 N060 N060 N060	192 135 192 135	7.3 7.3 7.7 6.7 6.5 6.5 6.4 6.4	184 184 170 173 173 165 165 166 166	97 97 97 991 91 85 87 85 85 85	122 122 122 122 121 121 118 118 106 117 117	113 113 113 120 115 115 105 115 114 114	115 115 111 120 120 122 122 118 125 125			81 81 75 80 80 76 68 75 75			.000 .000 .000 .000 .000 .000 .000 .00	.00	

TOTAL NUMBER OF ROLLS 12



9855 Greenville Highway Building F Spartanburg, SC 29301 800-867-5181 fax: 864-949-6222

August 30, 2001 REF: TNS N060

Quantity Shipped: 12 rolls

BOL#: 000801720

Location: Fairmount GA

Fairmount Cetco

234 Gordon Street Fairmount GA 30139

Dear Sir/Madam:

This is to certify that TNS N060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS N060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS N060 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	<u>UNITS</u>	M.A.R.V
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	120
Grab Tensile	ASTM D 4632	lbs	75
Grab Elongation (MD)	ASTM D 4632	%	90(min)
Puncture	ASTM D 4833	lbs	55

Marshall O. Gaddy

Marshall O. Gaddy Quality Control Manager DATE: 8/30/01 TNS MILLS, INC. PAGE: 1 INQD001R

NONWOVEN	QUALITY	DATA
	# NNNQN1	

ROLL #	STYL	WDT LNG	FABR WGHT	THCK	GRAB MD	GRAB XMD	ELNG MD	ELNG XMD	000801 TRAP MD	TRAP XMD	PUNC REST	BRST STRG	FLOW RATE	PERM -ABL	PERM -ITY	AOS
300075622 300075625 300075626 300075627 300075628 300075630 300075631 300075634 300075634 300075636 300075636	N060 N060 N060 N060 N060 N060 N060 N060	192 135 192 135	3.4.6.6.6.6.6.3.3.4.6.6.6.6.6.6.6.6.6.6.	164 167 170 170 170 170 170 170 170 170	106 107 99 99 98 98 98 91 101	89 93 96 96 94 94 102 102 97	105 97 99 99 92 92 100 100	127 125 123 123 116 116 116 110 110			59 73 74 74 71 71 63 66 67			.000 .000 .000 .000 .000 .000 .000 .00	.00	

TOTAL NUMBER OF ROLLS 12



9855 Greenville Highway Building F Spartanburg, SC 29301 800-867-5181 fax: 864-948-6222

August 20, 2001 REF: TNS N060

Quantity Shipped: 10 rolls

BOL#: 000801573 Location: Pairmount GA

Fairmount Cetco 234 Gordon Street Pairmount GA 30139

Dear Sir/Madam:

This is to certify that TNS N060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS N060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS N060 conforms to the physical properties listed in the following table:

FABRIC PROPERTY Weight Thickness Grab Tensile Grab Elongation (MD) Puncture	TEST METHOD ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4833	UNITS oz/sy mils lbs % lbs	M.A.R.Y 6.0 120 75 90(min) 65
---	---	----------------------------	--

Marshall O. Gaddy

Marshall O. Gaddy Quality Control Manager

No.8209

5:01PW

AUG-21-2001

09:11

E.S.P. Inc.

770 564

1818
02/0,

UATE: 8/20	/01		PABR	тнск	GRAB	GRVB	nonwo Por Elng	POT# BOT# FITOR	ta Lap Ponc Ond Rest		PLUN STAN	P EXIX	PERH NO	is
ROLL 1	STYL	HDT LNG	THOM		H D	 XRD	 P(D)	XM D	 					
300074497 300074498 300074499 300074513 300074514 300074519 300074525 300074528	NO60 NO60 NO60	192 135 192 135 192 135 192 135 192 135 192 135 192 135 192 135 192 135 192 135	6.7 6.7 6.7 6.6 6.2 6.5 6.2	176 176 176 170 169 173 165 162 162	87 87 97 90 87 91 85 87 85	93 93 93 122 123 121 118 106 117	102 102 102 120 115 115 105 115 115	133 133 131 111 116 120 122 118 118	70 70 71 71 71 8 7 6 6	1 2 3 3 9 0 6 9 8		.000 .000 .000 .000 .000 .000 .000 .00	.00 .00 .00 .00 .00 .00 .00 .00	

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TOTAL NUMBER OF ROLLS



9855 Greenville Highway Building F Spartanburg, SC 29301 800-867-5181 fax: 864-949-6222

September 13, 2001 REF: TNS N060

Quantity Shipped: 15 rolls

BOL#: 000801908 Location: Fairmount GA

Fairmount Cetco

234 Gordon Street Fairmount GA 30139

Dear Sir/Madam:

This is to certify that TNS N060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS N060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS N060 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	120
Grab Tensile	ASTM D 4632	lbs	75
Grab Elongation (MD)	ASTM D 4632	%	90(min)
Puncture	ASTM D 4833	lbs	55

Marshall O. Gaddy

Marshall O. Gaddy Quality Control Manager DATE: 9/13/01 PAGE: 1 INQD001R

TNS MILLS, INC. NONWOVEN QUALITY DATA

ROLL #	STYL	WDT LNG	FABR WGHT	THCK	GRAB MD	GRAB XMD	FOR ELNG MD 	BOL# ELNG XMD	000801 TRAP MD	1908 TRAP XMD	PUNC REST	BRST STRG	FLOW RATE	PERM -ABL	PERM -ITY	AOS
300075597 300075623 300075641 300075642 300075653 300075859 300075861 300075876 300075878 300075878 300075888 300075888 300075888	N060 N060 N060 N060 N060 N060 N060 N060	192 135 192 135	636664776666566	172 164 170 170 166 151 157 166 164 165	92 106 98 97 897 124 1201 1111 96 96	98 89 94 94 103 139 131 111 128 128 118 122	103 105 92 100 103 105 115 116 116 107	121 127 116 114 119 120 120 127 123 123 123 125			789 717 6677 688 8999 886 866			.000 .000 .000 .000 .000 .000 .000 .00	.00	

TOTAL NUMBER OF ROLLS 15

BNMAT6OZ Certification



Cetco 234 Gordon Gordon Street Fairmount, GA 30139

Order#:

83224

Fax#: 706-337-7334

This is to certify that BNMAT6OZ is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. BNMAT6OZ is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit		1 Average Value
			MD	CD
Grab Tensile Strength	ASTM D 4632	kN (lbs)	.29 (65)	.29 (65)
Grab Tensile Elongation	ASTM D 4632	%	90	90
Puncture Strength	ASTM D 4833	kN (lbs)	.27	(60)
Thickness	ASTM D 5199	mils	3.0 (
Weight	ASTM D 5261	g/m ² (oz/yd ²)	203 (

^{*} Certification based on independent lab testing.

Sworn and subscribed before me this 22nd day of May, 2001

Linda Evans

My commission expires December 8, 2001

Melissa Mediin

Quality Manager

Unless specified separately in writing, material results apply only to items tested. No portion of this document may be reproduced whole or in part without the expressed written consent of TC Mirafi. TC Mirafi warrants our products and services to be free from defects in material and workmanship when delivered to TC Mirafi's customers and that our products meet our published specifications.





Mon

						Geote	xtile P	roper	ties						
Roll#	Style	Weight ASTM D5261	Grab Tensile MD ASTM D4632	Elongation MD ASTM D4632	Grab Tensile XMD ASTM D4632	Elongation XMD ASTM D4632	Trap Tear MD ASTM D4533	Trap Tear XMD ASTM D4533	Puncture ASTM D4833	Burst ASTM D3786	AOS ASTM D4751	Thickness ASTM D5199	Flow Rate ASTM D4491	Permeability ASTM D4491	Permittivit ASTM D4491
		Oz/Sy	lbs	%	lbs	%	lbs	lbs	lbs	psi	US Std Sieve	mils	gal/ min/ sf	cm/sec	sec-1
9115111764	BNMAT6OZ	6.7	96	104	150	126			89	-		140			
9115111765	BNMAT6OZ	6.7	96	104	150	126			89		****	140			
9115111766	BNMAT6OZ	6.7	96	104	150	126			89			140			
9115111767	BNMAT6OZ	6.5	109	91	161	113			88			135			
9115111769	BNMAT6OZ	6.5	109	91	161	113			88	****		135			
9115111773	BNMAT6OZ	6.7	105	99	158	139			84			140			
9115111774	BNMAT6OZ	6.7	105	99	158	139			84			140			
9115111775	BNMAT6OZ	6.7	105	99	158	139			84			140			
9115111776	BNMAT6OZ	6.7	105	99	158	139			84			140			
3111777	BNMAT6OZ	6.7	105	99	158	139	****		84			140			
9115111778	BNMAT6OZ	6.7	105	99	158	139	****		84			140			
9115111779	BNMAT6OZ	6.7	105	99	158	139			84			140		****	
115111780	BNMAT6OZ	7.0	112	100	172	124			90			153			·
115111788	BNMAT6OZ	6.5	110	104	173	130			84			144			
115111789	BNMAT6OZ	6.5	110	104	173	130			84			144			
115111796	BNMAT6OZ	6.5	110	104	173	130			84			144			

Rolls with roll numbers ending in "A", "B", "C", etc. are final "put-up" rolls taken from a single master roll and having identical properties and test data.

Results may only be available for tested rolls.

Unless specified separately in writing, material results apply only to items tested. No portion of this document may be reproduce whole or in part without the expressed written consent of TC Mirafi. TC Mirafi warrants our products and services to be free from defects in material and workmanship when delivered to TC Mirafi's customers and that our products meet our published specifications.

Order#

83224

Page 1of 1





American Colloid-Fairmount, GA Kelly Miller

P.O. Box 88

Fairmont

GA 30139

BOL

80119856 PO 4357

Ref:

This is to certify that Product GEOTEX 650 , a nonwoven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

Physical Property	Test Method	<u>US Units</u>	SI Unit
Mass Per Unit Area Thickness Tensile Strength Elongation Trapezoidal Tear Mullen Burst Puncture Strength A.O.S. Permittivity Frmeability Water Flow Rate UV Resistance	ASTM D-5261 ASTM D-5199 ASTM D-4632 ASTM D-4632 ASTM D-4533 ASTM D-3786 ASTM D-4833 ASTM D-4751 ASTM D-4491 ASTM D-4491 ASTM D-4491 ASTM D-4491	6.0 oz/yd2 120 mils 45 lbs 90 % 25 lbs 190 psi 50 lbs Sieve sec-1 cm/sec gpm/ft	(3.048) mm (200.25) N 90 % (111.25) N (1309.8 kPa (222.5) N mm sec-1 c cm/sec

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

1) Amon

Sincerely

John D. Cannon, P.E.

Regional Engineer

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

1/23/2001

Synthetic dustries

Individua। ਨਹੀਂ Data Bill of Lading 80119856 Pag

Roll #	Style	Batch	Weight	Thick	Ten	sile	Elong	ation	T.Te	ar	Burst	Punct
					MD	XMD	MD	XMD	MD	XMD		
			Osy	mils	lbs	lbs	%	%	lbs	lbs	psi	lbs
		1	D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
A529736A	650	51583	6.8	129	83	130	121	108	32	34	233	57
A529755A	650	51583	7.6	133	72	179	116	98	32	50	237	99
A529760A	650	51583	7.1	133	78	129	117	114	36	47	, 224	88

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our production sequence test results listed above may include data from rolls which were not shipped and rolls listed may or may not be the actual rolls tested. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.





901 S. Delphine Ave. Waynesboro, Va. 22980

August 22, 2001

Colloid Environmental Technologies Co.

Attn: Kelly Miller

PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 528018

Dear Kelly:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	<u>US UNITS</u>
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Jz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Commonwealth of Virginia City of Waynesboro

Given under my hand this 22^{nd} day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.

ylli M. Coleri





	Roll Number	ASTM D-4632 Grab Tensile (<u>LBS) Warp</u>	ASTM D-4632 Elongation % Warp	ASTM D-5261 oz/per sq. yd.
<u>14802</u>				
1.	80007354	120.50	25.02	3.62
2.	80007356	123.50	26.59	3.56
3.	80007357	129.20	25.99	3.61
4.	80007358	126.00	26.48	3.83
5.	80007359	120.20	27.28	3.63
6.	80007360	121.30	27.07	3.58
7.	80007361	122.70	25.94	3.58
8.	80007362	118.30	25.92	3.36
9.	80007364	122.90	25.84	3.63
10.	80007365	127.40	25.14	3.57
11.	80007366	122.40	26.47	3.54
12.	80007367	118.80	26.87	3.54
13.	80007368	119.80	28.23	3.60
14.	80007369	120.00	26.17	3.57
15.	80007370	118.80	29.72	3.63
16.	80007371	119.90	27.31	3.54
17.	80007372	121.40	25.01	3.58
18.	80007373	129.50	26.36	3.59
19.	80007374	122.70	25.87	3.57
20.	80007376	120.60	26.33	3.63
21.	80007377	126.30	26.88	3.60
22.	80007378	125.30	24.62	3.62
23.	80007379	118.80	26.11	3.57
24.	80007380	123.40	25.58	3.42





August 16, 2001

Colloid Environmental Technologies Co.

Attn: Cynthia Willix 234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527973

Dear Cynthia:

This is to certify that Styles 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Phyllis M. Colvin

Commonwealth of Virginia City of Waynesboro

Given under my hand this 16th day of August 2001.

otary Public

Phyllis M. Colvin Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.



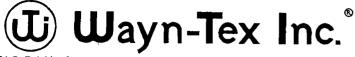


		ASTM D-4632 Grab Tensile	ASTM D-4632 Elongation	ASTM D-5261
1480	2	Grab Tensile	Liongation	A31W D-3201
1.	01836044	112.00	25.40	3.58
2.	01843873	115.60	23.44	3.83
3.	01867870	114.00	24.00	3.92
4.	01868259	122.37	28.38	3.91
5.	01868526	117.23	29.88	3.60
6.	01870676	114.10	25.06	3.57
7.	01872187	114.00	24.00	3.29
8.	01877023	116.74	24.93	3.67
9.	01883078	124.00	28.00	4.10
10.	01893755	126.87	26.83	3.63
11.	01895289	122.37	28.38	3.91
12:	18100761	113.80	23.09	3.47
13.	18321911	118.30	24.56	3.64
14.	18336371	115.10	24.00	3.80
15.	18338861	111.50	23.84	3.59
16.	18469501	125.70	25.24	3.73
17.	18509631	120.10	26.04	3.61
18.	18605941	123.20	27.16	3.59
19.	18625301	115.00	26.00	3.61
20.	18631531	116.00	27.00	3.74
21.	18631871	116.00	26.00	3.54
22.	18657711	124.00	28.00	4.10
23.	18670851	121.20	29.18	3.62
24.	18671671	112.00	25.00	3.54
25.	18686461	117.73	25.24	3.76
26.	18698651	112.00	24.00	3.51
27.	18707181	114.00	24.00	3.56
28.	18738281	118.70	25.29	3.72
29.	18742131	123.50	27.29	3.45
30.	18896601	126.00	25.00	3.37
31.	18944091	127.03	26.61	3.70
32.	18949861	115.60	26.52	3.60
33.	18950361	122.77	25.24	3.70





34.	18954641	120.70	30.82	3.54
35.	18957141	123.00	26.00	3.41
36.	18957151	109.60	25.00	3.45
37.	18957291	114.27	25.36	3.50
38.	18962661	124.73	24.61	3.56
39.	18963281	134.30	25.61	3. 50





901 S. Delphine Ave. Waynesboro, Va. 22980

March 8, 2001—Revised 8/17/01

Colloid Environmental Technologies Co.

Attn: Cynthia Willix

PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 526880

Dear Cynthia:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Commonwealth of Virginia City of Waynesboro

Given under my hand this 17th day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Notary Public

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.





		ASTM D-4632 Grab Tensile	ASTM D-4632 Elongation	ASTM D-5261
	Roll Number	(LBS) Warp	% Warp	oz/per sq. yd.
<u>14700</u>				
1.	18457311	128.00	26.29	3.67
2.	18466381	122.50	24.70	3.37
3.	18473131	126.90	25.82	3.67
4.	18499321	137.00	27.33	3.76
5 .	18506251	132.80	25.28	3.49
14802				
6.	01843548	111.53	23.85	3.59*
7.	01846052	120.90	23.93	3.47*
8.	18301921	118.03	24.99	3.57*
9.	18302171	115.43	24.80	3.75
10.	18307471	115.70	24.85	3.80*
11.	18337251	12.3.50	23.33	3.76*
12.	18373871	121.43	26.00	3.52*
13.	18437111	111.53	23.85	3.59*
14.	18458491	122.73	25.64	3.70*
15.	18459421	123.17	25.45	3.79*
16.	18459601	117.80	24.26	3.42*
17.	18461621	126.90	24.69	3.83*
18.	18464721	124.90	25,60	3.78*
1 9 .	18467801	125.00	27.00	3.70
20.	18468821	117.90	23.91	3.27
21.	18469321	123.50	25.29	3.34
22.	18478521	120.00	24.00	3.61
23.	18478721	125.00	25.00	3.50
24.	18484091	122.00	25.73	3.40
25.	18484641	120.70	26.17	3.57
26.	18487301	117.60	27.39	3.54
27.	18487501	132.40	28.76	3.75





August 29, 2001

Colloid Environmental Technologies Co.

Attn: Kelly Miller PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 528082

Dear Kelly:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY TENSILE STRENGTH ELONGATION 2/Sq. Yd	TEST METHOD ASTM D-4632 ASTM D-4632 ASTM D-5261	<u>US UNITS</u> 109 LBS 20%
	VO 1 M D-2501	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 29th day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous





61 <u>/d.</u>





901 S. Delphine Ave. Waynesboro, Va. 22980

October 1, 2001

Colloid Environmental Technologies Co.

Attn: Kelly Miller PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 528324

Dear Kelly:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	<u>US UNITS</u>
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

ac M. Coler

Sincerely,

Commonwealth of Virginia City of Waynesboro

Given under my hand this I^{st} day of October 2001.

Phyllis M. Colvin Quality Manager

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY Data Sheets for this product and is subject to change without notice.

901 South Delphine Avenue

Waynesboro, Virginia 22980

540/946-4200

FAX: 540/946-4371





	Roll Number	ASTM D-4632 Grab Tensile (<u>LBS)</u> Warp	ASTM D-4632 Elongation <u>% Warp</u>	ASTM D-5261 oz/per sq. yd.
14802				<u></u>
1.	19039141	125.00	26.00	3.60
2.	19039501	115.90	22.96	3.54
3.	19041491	123.00	24.00	3.70
4.	1904379	115.70	23.89	3.54
5.	1904521	119.90	25.48	3.81
6.	19047431	113.00	22.00	3.66
7.	1904845	118.00	25.50	3.53
8.	19049511	116.00	26.00	3.57
9.	19050121	117.00	24.00	3.42
10.	19051301	122.70	26.83	3.41
11.	19052541	116.00	25.00	3.49
12.	19053231	123.00	25.00	4.07
13.	19058521	117.50	26.40	3.40
14.	19058731	116.00	25.00	3.71
15.	19059201	119.70	24.84	3.63
16.	19059261	122.37	25.11	3.40
17.	19059421	125.00	27.00	3.71
18.	19061651	122.00	27.00	3.63
19.	19062981	119.00	26.00	3.82
20.	19064231	119.00	27.00	3.99
21.	19066191	117.00	25.00	3.70
22.	19066611	119.00	24.00	3.78
23.	19066871	119.00	25.00	3.48
24.	19067181	119.00	23.00	3.68
25.	19067221	118.00	26.00	3.45
26.	19067931	114.00	24.72	3.65
27.	19068621	117.30	25.29	3.65





August 16, 2001

Colloid Environmental Technologies Co.

Attn: Cynthia Willix 234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527973

Dear Cynthia:

This is to certify that Styles 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

^{*} VALUES PER RANDOM SAMPLES

Sincerely,

Phyllis M. Colvin

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 16th day of August 2001.

Phyllis M. Colvin Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.





	·	ASTM D-4632 Grab Tensile	ASTM D-4632 Elongation	ASTM D-5261
14802		Grab rensite	Liongation	A31W D-3201
1.	01836044	112.00	25.40	3.58
2.	01843873	115.60	23.44	3.83
3.	01867870	114.00	24.00	3.92
4.	01868259	122.37	28.38	3.91
5. `	01868526	117.23	29.88	3.60
6.	01870676	114.10	25.06	3.57
7.	01872187	114.00	24.00	3.29
8.	01877023	116.74	24.93	3.67
9.	01883078	124.00	28.00	4.10
10.	01893755	126.87	26.83	3.63
11.	01895289	122.37	28.38	3.91
12.	18100761	113.80	23.09	3.47
13.	18321911	118.30	24.56	3.64
14.	18336371	115.10	24.00	3.80
15.	18338861	111.50	23.84	3.59
16.	18469501	125.70	25.24	3.73
17.	18509631	120.10	26.04	3.61
18.	18605941	123.20	27.16	3.59
19.	18625301	115.00	26.00	3.61
20.	18631531	116.00	27.00	3.74
21.	18631871	116.00	26.00	3.54
22.	18657711	124.00	28.00	4.10
23.	18670851	121.20	29.18	3.62
24.	18671671	112.00	25.00	3.54
25 .	18686461	117.73	25.24	3.76
26.	18698651	112.00	24.00	3.51
27.	18707181	114.00	24.00	3.56
28.	18738281	118.70	25.29	3.72
29.	18742131	123.50	27.29	3.45
30.	18896601	126.00	25.00	3.37
31.	18944091	127.03	26.61	3.70
32.	18949861	115.60	26.52	3.60
33.	18950361	122.77	25.24	3.70





34.	18954641	120.70	30.82	3.54
35.	18957141	123.00	26.00	3.41
36.	18957151	109.60	25.00	3.45
37.	18957291	114.27	25.36	3.50
38.	18962661	124.73	24.61	3.56
39.	18963281	134.30	25.61	3. 50

FAX: 540/946-4371





901 S. Delphine Ave. ` Waynesboro, Va. 22980

August 2, 2001 --- Revised 8/17/01

Colloid Environmental Technologies Co.

Attn: Cynthia Willix 234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527857

Dear Cynthia:

This is to certify that Styles 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	<u>US UNITS</u>
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 17th day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.





	ASTM D-4632 Grab Tensile		ASTM D-4632 Elongation ASTM D-526			
<u>14802</u>		Orab Telisile	Liongation	ASTM D-5261		
1.	18040461	124.47	21.64	3.23*		
2.	18351501	121.43	26.00	3.52*		
3.	18351751	125.80	27.29	4.01*		
4.	18361961	115.07	24.70	3.80*		
5.	18386051	115.90	28.13	3.70*		
6.	18386111	121.43	26.00	3.52*		
7.	18510961	117.90	26.98	3.66		
8.	18511531	126.80	27.26	3.72		
9.	18627811	113.00	25.00	3.61		
10.	18645751	112.53	23.99	3.48		
11.	18671341	119.00	26.93	3.74		
12.	18691951	112.70	25.69	3.89		
13.	18693001	118.00	25.00	3.54		
14.	18710831	116.00	29.00	3.75		
15.	18711431	117.00	27.00	3.67		
16.	18711891	113.00	26.00	3.76		
17.	18717251	117.00	26.00	3.65		
18.	18721251	117.00	27.00	3.65		
19.	18729301	122.00	27.00	3.69		
20.	18737291	112.27	24.57	3.51		
21.	18742891	111.80	27.90	3.44		
22.	18744261	118.00	25.00	3.56		
23.	18761101	115.00	25.00	3.70		
24.	18914011	113.10	22.93	3.59		
25.	18914911	120.00	25.00	3.76		
26.	18915591	110.10	25.60	3.71		
27.	18921691	123.20	25.77	3.68		
28.	18922041	121.26	26.00	3.53		
29.	18922921	119.10	26.29	3.45		



901 S. Delphine Ave. ` Waynesboro, Va. 22980

July 9, 2001

Colloid Environmental Technologies Co.

Attn: Alisa Fiendley

PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527679

Dear Alisa:

This is to certify that Styles 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

^{*} VALUES PER RANDOM SAMPLES

Lhylli M. Colvi

Sincerely,

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 9 th day of July 2001.

Notary Public

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.



	•	ASTM D-4632 Grab Tensile	ASTM D-4632 Elongation	ASTM D-5261
14802		J. 4.5 1 0 1 0 11 0 11 0 11 0 11 0 11 0 11 0	Liongation	ACTION D'OLOT
1.	01872024	117.80	27.23	3.49
2.	18498061	130.60	26.30	3.61
3.	18569721	116.00	25.00	3.59
4.	18571731	122.00	26.00	4.24
5 .	18575301	114.30	25.17	3.37
6.	18576481	124.13	26.07	3.61
7.	18576511	120.30	25.98	3.61
8.	18576731	114.40	25.91	3.83
9.	18576971	116.60	25.59	3.56
10.	18580001	122.30	25.97	3.70
11.	18582211	124.20	26.61	3.73
12.	18583971	119.00	25.00	3.49
13.	18583991	114.00	24.00	3.65
14.	18587141	120.00	26.00	3.61
15.	18587921	118.70	24.31	3.75
16.	18605141	124.70	27.54	3.45
17.	18624991	127.00	26.00	3.76
18.	18628421	122.00	27.00	3.69
19.	18640781	114.00	22.00	3.26
20.	18643771	112.00	23.00	3.62
21.	18669541	112.00	24.00	3.49
22.	18684961	117.20	29.88	3.60
23.	18685421	113.00	26.00	3.47
24.	18707111	111.00	26.00	3.52
25.	18715041	114.00	26.00	3.57
26.	18716341	119.00	27.00	3.54
27.	18721371	117.00	26.00	3.61
28.	18784971	122.00	25.00	3.36
29.	18792861	112.70	26.56	3.53
30.	18828161	117.00	28.00	3.74
31.	18831901	114.00	24.00	3.62
32.	18835091	115.00	26.00	3.36

VALUES PER RANDOM SAMPLES





May 4, 2001--- Revised 8/17/01

Colloid Environmental Technologies Co.

Attn: Kelly Miller

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527305

Dear Kelly:

This is to certify that Style 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
)z/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sincerely,

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 17th day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G. Foster

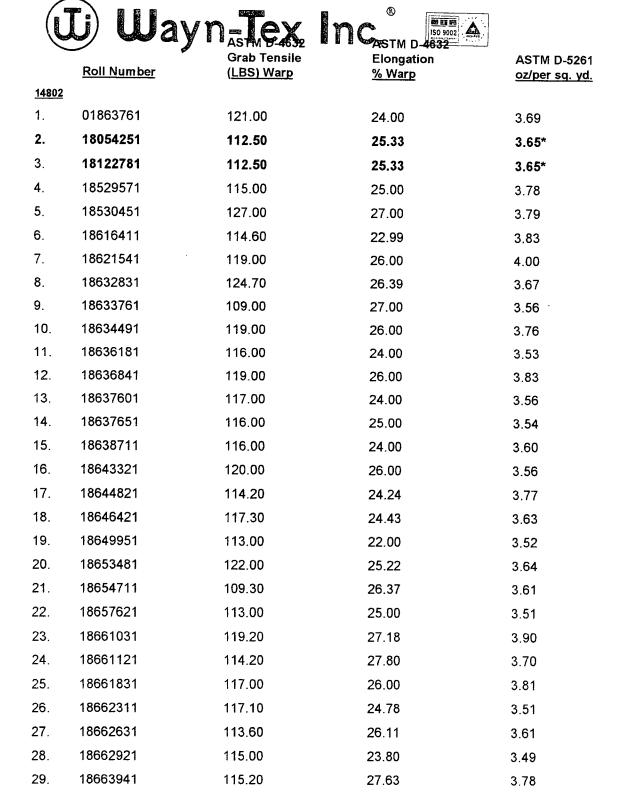
Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.

901 South Delphine Avenue

Waynesboro, Virginia 22980

540/946-4200

FAX: 540/946-4371



VALUES PER RANDOM SAMPLES

110.10

23.33

3.50

18668581

30.



901 S. Delphine Ave. ` Waynesboro, Va. 22980

June 26, 2001

Colloid Environmental Technologies Co.

Attn: Alisa Fiendley

PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 527649

Dear Alisa:

This is to certify that Styles 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	<u>US UNITS</u>
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

^{*} VALUES PER RANDOM SAMPLES

Haylli M. Colvin

Sincerely,

Commonwealth of Virginia City of Waynesboro

Given under my hand this 26th day of June 2001.

Phyllis M. Colvin

Quality Systems Administrator

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.

U Wayn-Tex Inc. 8 ASTM D-4632 ASTM

		ASTM D-4632 Grab Tensile	ASTM D-4632 Elongation	ASTM D-5261
14802		GIAD TELISITE	Liongation	A31W D-3201
1.	18569241	118.00	26.00	3.48
2.	18615521	115.60	25.77	3.56
3.	18625581	112.00	27.00	3.38
4.	18628141	119.00	27.00	3.40
5.	18629561	110.80	26.91	3.63
6.	18635331	115.90	26.92	3.77
7.	18637961	112.00	25.00	3.69
8.	18663121	110.90	23.33	3.35
9.	18673741	115.00	25.00	3.62
10.	18675241	116.00	22.00	3.62
11.	18675811	112.00	24.00	3.83
12.	18677971	120.00	26.00	3.78
13.	18678091	112.00	25.00	3.63
14.	18678171	116.00	24.00	3.54
15.	18679411	113.60	25.32	3.58
16.	18681081	114.00	27.00	3.52
17.	18682211	115.60	26.52	3.53
18.	18702351	124.00	27.79	3.43
19.	18717381	110.00	24.00	3.48
20.	18718751	117.10	26.18	3.72
21.	18721151	114.00	26.00	3.45
22.	18730601	118.00	26.00	3.73
23.	18737661	115.50	26.68	3.56
24.	18738731	115.20	26.23	3.62
25.	18767461	121.00	27.00	3.61
26.	18768061	119.60	27.20	3.60
27.	18768211	115.00	25.00	3.65
28.	18783421	122.00	26.00	3.66
29.	18818181	122.00	26.00	3.83
30.	18826771	109.00	23.00	3.65

VALUES PER RANDOM SAMPLES





Waynesboro, Va. 22980

August 28, 2001

Colloid Environmental Technologies Co.

Attn: Kelly Miller

PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 528070

Dear Kelly:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	US UNITS
TENSILE STRENGTH	ASTM D-4632	109 LBS
ELONGATION	ASTM D-4632	20%
Oz/Sq. Yd	ASTM D-5261	3.20 min.

* VALUES PER RANDOM SAMPLES

Sheylla M. Colvin

Sincerely,

Commonwealth of Virginia
City of Waynesboro

Given under my hand this 28th day of August 2001.

Phyllis M. Colvin

Quality Systems Administrator

Notáry Public

Enclosure: 1

cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.





14802	Roll Number	ASTM D-4632 Grab Tensile (LBS) Warp	ASTM D-4632 Elongation <u>% Warp</u>	ASTM D-5261 oz/per sq. yd.
1.	01875275	121.00	27.00	3.36
2.	01898673	116.40	25.92	3.65
3.	18974581	118.00	24.00	3.32
4.	18976421	112.77	25.43	3.49
5.	18979681	120.20	24.47	3.71
6.	18984141	119.50	25.98	3.80
7.	1898456	114.00	25.00	3.20
8.	1898464	117.00	24.00	3.68
9.	1898477	125.15	26.53	3.80
10.	1898509	114.00	26.01	3.64
11.	1898521	115.50	25.47	3.85
12.	1898563	118.70	26.27	3.66
13.	1898608	114.00	25.00	3.32
14.	1898611	118.00	26.01	3.57
15.	1898615	118.50	25.50	3.41
16.	1898700	117.50	27.00	3.66
17.	18991671	112.50	24.23	3.51
18.	18992251	114.00	26.27	3.36
19.	18996551	118.00	26.85	3.81
20.	18996981	114.00	25.00	3.62
21.	18998141	110.60	26.18	3.59
22.	18998601	110.00	25.44	3.50
23.	18998671	112.70	26.97	3.66
24.	18998981	113.00	25.00	3.51
25.	19000061	120.00	26.00	3.81
26.	19000481	122.00	26.00	3.40
27.	19000541	118.00	27.00	3.73
28.	1900055	110.00	25.00	3.59
29.	1900063	117.00	24.00	3.53





901 S. Delphine Ave. Waynesboro, Va. 22980

September 5, 2001

Colloid Environmental Technologies Co.

Attn: Kelly Miller PO. Box 88

234 Gordon Street Fairmount, GA 30139

RE: Bill of Lading 528148

Dear Kelly:

This is to certify that Style 14700 and 14802 a woven polypropylene fabric produced by Wayn-Tex, Inc., will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 95 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	<u>US UNITS</u>
TENSILE STRENGTH	ASTM D-4632	109 LBS
FLONGATION	ASTM D-4632	20%
<i>Oz/</i> Sq. Yd	ASTM D-5261	3.20 min.

^{*} VALUES PER RANDOM SAMPLES

Phylli M. Colve

Sincerely,

Commonwealth of Virginia City of Waynesboro

Given under my hand this 5th day of September 2001.

Jackie Smit

Phyllis M. Colvin Quality Manager

Enclosure: 1 cc: G. Foster

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than that it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE, ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by Seller concerning uses or applications of said product are believed reliable and Seller makes so warranty of results to be obtained. This Data Sheet supersedes all previous Data Sheets for this product and is subject to change without notice.





	ASTM D-4632	ASTM D-4632	
Roll Number	Grab Tensile (<u>LBS) Warp</u>	Elongation <u>% Warp</u>	ASTM D-5261 oz/per sq. yd.
01901002	120.80	24.93	3.66
01901120	117.20	25.04	3.60
19006691	120.00	23.00	3.49
19006951	122.00	26.00	3.78
19007251	110.00	25.00	3.54
19008091	112.00	23.00	3.54
19008541	121.00	24.00	3.66
19008981	114.00	25.00	3.40
19009991	115.00	26.00	3.49
19010111	120.00	26.00	3.69
19010161	112.00	26.00	3.62
19011941	117.00	26.00	3.66
19014031	119.10	23.91	3.62
19014641	116.10	25.88	3.41
19016551	109.00	22.00	3.79
19016601	113.00	27.00	3.47
19016671	119.00	25.00	3.57
	01901002 01901120 19006691 19006951 19007251 19008091 19008541 19008981 19009991 19010111 19010161 19011941 19014031 19014641 19016551 19016601	Roll Number (LBS) Warp 01901002 120.80 01901120 117.20 19006691 120.00 19007251 110.00 19008091 112.00 19008541 121.00 19008981 114.00 19010111 120.00 19010161 112.00 19014031 119.10 19014641 116.10 19016551 109.00 19016601 113.00	Roll Number (LBS) Warp % Warp 01901002 120.80 24.93 01901120 117.20 25.04 19006691 120.00 23.00 19006951 122.00 26.00 19007251 110.00 25.00 19008091 112.00 23.00 19008541 121.00 24.00 19008981 114.00 25.00 19010111 120.00 26.00 19010161 112.00 26.00 19011941 117.00 26.00 19014031 119.10 23.91 19014641 116.10 25.88 19016551 109.00 22.00 19016601 113.00 27.00

9/19/2001



American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GA

30139

BOL

80123490 PO

Ref:

This is to certify that Product

82TEX

, a woven polypropylene geotextile produced

by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Dean			•			J V C/1.		
Physical Property	<u>Test M</u>	ethod	MAR	١V		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	3.20					
Thickness	ASTM D-5199	mils - (m	-			(108.48)		
Tensile Strength (Grab	ASTM D-4632	•	16			(0.4064)		
Eiongation		Ib - (N)	155	X	135	(689.75)	X	(600.75)
	ASTM D-4632	%	15	X	15			
Trapezoidal Tear	ASTM D-4533	!b - (N)	45	х	4.5	(200.25		
Mullen Burst	ASTM D-3786	psi - (Kpa		^	45	(200.25	X	(200.25)
Puncture Strength	ASTM D-4833	•	265			(1826.91		
-		lb - (N)	70			(311.5)		
AOS	ASTM D-4751	US Sieve - (mm	40			·		
PermittlyIt	ASTM D-4491	SEC-1	•			0.425		
Permeability -	ASTM D-4491		80.0					
Water Flow Rate		cm - (sec)	0.004					
	ASTM D-4491	gpm/ft - (lpm/m2)	6			(244.4682		
UV Resistance-4	ASTM D-4355	% Retained	90			(= 77.4 002		
			VU					

Sincerely

John D. Cannon, P.E.

20 Amon

Regional Engineer

SI Geosolutions

Saller makes no warranty express or implied concerning the product furnished Narounder other than at the time of delivery it shall be of the quality and specification stated horsin. Any IMPLIED WARRANTY OF PITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXETENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations must by the Saller concerning uses or applications of said product are believed reliable and Settor product, then 5 I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supergetion all previous Data Sheets for this style and is subject to charge.

11/1/2000

ΡŁ

Synthetic Industries

Individ Roll Data
Bill of Lading 80123490

OCT-02-2001 12:30

1423

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2108

P.04

Rol/#	Style	Weight		Tensile	E	longation	T T	·	_	
		Osy	W Ibs	F	W	F	T.T W	ear F	Burst	
		D5261	D4632	lbs D4632	% D4632	% D4632	lbs	ibs	psi	
8703215	82TEX	3.4	155	143	16		D4533	D4533	D3786	
					10	15	61	82	350	

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal fear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 90,000 sf (8,360 sm) for index properties for index properties for styles for styles for styles for styles heavier than 601 and one (1) test per 162,000 sm) for index properties once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional facts.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on



American Colloid-Fairmount, GA

Alisa Findley

P.O. Box 88 Fairmont

GΑ

30139

BOL

80109618

PO 0-OCW-31354

Ref:

This is to certify that Product 82TEX , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

6/22/2001

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Are	ASTM D-5261	oz/yd2 - (g/m2)	3.20			(108.48)		
Thickness	ASTM D-5199	mils - (m	16			(0.4064		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	135	X	135	(600.75	х	(600.75)
Elongation	ASTM D-4632	%	15	X	15			
Trapezoidal Tear	ASTM D-4533	lb - (N)	45	х	45	(200.25	x	(200.25)
Mullen Burst	ASTM D-3786	psi - (Kpa	265			(1826.9		
Puncture Strength	ASTM D-4833	ib - (N)	70			(311.5)		
AOS	ASTM D-4751	US Sieve - (mm	40			0.425		
Permittivit	ASTM D-4491	SEC-1	0.08					
Permeability -	ASTM D-4491	cm - (sec	0.004					
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)	6			(244.46		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

Frank P. Pace, P.E.

Frak P. Pof

Manager - Engineering Services

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Selfer makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Synthef: 'ndustries

Individua Roll Data Bill of Lading 80109618

Roll #	Style	Weight	•	Tensile	E	longation	T.T	ear	Burst
			W	F	W	F	W	F	
		Osy	lbs	lbs	%	%	lbs	lbs	psi
		D5261	D4632	D4632	D4632	D4632	D4533	D4533	D3786
8484798	82TEX	3.6	166	151	23	15	84	118	373
8485309	82TEX	3.6	152	148	20	34	71	69	357
8485357	82TEX	3.8	161	147	22	15	72	91	383
8493931	82TEX	3.7	173	145	22	15	95	123	387

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of this bill of lading.

Bill Of Lading # 80109618

	ASTM D-4632 GRAB TENSILE (LBS) W X F	ASTM D-4632 GRAB ELONGATION (%) W x F	ASTM D-3786 MULLEN BURST PSI	ASTM D-4533 TRAP TEAR (LBS) W X F	ASTM D-5261 MASS/UNIT AREA OZ/SQ YD	LOT#
Roll #				()	02.0Q 1D	201#
Product:	82TEX					
8414136	165 [×] 166	21 [×] 16	363	70 × 82	2.70	40470040
8423930	151 × 145	19 × 16	343	67 × 75	3.72 3.45	10172816
8424582	148 [×] 142	19 × 17	332	58 × 63	3.45 3.5	10142215
8437746	154 × 157	20 × 17	347	59 × 74	3.43	10142810
8437793	164 × 154	21 × 15	367	73 × 84	3.43 3.93	10144095
8437794	166 × 146	21 × 15	350	73 × 64	3.42	10144364
8443243	157 × 147	22 × 17	383	60 × 76	3.42 3.6	10144364
8443539	172 × 140	22 × 15	338	76 × 78	3.48	10144670
8443540	163 × 165	22 × 16	357	69 × 81	3.63	10144668
8444236	177 × 158	24 × 18	337	83 × 85	3.63	10144668
8444237	169 × 155	25 × 23	360	75 × 83	3.58	10144669
8445144	161 × 143	21 × 17	353	70 × 67	3.47	10144669
8445145	169 × 150	22 × 24	372	67 × 74	3.47 3.52	10144094
8445798	163 × 141	23 × 18	352	70 × 76	3.58	10144094
8447089	158 × 162	21 × 16	355	69 × 76	3.67	10144671
8447090	161 × 136	21 × 16	353	65 × 69	3.59	10144731
8448161	176 × 157	23 × 15	363	74 × 77	3.58	10144731
8449037	167 × 130	24 × 16	333	79 × 71	3.57	10144363
9038	166 × 147	21 × 16	327	70 × 77	3.58	10144734 10144734
49110 ب∟	175 × 170	23 × 16	367	74 × 84	3.71	10144734
8449111	172 [×] 144	23 × 18	360	72 × 71	3.51	10144733
8449115	163 × 146	22 × 15	372	76 × 73	3.6	10144733
8449495	168 [×] 169	22 × 15	367	72 × 86	3.55	10144732
8449907	151 × 136	21 × 15	345	70 × 64	3.43	10144732
8458331	165 × 162	20 × 15	363	73 × 79	3.56	10146136
8470665	159 × 139	20 × 15	355	66 × 72	3.69	10146136
8477401	169 × 157	22 × 17	385	73 × 70	3.81	10147273
8482252	172 × 149	21 × 15	387	72 × 68	3.64	10146139



Geosynthetic Products Division

12/29/2000

American Colloid-Fairmount, GA Alisa Findley

P.O. Box 88 Fairmont

GΑ

30139

BOL

80083607

PO 0/0CW/29984

Ref:

This is to certify that Product 82TEX , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Method		MARV			SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	3.20			(108.48)		
Thickness	ASTM D-5199	mils - (mm	16			(0.4064		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	135	Х	135	(600.75	Х	(600.75)
Elongation	ASTM D-4632	%	15	Х	15			
Trapezoidal Tear	ASTM D-4533	lb - (N)	45	Х	45	(200.25	Х	(200.25)
Mullen Burst	ASTM D-3786	psi - (Kpa)	265			(1826.9		
Puncture Strength	ASTM D-4833	lb - (N)	70			(311.5)		
AOS	ASTM D-4751	US Sieve - (mm	40			0.425		
Permittivit	ASTM D-4491	SEC-1	0.08					
Permeability -	ASTM D-4491	cm - (sec)	0.004					
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)	6			(244 45		
UV Resistance-4	ASTM D-4355	% Retained	90					

Patti Weaver

Technical Manager

Geosynthetics Products Division

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated broom. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet ST Corporation current building the product, then ST Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Bill Of Lading # 80083607

Roll #	ASTM D-4632 GRAB TENSILE (LBS) W X F	ASTM D-4632 * GRAB ELONGATION (%) W x F	ASTM D-3786 MULLEN BURST PSI	ASTM D-4533 TRAP TEAR (LBS) W X F	ASTM D-4833 PUNCTURE STRENGTH LBS	ASTM D-5261 MASS/UNIT AREA OZ/SQ YARD	
Product :	82TEX						**************************************
8392815	166 × 163	22 x 16	370	71 x 85	94	3.73	
8395036	172 × 135	21 x 18	357	71 x 79	92.5		
8400322	. 169 × 140	24 x 17	370	77 x 80	92.5	3.33	
8400323	175 × 161	23 x 18	367	66 x 77	102.5	3.43	
8403229	164 × 156	21 x 16	343	65 x 78	102.5	3.62	
8403722	164 × 140	25 x 15	370	73 x 80	89.75	3.66	
8405091	155 × 140	20 x 18	335	69 x 68	96.5	3.62	
8405092	160 × 138	22 x 18	357	69 x 73		3.46	
8407005	145 × 166	18 x 15	360	67 x 80	101.5 93	3.47	
8409064	164 × 153	22 x 15	380	72 x 82	95.75	3.66	
8409066	160 × 149	21 x 15	355	72 x 32 71 x 77	94.25	3.74	
8411155	170 × 151	23 x 16	358	71 × 71	98.25	3.72 3.77	
8411156	167 × 147	24 x 24	367	63 x 78	94.5	3.77 3.58	
8411158	163 × 137	22 x 15	340	85 x 55	92.25		
8411680	163 × 141	22 x 18	357	69 x 85	98.75	3.6 3.48	
8412041	174 × 153	23 x 25	353	70 x 82	94		
8412044	171 × 138	22 x 17	353	75 x 77	93	3.78	
8412049	171 × 163	22 x 16	365	71 x 88	96.75	3.47	
8412743	154 × 143	20 x 15	360	63 x 69		3.71	
8412744	159 × 143	22 x 15	370	68 x 73	96.75	3.62	
8412746	161 × 160	22 x 15	380	70 x 74	95.25 96	3.6	
8412747	156 × 142	21 x 15	363	70 x 74 73 x 77	105.25	3.84	
8414049	162 × 141	21 x 16	348	66 x 72	90.25	3.73	
8414050	160 × 146	21 x 15	363	71 x 82	90.25	3.54	
8414131	141 × 136	19 x 18	357	60 x 64		3.53	
8414133	163 × 138	22 x 15	360		97.25	3.41	
8416087	167 × 164	21 x 15	373		99.75	3.63	
8416089	163 × 157	21 x 16	373 373		102.25	3.65	
8421023	149 × 156	19 x 16	330		95.25	3.76	
8421157	168 × 160	21 x 16	372		93.25	3.69	
8421405	160 × 151	21 x 16	372 370		96.25	3.88	
	100 101	21 / 10	3/0	67 x 77	106	3.57	



American Colloid-Fairmount, GA

Alisa Findley

P.O. Box 88

GΑ

30139

Fairmont BOL

80109618

PO 0-OCW-31354

Ref:

This is to certify that Product 82TEX , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

6/22/2001

Physical Property	Test Mo	ethod	MAR	V		SI Units	SI Units		
Mass Per Unit Are	ASTM D-5261	oz/yd2 - (g/m2)	3.20			(108.48)			
Thickness	ASTM D-5199	mils - (m	16			(0.4064			
Tensile Strength (Grab	ASTM D-4632	lb - (N)	135	Х	135	(600.75	Х	(600.75)	
Elongation	ASTM D-4632	%	15	X	15			,	
Trapezoidal Tear	ASTM D-4533	lb - (N)	45	х	45	(200.25	X	(200.25)	
Mullen Burst	ASTM D-3786	psi - (Kpa	265			(1826.9			
Puncture Strength	ASTM D-4833	lb - (N)	70			(311.5)			
AOS	ASTM D-4751	US Sieve - (mm	40			0.425			
Permittivit	ASTM D-4491	SEC-1	0.08						
Permeability -	ASTM D-4491	cm - (sec	0.004						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)	6			(244.46			
UV Resistance-4	ASTM D-4355	% Retained	90						

Sincerely

Frank P. Pace, P.E.

Frak P. Pop

Manager - Engineering Services

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Individua Roll Data Bill of Lading 80109618

Roll#	Style	Weight		Tensile	Ε	longation	T.T	ear	Burst
			W	, F	W	F	W	F	
		Osy	lbs	lbs	%	%	lbs	lbs	psi
		D5261	D4632	D4632	D4632	D4632	D4533	D4533	D3786
8484798	82TEX	3.6	166	151	23	. 15	84	118	373
8485309	82TEX	3.6	152	148	20	34	71	69	357
8485357	82TEX	3.8	161	147	22	15	72	91	383
8493931	82TEX	3.7	173	145	22	15	95	123	387

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on

·····8/15/2001--···



American Colloid-Fairmount, GA Kelly Miller

P.O. Box 88

Fairmont

GA 30139

BOL

80112861 PO

Ref:

This is to certify that Product GEOTEX 650 , a nonwoven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

Physical Property	Test Method	<u>US Units</u>	SI Unit
Mass Per Unit Area Thickness Tensile Strength Elongation Trapezoidal Tear Mullen Burst Puncture Strength A.O.S. Permittivity `ermeability /ater Flow Rate UV Resistance	ASTM D-5261 ASTM D-5199 ASTM D-4632 ASTM D-4533 ASTM D-3786 ASTM D-4833 ASTM D-4751 ASTM D-4491 ASTM D-4491 ASTM D-4491 ASTM D-4355	6.0 oz/yd2 120 mils 45 lbs 90 % 1bs 25 lbs 190 psi lbs 50 Sieve sec-1 cm/sec gpm/ft2	(203.4) g/m2 (3.048) mm (200.25) N 90 % (111.25) N (1309.8 kPa (222.5) N mm sec-1 cm/sec lpm/m2

Strength Retained after 500 hours exposure in Xenon Arc Weatheremeter

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

Sellor makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be or the quality and specification stated hordin. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Sailer makes no warranty of results to be obtained. If the product does not meet S.I. Corporation current published specifications, and the Customer gives notice to S.I. Corporation before installing the product. Then S.I. Corporation will replice the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to charge

1/23/2001

Page 1

AUG-16-2001

10:26

SI CUSTOMER SERVICE

423

899 S00S

P.02

1

Individual Roll Data Bill of Lading 80112861

Synthetic Industries

Roll #	Style	Batch	Weight	Thick	Ten	sile	Elong	ation	T.Te	ar	Burst	Punct	
			Osy	mils	MD Ibs	XMD lbs	MD %	XMD %	MD lbs	XMD lbs	psi	lbs	
	D5261 D5	D5199	D4632	D4632	D4632 D4632		D4533	D4533 D4533		D4833			
3873470A	650	80483	6.2	157	72	73	112	116	29	16	230	53	
B873490A	650	80483	8.3	173	99	178	139	111	57	66	313	96	•
6873543A	650	80483	6.9	153	66	117	153	127	32	4 6	229	50	

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are toaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped and rolls listed may or may not be the actual rolls tested. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.





American Colloid-Fairmount, GA Kelly Miller

P.O. Box 88

Fairmont GA 30139

BOL

80117950 PO

Ref:

This is to certify that Product GEOTEX 650 , a nonwoven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

Physical Property	Test Method	<u>US Units</u>	<u>SI Unit</u>
Mass Per Unit Area Thickness Tensile Strength Elongation Trapezoidal Tear Mullen Burst Puncture Strength A.O.S. Permittivity Permeability /ater Flow Rate UV Resistance	ASTM D-5261 ASTM D-5199 ASTM D-4632 ASTM D-4533 ASTM D-3786 ASTM D-4833 ASTM D-4751 ASTM D-4491 ASTM D-4491 ASTM D-4491 ASTM D-4455	6.0 oz/yd2 120 mils 155 lbs 90 % 25 lbs 190 lbs 50 Sieve sec-1 cm/sec gpm/ft2	(3.048) mm (200.25) N 90 % (111.25) N (1309.8 kPa (222.5) N mm sec-1 cm/sec

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

1/23/2001

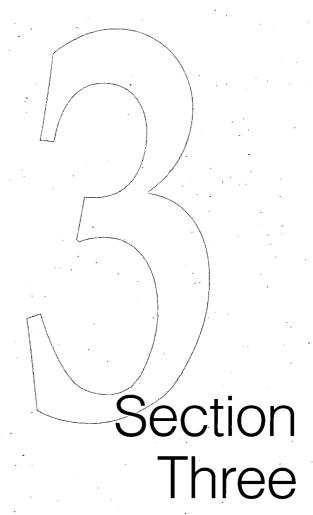
Synthetic Industries

Individual Roll Data Bill of Lading 80117950

Roll #	Style	Batch	Weight	Thick	Ten	sile	Elong	gation	T.Te	ar	Burst	Punct	
			Osy	mils	MD lbs	XMD lbs	MD %	XMD %	MD lbs	XMD lbs	psi	lbs	
Appropriate the second section of the sectio	All and the second second	endigen on a state of the same of the same	D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833	
A529704A	650	51583	7	134	94	156	124	112	41	54	259	79	The second secon
A529720A	650	51583	6.5	133	72	118	122	99	28	49	217	70	

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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TRANSMITTAL SHEET

consulting, engineering, construction, operations

Date: 12/5/01



West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

Го:	Handex of Florida, Inc.		Job:	06104-28936-	
Ο.	2306 Gravel Drive			W. Pasco County Landfill Exp Cells A-3 and SW-2	<u>oansion</u>
	Ft. Worth, TX 76118-				
۱ttn:	Gary Conaway, V. P.				
Attn: Gary Conaway, V. P. 6 print(s) each of the following Submittal: D-02275-015-A (QA/QC (Set 1 of 4) (143 rolls)) which are: 1. APPROVED					
	which are:	1.			=
		2.	APPROVED	AS NOTED	
		3.	APPROVED.	AS NOTED/CONFIRM	
		4.	APPROVED.	AS NOTED/RESUBMIT	
		5.	NOT APPRO	VED	
		6.	COMMENTS	ATTACHED	🗆
		7.	FOR YOUR I	NFORMATION	🗆
		8.	FOR YOUR F	REVIEW	
		1			
Com	ments:				
				,	
CC:	1 - Jack McHugh/CDM 1 - Construction File				

В

Abdul Mulla-Saleh

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Pasco County B.O.C.C. Camp Dresser & McKee	Project No.	01-063	Project Manager:	John Power
Camp Dresser & McKee	Daniana Nia		_	
	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.
Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
CONTRACTOR:				· · · · · · · · · · · · · · · · · · ·
materials, dimensions, cat	alog numbers and	similar data and I h	fied all field measureme have checked and coor	ents, field construction criter dinated each item with ot
Signature:		W	_ Date:	11-19-01
D-02275-015-A	Original Su	bmittal	Suppleme	nt
November 19, 2001		,		
8	Resubmitta	1	Informatio	on Only
OA/OC Ball Cartification	Claumay 200B	(Sat 1 of 4) (142 16		
		(36(1 01 4) (143 10118	<u>. </u>	····
ved:		No. of C	opies Returned:	
Code 1 - Approved			Code 4 - Approv	ved As Noted, Resubmit
Code 2 - Approved As No	oted		Code 5 - Not Ap	pproved
Code 3 - Approved As No	nted Confirm	7	Code 6 - Comm	ents Attached
			Code o - Commi	ems Attached
r Remarks Area:			·,	
h			====	
ENGWEZR'S RI	SAKEM B			
Approved (ca) Notate 🗔 C	смотт	Confirm 🗆		
Contractor from errors of contractor is responsibility of a contractor is febrication and manufact procedures of construction	or amicelons in the discovering any devise responsible for lare, the means, it and performing his to the termine the termines.	tellons from the Cont the details and dime	ract Docum-	
	CONTRACTOR: The time time time time time time time tim	Ment: By this submittal, I hereby represent that I has materials, dimensions, catalog numbers and applicable approved shop drawings and all Comparison of the contraction of the contra	By this submittal, I hereby represent that I have determined and veri materials, dimensions, catalog numbers and similar data and I I applicable approved shop drawings and all Contract requirements. Signature: D-02275-015-A November 19, 2001 8 Resubmittal Original Submittal November 19, 2001 Resubmittal Original Submittal Original Submittal Original Submittal Original Submittal Original Submittal Original Submittal November 19, 2001 Resubmittal Original Submittal Original Submittal Original Submittal Original Submittal Original Submittal November 19, 2001 Resubmittal Original Submittal Resubmittal November 19, 2001 Resubmittal November 19, 2001 Resubmittal November 19, 2001 Original Submittal Resubmittal November 19, 2001 Resubmittal 19, 2001 Resubmitt	CONTRACTOR: By this submittal, I hereby represent that I have determined and verified all field measurem materials, dimensions, catalog numbers and similar data and I have checked and coor applicable approved shop drawings and all Contract requirements. Date: D-0.2275-015-A November 19, 2001 8 Resubmittal November 19, 2001 8 Resubmittal Informatic on: QA/QC Roll Certificates: Claymax 200R (Set 1 of 4) (143 rolls) Fier: 01300, 02275 Section 1.03A.1 (e) CETCO Lining Technologies, Inc. COMANCO Environmental Corporation ENGINEER: ved: No. of Copies Returned: Code 1 - Approved Code 2 - Approved As Noted Code 3 - Approved As Noted Code 3 - Approved As Noted, Confirm Code 6 - Common Company of Contractors of Contracto



GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME: GSE/Pasco County LF.

PREPARED FOR: Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

PREPARED BY: Kelly Miller

CETCO

234 Gordon St. S.E.

Fairmount, GA 30139

TELEPHONE: (706) 337-5316

FAX: (706) 337-2215







GEOSYNTHETIC CLAY LINER

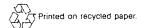
DAILY MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

GSE/PASCO COUNTY LF.
SPRING HILL, FL
PURCHASE ORDER # 3256-000-OD
CETCO ORDER(S) #148671-148679

CONTENTS:

- 1. DAILY GCL PRODUCTION CERTIFICATION
- 2. GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
- 3. GCL MQA TRACKING FORM





DAILY GEOSYNTHETIC CLAY LINER PRODUCTION CERTIFICATION



GEOSYNTHETIC CLAY LINER MANUFACTURING **CERTIFICATION**

CETCO JOB:

GSE/PASCO COUNTY LF.

DATE:

NOVEMBER 2, 2001

ORDER#(S):

148671-148679

PRODUCT:

CLAYMAX200R

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the Geosynthetic Clay Liner (GCL) manufactured in this lot achieves the physical and chemical criteria listed on the attached sheets.

Kelly Miller

Quality Analysis Coordinator

CETCO-Colloid Environmental Technologies CO

Notary Public



CLAYMAX 200R MANUFACTURING CERTIFICATION

TO:

Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

ORDER#

148671-148679

CETCO hereby affirms and certifies that Claymax 200R material supplied to this project will meet the physical and chemical criteria listed below:

PROPERTY	TEST METHOD	REQUIRED VALUE
Bentonite		
Free Swell	ASTM D 5890	24 min.
Fluid Loss	ASTM D 5891	18 max.
Finished Product		
Bentonite Mass/Area	ASTM D 5993	0.75 lb/sq.ft. min.
Grab Strength	ASTM D 4632	90 lbs. MARV
Index Flux	ASTM D 5887	1 x 10(-8) m3/m2/sec (max.)
Permeabilty -	AST M D 5084	max. 5 x 10(-9) cm/sec
* D		

^{*} Reported at 0% moisture content.

GAI Lab Accredited Test Methods were followed during confromance testing for :

ASTM D 5993 - Bentonite Mass/Area

ASTM D 4632 - Grab Strength and Grab Elongation

CETCO-Colloid Environmental Technologies Co.



GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

QCG#FT2 QCT#FT2 11/02/01 9:27:43 initials: LM 88° Data: 11/2

CETC0

GCL QUALITY DATA

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

0 R D E R # 000148671

MATERIAL	LOT No.	ROLL No	BENTONITE n=25/4RE4 .075 lb/sqft ASTM D 5993	GRAB STRENGTH 75 lb marv ASTM D 4632
FA-CLAYMAX2DOR	200141FA	000075P9	.89	394.20
FA-CLAYMAX200R	200141FA	00001224	. 82	190.10
FA-CLAYMAX200R	200141EV	00001185	.81	190.10
FA-CLAYMAX200R	200141FA	00001195	- 81	190.10
FA-CLAYMAX200R	43f4T002	00001170	. 8Ь	198.60
FA-CLAYMAX200R	200141FA	00001169	- 8 -	198.60
FA-CLAYMAX20DR	200140FA	00001175	. 79	274.40
FA-CLAYMAX2DOR	200140FA	00001094	. 78	214.90
FA-CLAYMAX200R	200140FA	00001090	. 78	214.90
FA-CLAYMAX200R	200140FA	00001083	.78	214.90
FA-CLAYMAX200R	200140FA	00001079	.78*	214.90*
FA-CLAYMAX200R	200140FA	00001069	. 91	224.00
FA-CLAYMAX200R	A45E1002	00001033	. 90	200-30
FA-CLAYMAX200R	200132FA	00000970	.91.*	191.00
FA-CLAYMAX200R	AJSELOOS	85P00000	. 9ь	257 - 40

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. . Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

PAGE: 1

QCG#FT2 QCT#FT2 11/02/01 9:31:05 Initiales KM St

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

Date: 117

0 R D E R # 000148672

Mangela.	e jiří tye	ROLL HE	438AVZZAN 438AVZZAN 17pz\df 270. EPPZ C NTZA	STRENGTH 75 lb marv ASTM D 4632
FA-CLAYMAX200R	200144FA	00001266	. 80	182.80
FA-CLAYMAX200R	200141EA	00001258	. 77	190.10
FA-CLAYMAX200R	200141FA	00001207	-80	190.10
FA-CLAYMAX200R	200147 L V	00001204	.80	190.10
FA-CLAYMAX200R	200141FA	00007503	- 80	190.10
FA-CLAYMAX200R	200141FA	00001500	. 80	190-10
FA-CLAYMAX200R	200141FA	00001180	. 8 L	190.10
FA-CLAYMAX200R	200147 L V	00001178	. 81	190.10
FA-CLAYMAX200R	200141FA	00001175	- B l	190.10
FA-CLAYMAX200R	200140FA	000077F0	. 86	198-60
FA-CLAYMAX200R	200140FA	00001151	.84	198.60
FA-CLAYMAX200R	200140FA	00001753	.79	214.50
FA-CLAYMAX200R	200140FA	00001078	.91	224.00
FA-CLAYMAX200R	200140FA	000010F3	. 79	224.00
FA-CLAYMAX200R	200140FA	000070FD	- 79	224 - 00
FA-CLAYMAX200R	200129FA	00000843	1.00	197.50

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40.000sf. Grab Strength is tested a minimum of every 200.000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200.000sf.

*** End of Report ***

PAGE: 1

FL

SHIP TO: PASCO COUNTY LF / GSE

COMANCO/HANDEX

SPRING HILL F

QCG#FT2 QCT#FT2 11/02/01 9:29:56 Inidals: Km #:

CETCO

GCL QUALITY DATA

PAGE: 1

FAIRMOUNT CETCO

Date: 1118

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL FL

0 R D E R # 000148673

~4TER] 1L	LOT Ha.	FOLL No	BENTONITE MASS/AREA O75 lb/sqft EPP2 G MTZA	GP48 SIRENGTH 75 1b marv ASTM D 4632
FA-CLAYMAX200R	200142FA	00001594	. 80	182.80
FA-CLAYMAX200R	200145EV	00001593	. 80	182.80
FA-CLAYMAX200R	200142FA	00001592	. 80	195.90
FA-CLAYMAX200R	200145EV	00001588	- B4	182.80
FA-CLAYMAX200R	200145EV	00001587	. 84	185.80
FA-CLAYMAX200R	200142FA	00001586	. 84	195.80
FA-CLAYMAX200R	200145EV	00001585	. 84	182.80
FA-CLAYMAX200R	200145EV	000011584	. 84	195.80
FA-CLAYMAX200R	200145EV	00001579	. 84	195-80
FA-CLAYMAX200R	200142FA	00001578	. Вч	195.80
FA-CLAYMAX2DOR	200142FA	00001577	. 84	195.90
FA-CLAYMAX200R	200145EA	00001576	.84	182.80
FA-CLAYMAX200R	200145EV	00001574	.84∗	182.80*
FA-CLAYMAX200R	200142FA	00001567	. 81	207.80
FA-CLAYMAX200R	200142FA	00001566	. 8 L	207.80
FA-CLAYMAX200R	200142FA	00001557	.81	207.80

NOTE:

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*** End of Report ***

QCG#FT2 QCT#FT2 11/02/01

9:29:04

FAIRMOUNT CETCO



CETC0

GCL QUALITY DATA

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL FL

PAGE: 1

O R D E R # 000148674

MATERIAL	107 110.	ROLL No	BENTONITE	GR4B
			M423/4RE:	STREWSTH
			.075 lb/sqft	75 lb marv
			EPP2 G MT2A	SEAP G MTZA
FA-CLAYMAX200R	200142FA	00001596	. 80	08·58£
FA-CLAYMAX200R	200145EV	00001590	. 8 ч	795-90
FA-CLAYMAX2DDR	200142FA	00001583	. 84	185.80
FA-CLAYMAX200R	200145EV	00001285	. 84	182.80
FA-CLAYMAX200R	200142FA	00001575	. 8 4	185.80
FA~CLAYMAX200R	200142FA	00001573	· 81	207.80
FA-CLAYMAX2DOR	200145EV	00001572	.81	207.80
FA-CLAYMAX2DOR	200145EV	00001555	.88	207.80
FA-CLAYMAX200R	200142FA	00001554	. 8.8	207.80
FA-CLAYMAX2DDR	200142FA	00001550	.88	207.80
FA-CLAYMAX200R	AJSPIOOS	00001548	.88	207.80
FA-CLAYMAX200R	200142FA	00001547	-88	207.80
FA-CLAYMAX200R	200142FA	00001546	. 88	207.80
FA-CLAYMAX200R	A3547002	00001539	.88*	207.80
FA-CLAYMAX200R	200142FA	00001538	.83	207.80
FA-CLAYMAX200R	200342FA	00001537	.83	207.80

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2 11/02/01 9:28:07 indials: Kn #: Date: 1114

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

PAGE: L

FL

O R D E R # 000148675

MATERIAL	LOT No.	ROLL Ho	BETHOTHER MAZZAREA LOPE 16 270 EPP2 D MTZA	BARD HTDHESTZ Vnam df 27 SEJP G MTZA
FA-CLAYMAX2DOR	200145EV	00001376	. &3	204.60
FA-CLAYMAX200R	200142FA	00001368	. 81	204.60
FA-CLAYMAX200R	200145EV	00001367	.81	204.60
FA-CLAYMAX200R	A 15 P L 0 0 5	00001373	. 81	204.60
FA-CLAYMAX2DOR	A 75 P L C C C	00001359	. 81	204.60
FA-CLAYMAX200R	A 42 P L C C C	00001358	. 81	204.60
FA-CLAYMAX200R	A 75 P £ 00 S	00001357	.81	204.60
FA-CLAYMAX200R	A 45 P £ 005	00001356	.81	204.60
FA-CLAYMAX20DR	200145EV	00001349	- 83	204.60
FA-CLAYMAX200R	200145EV	00001348	EA.	204.60
FA-CLAYMAX200R	A 75 P £ 00 S	00001346	E & -	204.60
FA-CLAYMAX2BOR	A 75 P L C C S	00001335	. 82	204.60
FA-CLAYMAX200R	A 75 P £ 005	00001324	5 A -	504.60
FA-CLAYMAX200R	200145EV	8061000	.84	504.60
FA-CLAYMAX200R	200142FA	00001305	.84*	204.60
FA-CLAYMAX200R	200345LY	00001300	.85	204.60

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2 11/02/01 9:28:30 Initials: KM #:
Date: 11/2

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

0 R D E R # 000148676

MATERIAL	LOT 110.	ROLL No	SENTONITE	GRAB
			MASS/AFE4	2TPEN6TH
			.075 lb/sqft	75 1b marv
			EPP2 C MTZA	SEAP 0 MTZA
FA-CLAYMAX200R	200141FA	85540000	. 84	190.10
FA-CLAYMAX200R	200140FA	00001150		
			. 84	198.60
FA-CLAYMAX200R	20014DFA	00001143	.84∗	198.60*
FA-CLAYMAX200R	200140FA	00001159	. 86	214.90
FA-CLAYMAX2DDR	200140FA	00001157	.86*	214.90
FA-CLAYMAX200R	200140FA	00001124	. 79	214.90
FA-CLAYMAX200R	200140FA	00001750	. 79	214.90
FA-CLAYMAX200R	200140FA	00001713	. 79	214.90
FA-CLAYMAX200R	200140FA	00001108	. 79	214.90
FA-CLAYMAX200R	200140FA	00001101	.79	214.90
FA~CLAYMAX200R	200140FA	00001700	. 79	214.90
FA-CLAYMAX200R	200140FA	00001099	. 79	214.90
FA-CLAYMAX200R	A40140EV	7704000	. 79	214.90
FA-CLAYMAX200R	20014DFA	00001096	. 79	214.90
FA-CLAYMAX200R	A 70 P 4 0 0 5	000010F7	. 79	224.00
FA-CLAYMAX200R	200129FA	00000865	1.00	1,97.50

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

 Initials: M. #8.
Deto: 1112

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

SHIP TO: PASCO COUNTY LF / GSE

COMANCO/HANDEX

SPRING HILL FL

PAGE: 1

O R D E R # 000148677

MATERIAL	LOT No.	ROLL No	BENTONTE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRENGTH 75 lb marv ASTM D 4632
FA-CLAYMAX200R	200147EV	000015FP	.89	194.20
FA-CLAYMAX200R	200141FA	000015F2	.89	194.20
FA-CLAYMAX200R	200141EA	00001529	. 77	190.10
FA-CLAYMAX2DOR	200141FA	00001523	. 77	190.10
FA-CLAYMAX200R	200141FA	00001217	- 83	190-10
FA-CLAYMAX200R	200141FA	00001214	- 82	190.10
FA-CLAYMAX200R	200141FA	00007575	- 82	190.10
FA-CLAYMAX200R	200141FA	00001510	- 82	190.10
FA-CLAYMAX200R	200141FA	0000150P	. 80	190.10
FA-CLAYMAX200R	200141FA	00001502	.80	190.10
FA-CLAYMAX200R	200141EA	00001505	- 80	190-10
FA-CLAYMAX200R	200141FA	00001199	- 80	190-10
FA-CLAYMAX200R	200141FA	00001184	. 81	190.10
FA-CLAYMAX200R	200141FA	00001181	.81	190.10
FA-CLAYMAX200R	200141FA	00001179	. 81	190.10
FA-CLAYMAX200R	A7P5£005	00000844	1.00	197-50

NOTE:

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*** End of Report ***

QCG#FT2 QCT#FT2 11/05/01

9:30:38

FAIRMOUNT CETCO



CETCO

GCL QUALITY DATA

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL

0 R D E R # 000148578

Marken ()	Let no.	₹OLL Vo	ASTANCEAN ASTANCE ASTANCE ASTANCE ASTON ASTANCE ASTANC	84RD HTDMBRTZ Van dl 25 UNTZA
FA-CLAYMAX200R	200142FA	00001595	. 80	182-80
FA-CLAYMAX200R	200145E4	00001395	. 79	207.80
FA-CLAYMAX200R	200142FA	00001347	-83	204.60
FA-CLAYMAX200R	200145EV	00001325	- 8-2	204.60
FA-CLAYMAX200R	200145EV	00001353	- 82	204.60
FA-CLAYMAX200R	200145EY	00001317	. 84	204.60
FA-CLAYMAX200R	200142FA	00001309	- 8 4	204.60
FA-CLAYMAX200R	200141EA	00001267	-89	194.20
FA-CLAYMAX200R	200141FA	72510000	.77	190.10
FA-CLAYMAX200R	200141EA	00001501	.80	190.10
FA-CLAYMAX200R	200141FA	00001172	. 8ь	198.60
FA-CLAYMAX200R	200140FA	00001155	- 84	198.60
FA-CLAYMAX200R	200140FA	00001703	.79	214.90
FA-CLAYMAX200R	A42E1002	00007030	.90	200.30
FA-CLAYMAX200R	A7P51005	00000857	1.00	197.50
FA-CLAYMAX200R	200129FA	00000848	1.00	197.50

NOTE:

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*** End of Report ***

PAGE: 1

Initials: kn %: Date: III>

QCG#FT2 QCT#FT2 11/02/01 9:27:19

FAIRMOUNT CETCO

CETCO

GCL QUALITY DATA

SHIP TO: PASCO COUNTY LF / GSE

COMANCO/HANDEX

SPRING HILL FL

PAGE: 1

0 R D E R # 000148579

HATERIAL	LOT No.	ROEL NO	311401438 4384/2248 11p2/df 270. EPP2 d MT2A	BARD HTDNBRTZ Vnam df 27 SEdP D NTZA
FA-CLAYMAX20DR	200145EV	00001580	. 84	185.80
FA-CLAYMAX200R	200142FA	00001568	.81	207.80
FA-CLAYMAX200R	200145EV	00001552	.88	207.80
FA-CLAYMAX200R	200145EA	00001551	- 88 -	207.80
FA-CLAYMAX200R	A3541002	00001549	. 88	207.80
FA-CLAYMAX200R	200145EV	00001544	-88	207.80
FA-CLAYMAX200R	200145EV	00001542	.88	207.80
FA-CLAYMAX200R	200142FA	00001541	. 88	207.80
FA-CLAYMAX200R	200142FA	00001540	.88	207.80
FA-CLAYMAX200R	200145EA	00001536	E & .	207.80
FA-CLAYMAX200R	200142FA	00001232	.83	207.80
FA-CLAYMAX200R	200142FA	00001534	. 8 B	207.80
FA-CLAYMAX200R	A 15 P 4 C 0 C S	00001235	.83	207.80
FA-CLAYMAX2DOR	200142FA	00001531	.83	207.80
FA-CLAYMAX200R	200142FA	00001530	. 8 3	207.80
FA-CLAYMAX200R	200745ŁY	00007255	*E8.	207.80

NOTE:

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*** End of Report ***



GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

QCG#TFl ll/02/01 @CT#TF1 9:27:43 CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F FL

ORDER NUMBER 000148671

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE	GEOTEXTILE TOP ROLL#	GEOTEXTILE	GEOTEXTILE	CLAY
F01# 5001				MC10111	IVP LVI#	TOP ROLL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00000458	FA-CLAYMAX200R	150	57.52	3350	8550749		8533706		453204
00000970	FA-CLAYMAX200R	150	2175	330 0	8534995		8550754		422519
00001033	FA-CLAYMAX200R	150	2175	3187	8518318		8535786		422519
LOT# 2001									
00001069	FA-CLAYMAX200R	1,50	21,75	2932	8673216		8690539		453302
00001079	FA-CLAYMAX200R	150	2175	2750	8673216		8P80538		453302
00007093	FA-CLAYMAX200R	150	57.42	2752	8673216		8680538		453302
00001090	FA-CLAYMAX200R	150	2175	2719	8673216		8680538		453302
00001094	FA-CLAYMAX200R	150	2175	2976	8663272		8681810		453302
00001775	FA-CLAYMAX200R	150	2175	2865	8663272		8681810		453302
LOT# 2001									
00001769	FA-CLAYMAX200R	150	2175	5851	8695431		8688608		455975
00001170	FA-CLAYMAX200R	150	2175	2892	8695431		8688608		455975
00007795	FA-CLAYMAX200R	150	2175	2798	8695431		8688608		455975
00007782	FA-CLAYMAX200R	150	2175	5976	8695431		8688608		455975
00001224	FA-CLAYMAX200R	150	2175	2672	8581417		8681804		455975
000075P9	FA-CLAYMAX200R	150	2175	2820	0.530.513		•		
		130	F11.2	2820	8578517		8563578		420127
тот	AL SQUARE EFFT			יו מר	חר				

TOTAL SQUARE FEET..... 32,625 QCG#TF1 QCT#TF1 11/02/01 9:31:05 CETCO GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER 000148672

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL ₩EIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LûT#
LOT# 20 0000084	ID129FA ´ 3 FA-CLAYMAX200R	150	21,75	3273	8547096	TOP NOLL#	8563585	BVIIVII NVLL#	421014
L0T# 20		200	2275	22.12			000000		467074
0000105		150	2175	3294	8673576		8680538		453302
000070F	9 FA-CLAYMAX200R	150	2175	3250	8673216		8680538		453302
0000107	B FA-CLAYMAX200R	150	2175	2914	8673216		8P80538		453302
0000175	3 FA-CLAYMAX200R	150	2175	2918	8663272		8P87870		453302
0000115	il FA-CLAYMAX200R	150	2175	2793	8663272		8679752		455975
000017F	O FA-CLAYMAX200R	150	2175	2832	8663272		8679752		455975
LOT# 20	Ol4lfa '5 fa-claymax200R	3.50	2175	2020	R(DEU.)				
ידירוחחחחי	5 FA-CLAYMAXZUUK	150	2175	2839	8695431		8688608		455975
0000117	B FA-CLAYMAX200R	150	2175	2796	869543 <u>1</u>		8688608		455975
0000178	D FA-CLAYMAX200R	150	2175	2877	8695431		8688608		455975
0000750	O FA-CLAYMAX200R	150	2175	2877	8695431		8681804		455975
0000750	3 FA-CLAYMAX200R	150	2175	2750	8581417		8681804		455975
0000150	4 FA-CLAYMAX200R	150	2175	2779	8581417		8581804		455975
0000150	7 FA-CLAYMAX200R	150	2175	2642	858141?		8681804		455975
0000752	8 FA-CLAYMAX200R	150	2175	2892	8578517		8563578		420127
00007PP F01# 50	D144FA 6 FA-CLAYMAX200R	150	2175	2879	8634508		8610697		423457
Т	OTAL SQUARE FEET			34 - 8	.00				

TOTAL PAGES

1

QCG#TF1 11/02/01 @CT#TFl 9:29:56 CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

ORDER NUMBER 000148673

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	CLAY
LOT# 2003	142FA	LENGIA	1 551	METGUI	TOP LOT#	TOP ROLL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00001557	FA-CLAYMAX200R	150	2175	2890	8533105		8501425		453791
00001566	FA-CLAYMAX2DOR	150	2175	2986	8533105		8501425		453791
00001567	FA-CLAYMAX200R	150	2175	2993	8533105		8501425		45379ጔ
00001574	FA-CLAYMAX200R	150	2175	3117	9P9053P		8566827		453791
0000157F	FA-CLAYMAX200R	150	2175	2993	8680536		8566827	•	45379ጔ
00001577	FA-CLAYMAX200R	150	2175	305P	8680536		8566827		453791
00001578	FA-CLAYMAX200R	150	2175	3003	9680536		8566827		420719
00001579	FA-CLAYMAX2DOR	150	2175	2998	9680536		8566827		420719
00001584	FA-CLAYMAX200R	150	2175	2989	8680536		8566827		420719
00001585	FA-CLAYMAX200R	150	2175	2993	8680536		8566827		420719
00001586	FA-CLAYMAX200R	150	2175	3007	8680536		8566827		420719
00001587	FA-CLAYMAX200R	150	2175	2920	9F8053P		8566827		420719
00001588	FA-CLAYMAX200R	150	2175	2922	9F8053F		8566827		420719
00001592	FA-CLAYMAX200R	150	2175	2928	9P8053P		8566827		420719
00001,593	FA-CLAYMAX200R	150	2175	2918	9690536		8566827		420719
00001594	FA-CLAYMAX200R	150	2175	2926	9F20838		8566827		420719

TOTAL SQUARE FEET.....

34,800

QCG#TF1 QCT#TF1 11/02/01 9:29:03

CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER 000148674

ROLL#	MATERIAL	ROLL	SQUARE	ROLL	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE GEOTEXTILE	CLAY
L0T# 2001	L42FA	LENGTH	FEET	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT# BOTTOM ROLL#	L0T#
00001537	FA-CLAYMAX200R	1.50	2175	2936	8533105		8629800	453791
00001538	FA-CLAYMAX200R	150	2175	5886	85331:05		8629800	453791
00001539	FA-CLAYMAX200R	150	2175	2904	8533105		8629800	453791
00001546	FA-CLAYMAX200R	150	2175	2842	8533105		8629800	453791
00001547	FA-CLAYMAX200R	150	2175	2869	8533105		8629800	453791
00001548	FA-CLAYMAX20DR	150	2175	2858	8533105		8629800	45379ኔ
00001550	FA-CLAYMAX200R	150	2175	2962	8516137		8629800	45379ኔ
00001554	FA-CLAYMAX200R	150	2175	2874	8533105		8629800	45379ኔ
00001555	FA~CLAYMAX200R	150	2175	2879	8533105		8501425	453791
00001572	FA~CLAYMAX200R	150	2175	3075	8680536		8566827	453791
00007233	FA-CLAYMAX200R	150	2175	2972	8680536		8566827	453791
00001575	FA-CLAYMAX200R	150	2175	2989	9F8053F		8566827	453791
00001582	FA-CLAYMAX200R	150	2175	2972	8680536		8566827	420719
00001583	FA-CLAYMAX200R	150	2175	2973	9P9053P		8566827	420719
00001590	FA-CLAYMAX200R	150	2175	2918	8680536		8566827	420719
00001596	FA-CLAYMAX200R	150	2175	2906	8680536		8566827	420719

OG6, PE JATOT LATOT

TOTAL PAGES

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QCT#TF₃ CETCO 9:28:07 GCL MQA/MQC TRACKING FORM

QCG#TF1 11/02/01 MGA/MGC TRACKING FORM
PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL
FL

ORDER NUMBER 000148675

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200)	142FA	LLHUIII	1 5 5 1	WL TOTT	TOT COL	I V F I I V L L #	DALLALL CAL	DALLALL WAFF#	EA1#
00007300	FA-CLAYMAX200R	150	2175	2786	8595180		8592719		420127
00007305	FA-CLAYMAX200R	150	2175	2743	8595180		8592719		420127
00007309	FA-CLAYMAX200R	150	2175	2848	8595174		8592719		420127
00001324	FA-CLAYMAX200R	150	2175	2810	8595174		8638757		422542
00007335	FA-CLAYMAX200R	150	2175	2869	8595174		8638757		422542
00001346	FA-CLAYMAX200R	150	2175	2912	8566826		8638757		422542
00001348	FA-CLAYMAX200R	150	2175	2903	8566826		8610890		422542
00001349	FA-CLAYMAX208R	150	27.42	2908	8566826		8610890		422542
0000135F	FA-CLAYMAX200R	150	2175	2982	8566856		8610890		422542
00001357	FA-CLAYMAX200R	150	2175	2902	8266856		8610890		422542
00001358	FA-CLAYMAX200R	150	2175	2891	8566826		8610890		422542
00001359	FA-CLAYMAX200R	150	2175	2895	8566826		8670840		422542
000073P3	FA-CLAYMAX200R	150	2175	3000	8566856		8670890		422542
00001367	FA-CLAYMAX200R	150	2175	2911	8566826		8610890		422542
000073P9	FA-CLAYMAX200R	150	2175	2893	8566856		8610890		422542
0000137b	FA-CLAYMAX200R	150	2175	2900	8566826		8610890		422542

TOTAL SQUARE FEET......... 34,800

QCG#TFl ll/02/01 QCT#TF1 9:28:30

CETCO GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F FL

ORDER NUMBER 000148676

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE	GEOTEXTILE TOP ROLL#	GEOTEXTILE	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
L0T# 2001 00000865	L29FA FA-CLAYMAX200R	150	2175	3579	8534998	IAE KAFE#	8517011 L01# 8519352	DVIIVII NVEL#	421014
LOT# 2001									
000010FT	FA-CLAYMAX2OOR	150	2175	3374	8673576		8P80538		453302
00001096	FA-CLAYMAX200R	150	2175	5953	8663272		8687870		453302
00001097	FA-CLAYMAX200R	150	2175	2817	8663272		8681870		453302
00001099	FA-CLAYMAX200R	150	2175	2783	8663272		8681810		453302
00007700	FA-CLAYMAX200R	150	2175	2757	8663272		8681810		453302
00001101	FA-CLAYMAX200R	150	2175	2763	8663272		8F87970		453302
00007708	FA-CLAYMAX200R	150	2175	2841	8663272		8681810		453302
00001773	FA-CLAYMAX200R	150	2175	2798	8663272		8681810		453302
00007750	FA-CLAYMAX200R	150	2175	2852	8663272		8681810		453302
00001124	FA-CLAYMAX200R	150	2175	80P5	8663272		8687870		453302
00001753	FA-CLAYMAX200R	150	2175	2879	8663272		8679752		453302
00001754	FA-CLAYMAX200R	150	2175	2892	8663272		8679752		453302
00001143	FA-CLAYMAX200R	150	2175	2824	8663272		8679752		455975
00001150	FA-CLAYMAX200R	150	2175	2749	8663272		8679752		455975
00007539 F01# 5001	¼¼FA FA-CLAYMAX2DOR	150	2175	2736	8578517		8563578		420127
топ	TAL SQUARE FEET			34,8	00				

TOTAL PAGES

QCG#TFl ll/02/01 @CT#TF<u>l</u> 9:31:46

CETCO GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER 000148677

ROLL#	MATERIAL	ROLL	SQUARE	ROLL	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	CLAY
LOT# 200:	129FA	LENGTH	FEET	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00000844	FA-CLAYMAX200R	150	2175	3274	8547096		8563585		421014
LOT# 200									
00007774	FA-CLAYMAX200R	150	2175	85PS	8695431		8688608		455975
00007797	FA-CLAYMAX200R	150	2175	2852	8695431		8688608		455975
00001184	FA-CLAYMAX200R	150	2175	2936	8695431		8688608		455975
00001199	FA-CLAYMAX2DDR	150	2175	2892	8695431		8688608		455975
00007505	FA-CLAYMAX200R	150	2175	2753	8581417		8681804		455975
00001205	FA-CLAYMAX200R	1.50	2175	2752	8581417		8681804		455975
0000750P	FA-CLAYMAX200R	150	2175	2750	8581417		8681804		455975
00007570	FA-CLAYMAX200R	150	2175	5683	8581417		8681804		455975
00007575	FA-CLAYMAX200R	150	2175	5686	8581417		8683804		455975
00001214	FA-CLAYMAX200R	150	2175	2776	8581417		8681804		455975
00007574	FA-CLAYMAX200R	150	2175	2678	8581417		8681804		455975
00007523	FA-CLAYMAX200R	150	2175	2785	8578517		8563578		420127
00001259	FA-CLAYMAX200R	150	2175	2853	8578517		8563578		420127
00001565	FA-CLAYMAX200R	150	2175	2842	8578517		8563578		420127
000015PP	FA-CLAYMAX200R	1.50	2175	2890	8578517		8563578		
				20.0	03,0321		03633(0		420327
TAT	III SAULDE PEEN								

TOTAL SQUARE FEET..... 34,800 QCG#TF1 QCT#TF1 11/02/01 9:30:38 CETCO
GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER ODOL48678

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTON LOT#	GEOTEXTILE	CLAY
LOT# 2001	L29FA FA-CLAYMAX200R	150	2175	3258		TOP NOLL#		Botton Roll#	LOT#
					8534998		8563585		421014
00000857	FA-CLAYMAX200R	150	2175	3258	8534998		8519352		421014
00001030 F&L# 5001	J32FA FA-CLAYMAX200R	150	2175	3220	8518318		8535786		422519
00007703 F01# 5003	140FA FA-CLAYMAX200R	150	2175	2784	8663272		8681810		453302
00001155	FA-CLAYMAX200R	150	2175	2813	8663272		8679752		455975
L0T# 2001		1.50	2175	20.2					.557.5
מת מיד עק	FA-CLAYMAX200R	150	2175	5865	8695431		8688608		455975
00001501	FA-CLAYMAX200R	150	2175	2763	8581417		8681804		455975
00001257	FA-CLAYMAX200R	150	2175	2792	8578517		8563578		420127
00001267	FA-CLAYMAX200R	150	2175	2878	8578517		8563578		420127
L0T# 2001	.42FA								
00001309	FA-CLAYMAX200R	150	2175	2855	8595174		8638757		420127
00001317	FA-CLAYMAX200R	150	2175	5911	8595174		8638757		422542
00007353	FA-CLAYMAX200R	150	2175	5975	8595174		8638757		422542
00001325	FA-CLAYMAX200R	150	2175	5973	8595174		8638757		422542
00001347	FA-CLAYMAX200R	150	2175	2999	8566826		8610890		422542
00001395	FA-CLAYMAX200R	150	2175	3046	8680242		8579960		422542
00001595	FA-CLAYMAX200R	150	2175	2927	8680536		8566827		420719
Тот	AL SQUARE FEET			34 - 8	00				

TOTAL PAGES

1.

@CG#TFl ll/02/01 @CT#TFl 9:27:19 CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F FL

ORDER NUMBER DOD148679

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
L0T# 2001	.42FA FA-CLAYMAX2DDR	150	2175	2998	8533105	TOP NOLE#	8629800	BOLFOIL KOLL#	
00001530	FA-CLAYMAX2DOR	150	2175	2962					453791
		7120	5712	C 16C	8533105		8P54800		453791
00001531	FA-CLAYMAX200R	150	2175	8162	8533105		8629800		453791
00001532	FA-CLAYMAX200R	150	2175	2906	8533105		8629800		453791
00001534	FA-CLAYMAX200R	150	2175	2869	8533105		8629800		453791
00001535	FA-CLAYMAX200R	150	2175	3051	8533105		8629800		453791
00001536	FA-CLAYMAX200R	150	2175	2906	8533105		8629800		453791
00001540	FA-CLAYMAX200R	150	2175	8P85	8533105		8629800		453791
00001541	FA-CLAYMAX200R	150	2175	2899	8533105		8629800		453791
00001542	FA-CLAYMAX200R	150	2175	2872	8533105		8629800		453791
00001544	FA-CLAYMAX200R	150	2175	2848	8533105		8629800		453791
00001549	FA-CLAYMAX200R	150	2175	2873	8533105		8629800		453791
00001551	FA-CLAYMAX200R	150	2175	2933	8533105		8629800		453791
00001552	FA-CLAYMAX200R	150	2175	2948	8533105		8629800		453791
00007289	FA-CLAYMAX200R	150	2175	2989	8533105		8501425		453791
00001580	FA-CLAYMAX200R	150	2175	3009	9P9053P		8566827		420719
T0 T	AL SQUARE FEET			34 - 81	00				

TOTAL PAGES



5/24/2001

American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88

Fairmont

GΑ

30139

BOL

80097947 PO

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Method		MAR	MARV				
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	Х	30	(333.75)	Х	(133.5)
Elongation	ASTM D-4632	%	16	Х	27			
Trapezoidal Tear	ASTM D-4533	lb - (N)		Х		()	Х	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Roll#	Style	Weight	Tensile		Elon	gation
BOL# 'S	800	97947	MD	XMD	MD	XMD
8501430	864A	2.93	80.2	40.1	24.0	34.6
8516145	864A	2.93	59.5	41.7	25.0	37.2
8518313	864A	3.20	62.6	43.7	23.3	38.3
8518317	864A	3.19	67.4	41.2	26.0	39.7
8519350	864A	3.02	63.5	40.2	25.6	36.6
8519352	864A	2.86	46.8	38.2	23.7	37.7
8519356	864A	3.03	61.7	35.7	25.1	37.3
8533100	864A	3.00	44.3	42.2	26.0	34.0
8533102	864A	3.05	68.8	84.5	26.6	62.8
8533107	864A	3.05	46.3	39.4	28.9	39.0
8534991	864A	2.99	82.0	89.5	34.6	61.8
8535786	864A	2.91	88.4	37.6	33.6	37.4

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of woven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



10/15/2001

American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88

Fairmont

GΑ

30139

PO

BOL

80128021

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Method		MAR	MARV			SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80	_		(94.92)			
Thickness	ASTM D-5199	mils - (m				0			
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	X	30	(333.75)	Х	(133.5)	
Elongation	ASTM D-4632	%	16	X	27				
Trapezoidal Tear	ASTM D-4533	Ib - (N)		X		()	X	0	
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98			
Puncture Strength	ASTM D-4833	lb - (N)				()			
AOS	ASTM D-4751	US Sieve - (mm							
Permittivit	ASTM D-4491	SEC-1							
Permeability -	ASTM D-4491	cm - (sec)							
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()			
UV Resistance-4	ASTM D-4355	% Retained	90						

Sincerely

John D. Cannon, P.E. Regional Engineer

John Damon

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives rolice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Roll#	Style	Weight	Tensile		Elong	gation
BOL# 'S	80127262		MD	XMD	MD	XMD
			D4632	D4632	D4632	D4632
8592722	864A	2.75	68.0	35.4	23.7	37.2
8595171	864A	3.00	73.1	41.6	24.9	35.4
8592713	864A	3.04	80.8	48.0	25.3	35.3
8595173	864A	3.00	79.8	40.6	26.2	37.2
8562497	864A	3.03	50.8	39.1	34.8	41.5
8503602	864A	2.95	42.0	45.3	27.6	37.2
		-				

¥

10/4/2001



American Colloid Cetco WY

Noe Garcia

PO Box 428

Lovell

WY

82431

BOL

80125655

PO OCW-32374

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Method		MAR	MARV			SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)			
Thickness	ASTM D-5199	mlls - (m				0			
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	X	30	(333.75)	X	(133.5)	
Elongation	ASTM D-4632	%	16	X	27				
Trapezoldal Tear	ASTM D-4533	lb ~ (N)		X		()	X	0	
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98			
Puncture Strength	ASTM D-4833	Ib - (N)				()			
AOS	ASTM D-4751	US Sieve - (mm							
Permittivit	ASTM D-4491	SEC-1							
Permeability -	ASTM D-4491	cm - (sec)							
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()			
UV Resistance-4	ASTM D-4355	% Retained	90						

Sincerely

John D. Cannon, P.E.

Regional Engineer SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished intereurder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FINESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND 10 TIME EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABLITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Solici makes no warranty of results to be goingled. If the product does not intend is 1 Composition current published specifications, and the Customer gives notice to 5 i Corporation before installing the product, then 5 i Corporation will replace the product witness or refund the purchase price. This Date Sheet level that sheet is the style and its subject to change witness in 11/1/2000

Roll# BOL#'S

8563583

8579959

8581417 864A184

le Welght 80125655

2,9

3.0

3

Tensile

XMD

43

30

42

MD

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55

83

Elongation

XMD

37

39 36

MD

26

26

27

Style

864A184

864A184

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C	n



American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88

Fairmont

30139

BOL

GA 80103182

80103182 PO O-OCW-31055

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/11/2001

Physical Property	Test Method		MARV			SI Units	SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)			
Thickness	ASTM D-5199	mils - (m				()			
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	X	30	(333.75)	Х	(133.5)	
Elongation	ASTM D-4632	%	16	Х	27				
Trapezoidal Tear	ASTM D-4533	1b - (N)		Х		()	Х	()	
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98			
Puncture Strength	ASTM D-4833	lb - (N)				()			
AOS	ASTM D-4751	US Sieve - (mm							
Permittivit	ASTM D-4491	SEC-1							
Permeability -	ASTM D-4491	cm - (sec)							
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()			
UV Resistance-4	ASTM D-4355	% Retained	90						

Sincerely

John D. Cannon, P.E. Regional Engineer

D. Amon

SI Geosolutions

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Roll#	Batch Weight		Ter	sile	Elongation			
BOL# 'S	801	03182	MD	XMD	MD	XMD		
8533102	864A	3.05	68.8	26.6	84.5	62.8		
8534994	864A	3.10	77.5	23.1	39.7	35.1		
8535786	864A	2.91	88.4	33.6	37.6	37.4		
8550748	864A	2.98	79.2	26.4	47.0	36.1		
8562497	864A	3.03	50.8	39.1	34.8	41.5		

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GΑ

30139

BOL

80103162 PO O-OCW-31055

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/11/2001

Physical Property	Test Method		MAR	MARV			SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80	_		(94.92)			
Thickness	ASTM D-5199	mils - (m				()			
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	х	30	(333.75)	х	(133.5)	
Elongation	ASTM D-4632	%	16	X	27	,		,	
Trapezoidal Tear	ASTM D-4533	lb - (N)		Х		()	x	()	
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98			
Puncture Strength	ASTM D-4833	lb - (N)				0			
AOS	ASTM D-4751	US Sieve - (mm							
Permittivit	ASTM D-4491	SEC-1							
Permeability -	ASTM D-4491	cm - (sec)							
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()			
UV Resistance-4	ASTM D-4355	% Retained	90						

Sincerely

John D. Cannon, P.E. Regional Engineer

John Damon

SI Geosolutions

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11/1/2000

Roll#	Style	Weight	Tensile		Elono	gation
BOL# 'S	80103162		MD	XMD	MD	XMD
8503602	864A	2.95	42.0	45.3	27.6	37.2
8534991	864A	2.99	82.0	89.5	34.6	61.8
8535782	864A	3.01	63.6	74.9	26.2	49.6
8547496	864A	3.09	68.4	39.4	27.0	40.9
8550751	864A	2.98	31.8	38.9	23.9	39.6
8562497	864A	3.03	50.8	34.8	39.1	41.5
8563583	864A	2.90	58.3	43.0	25.9	37.1
8563585	864A	2.92	44.1	35.7	26.4	38.8

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately ence every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GΑ

30139

PO

D. Amon

BOL

80096408

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/24/2001

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Area	.ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	х	30	(333.75)	х	(133.5)
Elongation	ASTM D-4632	%	16	X	27			, -,
Trapezoidal Tear	ASTM D-4533	lb - (N)		X		()	X	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF HERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

Roll#	Batch Style	Thick	Weight	Tens	sile	Elong	ation	Tran	Tear	Burst	Punct
BOL# 'S	80	0096408		MD	XMD	MD	XMD	MD	XMD	Darse	1 unct
8501430	864A184	•	2.93	80.19667	40.1325	23.97333	34.6125		1	 	
8516140	864A184		3.07	46.2725	42.31	29.36	36.4475				
8518321	864A184		3.08	40.03333	38.5275	30.98333	38.895				

(

Bill Of Lading # 80096408

Roll #		ASTM D-4632 GRAB TENSILE (LBS) W X F	GRAB ELONGATION ASTM D-4632 (%) W x F	ASTM D-5261 Mass/Unit Area Oz/SQ Yard	
Product: 8501425	8 64A	75 × 45	28 x 37	2.95	



Geosynthetic Products Division

American Colloid-Fairmount, G

4/11/2001

Alisa Findley P.O. Box 88

Fairmont

GA 30139

BOL 8

80097569 PO O-OCW-30799

Ref:

This is to certify that Product GEOTEX 864A , a nonwoven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

Physical Property	Test Method	<u>US Unit</u>	ts	SI Unit	
Mass Per Unit Area Thickness Tensile Strength Elongation Trapezoidal Tear Mullen Burst Puncture Strength A.O.S. Permittivity Prmeability Water Flow Rate UV Resistance	ASTM D-5261 ASTM D-5199 ASTM D-4632 ASTM D-4533 ASTM D-3786 ASTM D-4833 ASTM D-4751 ASTM D-4491 ASTM D-4491 ASTM D-4491 ASTM D-4451	2.8 75 16 170	oz/yd2 mils lbs % lbs psi lbs Sieve sec-1 cm/sec gpm/ft2	(94.92) () (333.75) 16 () (1171.9 ()	g/m2 mm N % N kPa N mm sec-1 cm/sec Ipm/m2
UV Resistance	ASTM D-4355	90	%	90	1911/ %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincere

Sid Weiser

Product Manager SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

11/1/2000

Roll Numb Style	Weight	Ter	rsile	Elone	gation	
30 <i>L</i> #		W	F	W	F	
501430 864A	2.93	80.2	40.1	24.0	34.6	
503602 864A	2.95	42.0	45.3	27.6	34.6 37.2	
516139 864A 518317 864A	3.05	86.8	38.3	25.0	38.9	
519351 864A	3.20 2.86	62. 6	43.7	23.3	38.3	
533101 864A	2.97	46.8 55.9	38.2 41.6	23.7 24.5	37.7 39.2	

BOL 80097569



American Colloid-Fairmount, GA

Alisa Findley

P.O. Box 88 Fairmont

GΑ

30139

BOL

80096408 PO

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/24/2001

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	Х	30	(333.75	Х	(133.5)
Elongation	ASTM D-4632	%	16	Х	27			
Trapezoidal Tear	ASTM D-4533	lb - (N)		х		()	X	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.9		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

Frank P. Pace, P.E.

Manager - Engineering Services

SI Geosolutions

Seller makes no warranty express or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Selter makes no warranty of results to be obtained. If the product does not meet S I Corporation current published specifications, and the Customer gives notice to S I Corporation before installing the product, then S I Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

rollno		fahruht	***********	1	c +	C 1
85014		fabwht 2.93		welong		felong
(85014)		3.11	80.2	24.0	40.1	34.6
Ø5035		3.05	73.1	22.1	41.6	36.2
85036			92.8	25.1	44.7	36.9
85161	_	2.95	42.0	27.6	45.3	37.2
		3.03	75.3	28.3	41.2	38.4
85161		3.05	86.8	25.0	38.3	38.9
85161	_	3.07	46.3	29.4	42.3	36.4
851614		3.09	35.3	29.9	44.6	37.1
851614		2.93	59.5	25.0	41.7	37.2
85183		3.20	62.6	23.3	43.7	38.3
85183	_	3.19	67.4	26.0	41.2	39.7
851832	_	3.08	40.0	31.0	38.5	38.9
851935	50	3.02	63.5	25.6	40.2	36.6
851935	51	2.86	46.8	23.7	38.2	37.7
851935	56	3.03	61.7	25.1	35.7	37.3
(851935	59 `	3.15	41.4	27.2	40.4	39.8
853310	00	3.00	44.3	26.0	42.2	34.0
853310		2.97	55.9	24.5	41.6	39.2
853310		3.05	68.8	26.6	84.5	62.8
853310		3.05	46.3	28.9	39.4	39.0
853499		2.99	82.0	34.6	89.5	61.8
853499		3.10	77.5	23.1	39.7	
853499		3.05	86.3			35.1
853578		3.03	63.6	28.6	84.0	72.2
				26.2	74.9	49.6
853578		2.91	88.4	33.6	37.6	37.4
854708		3.24	63.5	26.2	32.5	40.6
854708		3.09	0.0	0.0	0.0	0.0
854708		3.09	62.6	23.3	43.7	38.4
854708		2.79	42.9	24.2	37.5	42.1
854709		3.17	85.6	30.4	36.9	35.8
854709		3.25	37.3	31.9	37.8	39.2
854749	4	3.14	66.2	27.2	35.5	38.0
854749	6	3.09	68.4	27.0	39.4	40.9
854749	8	3.28	106.4	28.2	77.5	30.7
854750		3.00	158.4	37.3	110.6	27.1
855074		2.98	79.2	26.4	47.0	36.1
855075		2.98	31.8	23.9	38.9	39.6
855075		2.91	76.5			
855075				28.0	37.8	42.0
		2.98	63.5	26.2	32.5	40.6
856249		3.03	85.2	27.4	37.4	38.6
856249		3.04	50.9	25.2	36.3	42.2
856249		3.03	50.8	39.1	34.8	41.5
856249		3.00	76.4	28.2	43.9	35.1
856358		2.90	58.3	25.9	43.0	37.1
856358	5	2.92	44.1	26.4	35.7	38.8
856358	6	3.05	70.4	24.7	38.8	39.3
857851	0	3.15	72.1	24.4	39.3	38.5
857851		2.92	62.9	27.9	32.1	36.5
857851		2.99	60.2	26.0	30.3	32.0
100100				~ 0.0		J U

BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DΔ	TE:	02-Nov-01
$\boldsymbol{\nu}$	1 –	UZ-18UV-U I

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of CG 50

left our Lovell, WY plant on 17-Jul-01

in

BNSF 422519

as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	7.2
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By: A.J.

Approved By: MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our Order Number 442244

BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

17-Aug-01

in

BN 453302

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	8.4
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	12.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our Order Number 450330

BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE: 02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

30-Aug-01

in

BN 455975

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
ASTM C 136	0% .	. 0
ASTM C 136	1.0 % MAX	1
ASTM D 2216	12.0% MAX.	8.8
ASTM D 5890	24 MIN.	27
ASTM D 5891	18.0 MAX.	15
	ASTM C 136 ASTM C 136 ASTM D 2216 ASTM D 5890	ASTM C 136 0% . ASTM C 136 1.0 % MAX ASTM D 2216 12.0% MAX. ASTM D 5890 24 MIN.

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our Order Number 455004

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

07-Sep-01

in

BNSF 420127

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

20-Sep-01

in

BNSF 423457

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:	02-Nov-	01
DAIL.	UZ-11UV-	U I

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

04-Sep-01

in

BN 453791

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

18-Sep-01

in

BNSF 420719

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	9.6
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.6

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

31-Aug-01

in

BNSF 422542

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN.

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

15-Jul-01

in

BN 453204

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	9.2
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

02-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

20-Jun-01

in

BNSF 421014

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
ASTM C 136	0% .	0
ASTM C 136	1.0 % MAX	0.3
ASTM D 2216	12.0% MAX.	9
ASTM D 5890	24 MIN.	26
ASTM D 5891	18.0 MAX.	14
	ASTM C 136 ASTM C 136 ASTM D 2216 ASTM D 5890	ASTM C 136 0% . ASTM C 136 1.0 % MAX ASTM D 2216 12.0% MAX. ASTM D 5890 24 MIN.

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: <u>12/5/01</u>



To:	Handex of Florida, Inc.		Job:	06104-28936-	
10.	2306 Gravel Drive			W. Pasco County Landfill Exp Cells A-3 and SW-2	ansion
	Ft. Worth, TX 76118-				
Attn:	Gary Conaway, V. P.				
	6_print(s) each of the following Subr	mittal: 2 of 4	D-02275-016-A) (45 rolls))	(QA/QC Roll Certificates: Claymax	x 200R_
	which are:	1.	APPROVED		· · · · · · ·
		2.	APPROVED	AS NOTED	
		3.	APPROVED	AS NOTED/CONFIRM	
		4.	APPROVED	AS NOTED/RESUB M IT	
		5.	NOT APPRO	VED	
		6.	COMMENTS	ATTACHED	
		7.	FOR YOUR II	NFORMATION	
		8.	FOR YOUR F	REVIEW	
		ı			
Com	ments:				
	1 - Jack McHugh/CDM				

By Abdul Mulla-Salet

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Project:	WEST PASCO COUNTY LAND	DFILL EXPANS	SION - CELLS A-	3 AND	SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Pr	oject Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Pre	oject Manager:	Daniel Strobridge, Q.E.P.
Contractor:	Handex of Florida, Inc.	Project No.	123477	Pre	oject Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	– Pro	oject Manager:	Pablo J. Rivera
COMPLETED E	BY CONTRACTOR:	····· · · · · · · · · · · · · · · · ·				
Certification State	- j and deciment, i nords	alog numbers and	similar data and I h	fied all f ave che	ield measuremen cked and coordi	ts, field construction criteria inated each item with othe
	Signature:		W	-	Date:	11-19-01
Submittal Identifie	er: D-02275-016-A	Original Su	bmittal	1 [Supplement	
Submitted:	November 19, 2001				_	
No. of Copies:	8	Resubmittal			Information	Only
Submittal Descript	tion: QA/QC Roll Certificates:	Claymax 200R	(Set 2 of 4) (45 rolls)			
Specification Iden			(0012 01 1) (10 10113)			
Manufacturer:	CETCO Lining Technologie		······································			
Installer:	COMANCO Environmental	······································				-
COMPLETED B	Y ENGINEER:		· · · · · · · · · · · · · · · · · · ·			
No. of Copies Rece			No. of Co	pies Ret	turned:	
					_	
Status:	Code 1 - Approved	·		C	Code 4 - Approve	d As Noted, Resubmit
	Code 2 - Approved As No	ted]	С	ode 5 - Not Appr	roved
			- L			
	Code 3 - Approved As No	ted, Confirm		С	ode 6 - Commen	ts Attached
Engineer Stamp	or Remarks Area:					
Engineer Stamp	j S	HOP DRAWI	VG DEVIEW			
	Approved A Noted The Engineer's review dimensions, equipment specifications and for Contractor from errors ctor's responsibility of ents. The Contractor	Attached Or onlesions in teddressing any de	RESPONSE REQUICATION CONTRACTION CONTRACTI	o review	w of lens,	
	bottles. The Contractor in the Contractor in the Contractor of the Contractor of Construction CAMP DRESSER & McKEE	and performing his v	pethods, techniques, so fork in a safe manner.	usions	of J	
					1	

GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME:

Pasco County Landfill

Spring Hill, FL. 34610

CUSTOMER P.O.:

3256-000-OD

PREPARED FOR:

GSE Lining Technology, Inc.

19103 Gundle Road

Houston

TX.

77073

Telephone #:

800-435-2008

PREPARED BY:

NOE GARCIA

Quality Assurance Coordinator

CETCO

P.O. Box 428

92 Hwy. 37

Lovell, Wy. 82431

Telephone #:

800-322-1149

(Ext. 423)

Fax #:

(307)548-6927,

(307)548-6413

E-Mail:

ngarc@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:

Pasco County Landfill

Prepared For:

GSE Lining Technology, Inc.

Customer PO:

3256-000-OD

Order Number:

150065, 150066, 150067

Ship Date:

12/5

CONTENTS:

- 1. PACKING LIST
- 2. DAILY CLAYMAX PRODUCTION CERTIFICATION
- 3. BENTONITE CLAY CERTIFICATION
- 4. CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
- 5. CLAYMAX MQA TRACKING FORM

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

M	Α	NUI	A	CT	IIR	TN	IG	CER'	TIFIC	' Δ	TI	7	V
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Project Name:

Pasco County Landfill

Prepared For:

GSE Lining Technology, Inc.

Customer PO:

3256-000-OD

Order Number:

NOE GARY PUBLIC

STATE OF

WYOMING

COUNTY OF

BIG HORN

150065, 150066, 150067

Ship Date:

Notary-Public

5-Dec

all of the	Claymax 200R	manufactured in this lot achieves the physical and chemical
criteria listed on	the attached analysis sheet.	
_		
	350/-	
Steve Wilkerson Plant Manager		
Trant Manager		
Subscribed and swor	n to before me this day	of November 20 <u>01.</u>
n/		

BENTONITE CLAY CERTIFICATIONS

TECHNICAL ${f D}$ ATA ${f S}$ HEET

ORIGIN INFORMATION

BENTONITE

Manufacturer:

AMERICAN COLLOID COMPANY

PRODUCTION

Facility:

AMERICAN COLLOID COMPANY

92 HWY. 37

Lovell, WY 82431

Contact:

Moses Briseno

Quality Assurance Coordinator

(800)-322-1160

Brand Name:

CG 50

AMERICAN COLLOID 92 HWY. 37 LOVELL, WY 82431

TO:

CETCO - LOVELL PLANT

DATE:

31-Oct-01

P.O. BOX 428 92 HWY 37

LOVELL, WY. 82431

ATTN:

NOE GARCIA

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

103101B

in

TANK A

as requested on your order no.

VERBAL

sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM D 421	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	8.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	24.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	12.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M., D.M., C.L., I.G.

Approved By:

MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our

der Number

NA

AMERICAN COLLOID

92 HWY. 37 LOVELL, WY 82431

TO:

CETCO - LOVELL PLANT

DATE:

31-Oct-01

P.O. BOX 428 92 HWY 37

LOVELL, WY. 82431

ATTN:

NOE GARCIA

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

103101C

in

TANK A

as requested on your order no.

VERBAL

sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM D 421	1 % (Max)	0.7
Moisture	ASTM D 2216	12.0 % (MAX)	6.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	24.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	12.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M., D.M., C.L., I.G.

Approved By:

MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our

der Number

NA

GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:

Pasco County Landfill

Prepared For:

GSE Lining Technology, Inc.

Customer PO:

3256-000-OD

Order Number:

150065, 150066, 150067

Ship Date:

5-Dec

CETCO hereby affirms and certifies that the

Claymax 200R

material supplied to this

project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Rentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
entonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs. MARV (machine direction)
Grab Elongation	ASTM D 4632	15 Percent Typical
Permeability	ASTM D 5084	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) $m(3)/m(2)/sec.$ (max.)

* Reported at 0 % moisture content.

GAI Lab Accredited Test Methods were followed during conformance testing for:

ASTM D 4632 - Grab Strength and Grab Elongation.

ASTM D 5887 - Index Flux.

ASTM D 5993 - Bentonite Mass/Area.



Colloid Environmental Technologies Co. (CETCO)

Subscribed and sworn to before me this _____ day of

November

2001.

Notary-Public

MOE GARICIA - MOTARY PUBLIC

COUNTY OF **BIG HORN**

MY COMMISSION EXPIRES.

QCG#FT2 QCT#FT2 CETCO 11/06/01 11:27:17

GCL QUALITY DATA

LOVELL CETCO PLANT P.O. BOX 428

LOVELL WY 82431

SHIP TO: PASCO COUN COMANCO/HA SPRING HIL

O R D E R # 000150065

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRENGTH 751bs marv ASTM D 4632
LO-CLAYMAX200R	200144LO	00002048	. 95	245,00
LO-CLAYMAX200R	200144LO	00002047	. 95	245.00
LO-CLAYMAX200R	200144LO	00002046	. 95	245.00
LO-CLAYMAX200R	200144LO	00002045	. 95	245.00
LO-CLAYMAX200R	200144LO	00002044	. 95	245.00
LO-CLAYMAX200R	200144LO	00002043	. 95	245.00
LO-CLAYMAX200R	200144LO	00002042	. 95	245.00
LO-CLAYMAX200R	200144LO	00002041	. 95	245.00
LO-CLAYMAX200R	200144LO	00002040	. 95	245.00
LO-CLAYMAX200R	200144LO	00002039	. 95	245.00
LO-CLAYMAX200R	200144LO	00002038	. 95	245.00
LO-CLAYMAX200R	200144LO	00002037	. 95	245.00
LO-CLAYMAX200R	200144LO	00002036	. 95 *	245.00
LO-CLAYMAX200R	200144LO	00002021	. 95	245.00
LO-CLAYMAX200R	200144LO	00002019	. 95 *	245.00

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Strength is tested a minimum of every 200,000sf. Peel Strength is tested a minimum of every 40,000sf. All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2 11/06/01 11:28:05

CETCO

GCL QUALITY DATA

LOVELL CETCO PLANT

P.O. BOX 428

LOVELL WY 82431

SHIP TO: PASCO COUN COMANCO/HA . SPRING HIL

O R D E R # 000150066

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRENGTH 751bs marv ASTM D 4632
LO-CLAYMAX200R	200144LO	00002007	. 93	245.00
LO-CLAYMAX200R	200144LO	00002001	. 93	245.00
LO-CLAYMAX200R	200144LO	00002000	. 93	245.00
LO-CLAYMAX200R	200144LO	00001999	. 93	245.00
LO-CLAYMAX200R	200144LO	00001998	. 93	245.00
LO-CLAYMAX200R	200144LO	00001997	. 93	245.00
LO-CLAYMAX200R	200144LO	00001996	. 93	245.00
LO-CLAYMAX200R	200144LO	00001995	. 93	245.00
LO-CLAYMAX200R	200144LO	00001994	. 93	245.00
LO-CLAYMAX200R	200144LO	00001993	. 93	245.00
LO-CLAYMAX200R	200144LO	00001990	. 93	245.00
LO-CLAYMAX200R	200144LO	00001989	. 93	245.00
LO-CLAYMAX200R	200144LO	00001987	. 93	245.00
LO-CLAYMAX200R	2001441,0	00001986	. 93	245.00
LO-CLAYMAX200R	200144LO	00001985	. 93 *	245.00

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.

If an asterisk is not present, test results are based on the previous roll tested.

Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.

Bentonite Mass/Area is reported at 0% moisture content.

Grab Strength is tested a minimum of every 200,000sf.

Peel Strength is tested a minimum of every 40,000sf.

All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2 CETCO
11/06/01 11:28:54

GCL QUALITY DATA

LOVELL CETCO PLANT P.O. BOX 428

LOVELL WY 82431

SHIP TO: PASCO COUN COMANCO/HA SPRING HIL

O R D E R # 000150067

MATERIAL	LOT No.	ROLL No	BENTONITE	GRAB
			MASS/AREA	STRENGTH
			.075 lb/sqft	751bs marv
			ASTM D 5993	ASTM D 4632
LO-CLAYMAX200R	200144LO	00002024	. 95	245.00
LO-CLAYMAX200R	200144LO	00002018	. 93	245.00
LO~CLAYMAX200R	200144LO	00002017	. 93	245.00
LO-CLAYMAX200R	200144LO	00002016	. 93	245.00
LO-CLAYMAX200R	200144LO	00002015	. 93	245.00
LO-CLAYMAX200R	200144LO	00002014	. 93	245.00
LO-CLAYMAX200R	200144LO	00002013	. 93	245.00
LO-CLAYMAX200R	200144LO	00002012	. 93	245.00
LO-CLAYMAX200R	200144LO	00002011	. 93	245.00
LO-CLAYMAX200R	200144LO	00002010	. 93	245.00
LO-CLAYMAX200R	200144LO	00002006	. 93	245.00
LO-CLAYMAX200R	200144LO	00002005	. 93	245.00
LO-CLAYMAX200R	200144LO	00002004	. 93	245.00
LO-CLAYMAX200R	200144LO	00002003	. 93	245.00
LO-CLAYMAX200R	200144LO	00002002	. 93+	245.00

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.

If an asterisk is not present, test results are based on the previous roll tested.

Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.

Bentonite Mass/Area is reported at 0% moisture content.

Grab Strength is tested a minimum of every 200,000sf.

Peel Strength is tested a minimum of every 40,000sf.

All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

QCG#TF1 11/06/01 QCT#TF1 11:27:17

CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

CETCO P.O. BOX 428 LOVELL

WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

ORDER NUMBER 000150065

ROLL#	MATERIAL	ROLL	SQUARE	ROLL	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE GEOT	EXTILE	CLAY
LOT# 2001	144LO	LENGTH	FEET	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT# BOT	TOM ROLL#	LOT#
00002019	LO-CLAYMAX200R	150	2250	3017	8610898		8681806		103101B
00002021	LO-CLAYMAX200R	150	2250	3033	8610898		8681806		103101B
00002036	LO-CLAYMAX200R	150	2250	3055	8610898		8680235		103101C
00002037	LO-CLAYMAX200R	150	2250	3053	8610898	,	8680235		103101C
00002038	LO-CLAYMAX200R	150	2250	3047	8610898		8680235		103101C
00002039	LO-CLAYMAX200R	150	2250	3061	8694475		8680235		103101C
00002040	LO-CLAYMAX200R	150	2250	3096	8694475		8680235		103101C
00002041	LO-CLAYMAX200R	150	2250	3047	8694475		8680235		103101C
00002042	LO-CLAYMAX200R	150	2250	3039	8694475		8680235		103101C
00002043	LO-CLAYMAX200R	150	2250	3036	8694475		8680235		103101C
00002044	LO-CLAYMAX200R	150	2250	3031	8694475		8680235		103101C
00002045	LO-CLAYMAX200R	150	2250	3034	8694475		8680235		103101C
00002046	LO-CLAYMAX200R	150	2250	3025	8694475		8680235		103101C
00002047	LO-CLAYMAX200R	150	2250	3026	8694475		8680235		103101C
00002048	LO-CLAYMAX200R	150	2250	3035	8694475		8680235		103101C
TOT	AL SQUARE FEET			33,7	50				

TOTAL PAGES

1

QCG#TF1 11/06/01 QCT#TF1 11:28:05 CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

CETCO P.O. BOX 428 LOVELL

WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

ORDER NUMBER 000150066

	ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL	GEOTEXTILE	GEOTEXTILE		OTEXTILE	CLAY
	LOT# 2001		LENGIA	LECI	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT# BC	OTTOM ROLL#	LOT#
	00001985	LO-CLAYMAX200R	150	2250	3059	8534991		8648579		1031018
	00001986	LO-CLAYMAX200R	150	2250	3046	8534991		8648579		103101B
	00001987	LO-CLAYMAX200R	150	2250	3049	8534991		8648579		103101B
	00001989	LO-CLAYMAX200R	150	2250	3023	8534991		8648579		103101B
	00001990	LO-CLAYMAX200R	150	2250	3046	8534991		8648579		103101B
	00001993	LO-CLAYMAX200R	150	2250	3041	8534991		8681806		103101B
	00001994	LO-CLAYMAX200R	150	2250	3042	8534991		8681806		103101B
	00001995	LO-CLAYMAX200R	150	2250	3049	8534991		8681806		103101B
	00001996	LO-CLAYMAX200R	150	2250	3050	8534991		8681806		103101B
	00001997	LO-CLAYMAX200R	150	2250	3040	8534991		8681806		103101B
	00001998	LO-CLAYMAX200R	150	2250	3039	8534991		8681806		103101B
	00001999	LO-CLAYMAX200R	150	2250	3026	8534991		8681806		103101B
	00002000	LO-CLAYMAX200R	150	2250	3019	8534991		8681806		103101B
	00002001	LO-CLAYMAX200R	150	2250	3021	8534991		8681806		103101B
,	00002007	LO-CLAYMAX200R	150	2250	3032	8534991		8681806		103101B

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES

1

QCG#TF1 11/06/01 QCT#TF1 11:28:54

CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

CETCO P.O. BOX 428 . LOVELL

WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

ORDER NUMBER 000150067

ROLL#	MATERIAL	ROLL	SQUARE	ROLL.	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	GEOTEXTILE	CLAY
LOT# 2001	4410	LENGTH	FEET	WEIGHT	TOP LOT#	TOP ROLL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00002002	LO-CLAYMAX200R	150	2250	3026	8534991		8681806		103101B
00002003	LO-CLAYMAX200R	150	2250	3010	8534991	•	8681806		103101B
00002004	LO-CLAYMAX200R	150	2250	3011	8534991		8681806		103101B
00002005	LO-CLAYMAX200R	150	2250	3012	8534991		8681806		103101B
00002006	LO-CLAYMAX200R	150	2250	3026	8534991		8681806		103101B
00002010	LO-CLAYMAX200R	150	2250	3049	8610898		8681806		103101B
00002011	LO-CLAYMAX200R	150	2250	3022	8610898		8681806		103101B
00002012	LO-CLAYMAX200R	150	2250	3046	8610898		8681806		103101B
00002013	LO-CLAYMAX200R	150	2250	3044	8610898		8681806		103101B
00002014	LO-CLAYMAX200R	150	2250	3045	8610898		8681806		103101B
00002015	LO-CLAYMAX200R	150	2250	3039	8610898		8681806		103101B
00002016	LO-CLAYMAX200R	150	2250	3027	8610898		8681806		103101B
00002017	LO-CLAYMAX200R	150	2250	3015	8610898		8681806		103101B
00002018	LO-CLAYMAX200R	150	2250	3015	8610898		8681806		103101B
00002024	LO-CLAYMAX200R	150	2250	3037	8610898		8681806		103101B
ТОТ	AL SQUARE FEET			33.7	50				

33,750

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: 12/5/01



To:	Handay of Elerida Inc		Job:	06104-28936-	
10.	Handex of Florida, Inc. 2306 Gravel Drive			W. Pasco County Landfill Ex Cells A-3 and SW-2	pansion
				Celis A-5 and OVV-2	
	Ft. Worth, TX 76118-				
Attn:	Gary Conaway, V. P.	<u> </u>			
	6_print(s) each of the following Sub (Set	omittal: t 3 of 4)	D-02275-017-A ((15 rolls))	QA/QC Roll Certificates: Claym	
	which are:	1.	APPROVED		v
		2.	APPROVED A	AS NOTED	
		3.	APPROVED A	AS NOTED/CONFIRM	
		4.	APPROVED	AS NOTED/RESUBMIT	
		5.	NOT APPRO	VED	
		6.	COMMENTS	ATTACHED	
		7.	FOR YOUR II	NFORMATION	
		8.	FOR YOUR F	REVIEW	
Com	ments:				
CC:	1 - Jack McHugh/CDM				

Abaul Mulla-Saleh

'COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Project:	WEST PASCO COUNTY LANI	DFILL EXPANS	SION - CELLS A-	3 AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.P.
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
COMPLETED E	BY CONTRACTOR:				
Certification State		talog numbers and	similar data and I h		nts, field construction criteria linated each item with othe
	Signature:	-491		Date:	11-19-01
Submittal Identifie	ier: D-02275-017-A	Original Su	ıbmittal	Suppleme	nt
Submitted:	November, 19, 2001				
No. of Copies:	8	Resubmitta	1	Informatio	n Only
Submittal Descrip Specification Iden			(Set 3 of 4) (15 rolls))	
Manufacturer:	CETCO Lining Technologi	ies, Inc.			
Installer:	COMANCO Environmenta				
No. of Copies Rec	Code 1 - Approved		No. of C	Copies Returned: Code 4 - Approx	red As Noted, Resubmit
	Code 2 - Approved As N	loted		Code 5 - Not Ap	proved
	Code 3 - Approved As N	oted, Confirm		Code 6 - Commo	ents Attached
Engineer Stamp	Approved Mot Approved Approved Mot Approved Approved Mot Approved Approved an Motod Common Attach The Engineer's review of this dimensione, oquipment and an appecifications and for deeling Contractor from errors or omit cotr's responsibility of admittance from the contractor is responsibility of admittance of construction and particular and manufacture, the procedures of construction and particular and part	vod [] ports lis chop drowing it materials as procen n concept. This re isolons in this sub	CONSE REQUIRED CONTRACTOR CONTRACTOR Confirm Recubmit In the Contract review does not rolley amilial or from the Contract rom the Contract	ow of plans, e the	



GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME: GSE/Pasco County LF.

PREPARED FOR: Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

PREPARED BY: Kelly Miller

CETCO

234 Gordon St. S.E.

Fairmount, GA 30139

TELEPHONE: (706) 337-5316

FAX: (706) 337-2215







GEOSYNTHETIC CLAY LINER

DAILY MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

GSE/PASCO COUNTY LF.
SPRING HILL, FL
PURCHASE ORDER # 3256-000-OD
CETCO ORDER(S) #148680

CONTENTS:

- 1. DAILY GCL PRODUCTION CERTIFICATION
- 2. GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
- 3. GCL MQA TRACKING FORM





DAILY GEOSYNTHETIC CLAY LINER PRODUCTION CERTIFICATION



GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

CETCO JOB:

GSE/PASCO COUNTY LF.

DATE:

NOVEMBER 5, 2001

ORDER#(S):

148680

PRODUCT:

CLAYMAX200R

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the Geosynthetic Clay Liner (GCL) manufactured in this lot achieves the physical and chemical criteria listed on the attached sheets.

Kelly Miller

Quality Analysis Coordinator

CETCO-Colloid Environmental Technologies CO

Subscribed and sworn to before me this_

day of

t ,20 \mathcal{O} /

Notary Public

OFFICIAL SEAL
CYNTHIA WILLIX
Notary Public, Conveta
CORDON Orbor:
My Commission | press
Jan. 7, 2002



CLAYMAX 200R MANUFACTURING CERTIFICATION

TO:

Ms. Sherri Sim-Connell

GSE

19103 Gundle Rd. Houston, TX 77073

ORDER#

148680

CETCO hereby affirms and certifies that Claymax 200R material supplied to this project will meet the physical and chemical criteria listed below:

PROPERTY	TEST METHOD	REQUIRED VALUE
Bentonite		
Free Swell	ASTM D 5890	24 min.
Fluid Loss	ASTM D 5891	18 max.
Finished Product		
Bentonite Mass/Area	ASTM D 5993	0.75 lb/sq.ft. min.
Grab Strength	ASTM D 4632	90 lbs. MARV
Index Flux	ASTM D 5887	1 x 10(-8) m3/m2/sec (max.)
Permeabilty	ASTM D 5084	max. 5 x 10(-9) cm/sec
* Reported at 0% moisture conten	ıt	

Reported at 0% moisture content.

GAI Lab Accredited Test Methods were followed during confromance testing for :

ASTM D 5993 - Bentonite Mass/Area

ASTM D 4632 - Grab Strength and Grab Elongation

CETCO-Colloid Environmental Technologies Co.

Subscribed and sworn to before me this

<u>)</u> day of <u>// 00</u>7. ,20 <u>0 (</u>

Notary Public

OFFICIAL SEAL
CYNTHIA WIT LIN
Notary By Front Cod
GORGON CODE
My Committee on March
Jan. 7, 2002





GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

QCG#FT2 11/05/01 9:23:32

CETCO

GCL QUALITY DATA

FAIRMOUNT CETCO

0 R D E R # 000148680

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRUMENTO TO TO T
FA-CLAYMAX200R	200142FA	00001508	.75	207.80
FA-CLAYMAX200R	200142FA	00001343	£8.	204.60
FA-CLAYMAX200R	200142FA	00001316	- 84	204.60
FA-CLAYMAX200R	200142FA	00001285	.85	204.60
FA-CLAYMAX200R	200142FA	00007590	.89	194.20
FA-CLAYMAX200R	200141FA	00001273	.89	194.20
FA-CLAYMAX200R	200141FA	00001234	. 84	190.10
FA-CLAYMAX200R	200140FA	00001153	. 84	198.60
FA-CLAYMAX200R	A48E1002	00001058	. 8ь	200.30
FA-CLAYMAX2DOR	200735ŁY	00001053	. 86	200.30
FA-CLAYMAX200R	200132FA	00001037	. 90	200.30
FA-CLAYMAX200R	A4261002	00001050	.88	200 · 30
FA-CLAYMAX200R	200129FA	00000897	.87	197.50
FA-CLAYMAX200R	200129FA	00000810	.99	171.40
FA-CLAYMAX200R	A3P51005	00000795	. 8 B	229.70

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested. If an asterisk is not present, test results are based on the previous roll tested. Mass Area and Moisture content are tested a minimum of every 40,000sf. Grab Strength is tested a minimum of every 200,000sf. Bentonite Mass/Area is reported at 0% moisture content. Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL FL



GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

QCG#TF1 QCT#TF1 11/05/01 9:23:32 CETCO GCL M@A/M@C TRACKING FORM

PAGE: 1

SHIP TO: PASCO COUNTY LF / GSE
COMANCO/HANDEX
SPRING HILL FL

ORDER NUMBER 000148680

ROLL# MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
L0T# 200129FA 00000795	150	2175	4000	8547094	TOT NOLL!!	8503600	DVIIVII NVEL#	
						0203600		454241
00000810 FA-CLAYMAX200R	150	2175	3424	8547094		8203F00		454241
00000897 FA-CLAYMAX200R	150	2175	3700	8550754		8519352		421014
LOT# 200132FA								
0001020 FA-CLAYMAX200R	150	2175	3569	8518318		8535786		42251,9
00001031 FA-CLAYMAX200R	150	2175	3265	8278378		8535786		422519
00001053 FA-CLAYMAX200R	150	2175	3033	8550750		8547497		422519
LOT# 200138FA	1 5 0	7175	7701					
OODO1058 FA-CLAYMAX200R	150	2175	3507	8550750		8547497		422519
LOT# 200140FA 00001153	1.50	2175	2802	8663272		8679752		455975
LOT# 200341FA						001 1102		133 113
D0007534	150	2175	5688	8578517		8681804		420127
OOOO1273 FA-CLAYMAX2OOR	150	2175	2855	8595180		8563578		420127
L0T# 200142FA								
00001280 FA-CLAYMAX200R	150	2175	5858	8595180		8592719		420127
00001285 FA-CLAYMAX200R	150	2175	2820	8595180		8592719		420127
OOOO1316 FA-CLAYMAX2OOR	150	2175	2871	8595174		8638757		422542
OOOO1343 FA-CLAYMAX2OOR	150	2175	2869	8566826		8638757		422542
00001508 FA-CLAYMAX200R	150	2175	2843	8503603		8581416		453791

32,625

TOTAL PAGES

TOTAL SQUARE FEET.....



10/4/2001

American Colloid Cetco WY

Noe Garcia PO Box 428

Lovell

WY

82431

BOL 80

80125655

PO OCW-32374

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Me	thod	MAR	<u>V</u>		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mlls - (m				O		
Tensile Strength (Grab	ASTM D-4632	16 - (N)	75	X	30	(333.75)	X	(133.5)
Elongation	ASTM D-4632	%	16	X	27			
Trapezoldal Tear	ASTM D-4533	lb - (N)		X		0	X	0
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (ipm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E. Regional Engineer

mD. amon

SI Geosolutions

Seller makes no warranty express or implied concerning the product lumished hereurrator other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE POREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be governed. If the product does not need 5 I Comparation current published specifications, and the Customeralive notice to \$1 Comparation before installing the product, then \$1 Comparation will replace the product which the purchase price. This Data Bheet superisedus all previous Data Sheets for this type and is subject to change without notice. The effective data for this product data is:

123	
553	
2108	
P.02	

Roll#	Style	Weight	Ter	rsile	Elon	gation
BOL# 'S	8012	25655	MD	XMD	MD	XMD
8563583	864A184	2.9	58	43	26	37
8579959	864A184	3.0	55	30	26	39
8581417	864A184	3	83	42	27	36



American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88

Fairmont

GΑ

30139

BOL

80103182

PO O-OCW-31055

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/11/2001

Physical Property	Test Me	ethod	MAR	٧		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	ib - (N)	75	Х	30	(333.75)	Х	(133.5)
Elongation	ASTM D-4632	%	16	Х	27			
Trapezoidal Tear	ASTM D-4533	lb - (N)		Х		()	X	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E.

Regional Engineer

SI Geosolutions

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The effective date for this product data is

Roll#	Batch	Weight	Ter	Tensile		gation
BOL# 'S	801	03182	MD	XMD	MD	XMD
8533102	864A	3.05	68.8	26.6	84.5	62.8
8534994	864A	3.10	77.5	23.1	39.7	35.1
8535786	864A	2.91	88.4	33.6	37.6	37.4
8550748	864A	2.98	79.2	26.4	47.0	36.1
8562497	864A	3.03	50.8	39.1	34.8	41.5

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of woven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GΑ

30139

BOL

80128021 PO

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

10/15/2001

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	X	30	(333.75)	X	(133.5)
Elongation	ASTM D-4632	%	16	X	27			
Trapezoidal Tear	ASTM D-4533	lb - (N)		Х		()	X	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

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5025 Lee Highway, Suite 435 • Chattanooga, TN 37421 Ptr 423-899-0444 • Fax: 423-899-7619

D 11/1						
Roll#	Style	Weight	Tensile		Elong	gation
BOL# 'S	80127262		MD	XMD	MD	XMD
			D4632	D4632	D4632	D4632
8592722	864A	2.75	68.0	35.4	23.7	37.2
8595171	864A	3.00	73.1	41.6	24.9	35.4
8592713	864A	3.04	80.8	48.0	25.3	35.3
8595173	864A	3.00	79.8	40.6	26.2	37.2
8562497	864A	3.03	50.8	39.1	34.8	41.5
8503602	864A	2.95	42.0	45.3	27.6	37.2

.

-



American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GΑ

30139

BOL

80097947 PO

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

5/24/2001

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				0		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	Х	30	(333.75)	x	(133.5)
Elongation	ASTM D-4632	%	16	х	27	(=====,	•	(100.0)
Trapezoidal Tear	ASTM D-4533	lb - (N)		х		()	х	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	lb - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90			•		

Sincerely

John D. Cannon, P.E. Regional Engineer

SI Geosolutions

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Roll#	Style	Weight	Ter	rsile	Elong	gation
BOL# 'S	800	97947	MD	XMD	MD	XMD
8501430	864A	2.93	80.2	40.1	24.0	34.6
8516145	864A	2.93	59.5	41.7	25.0	37.2
8518313	864A	3.20	62.6	43.7	23.3	38.3
8518317	864A	3.19	67.4	41.2	26.0	39.7
8519350	864A	3.02	63.5	40.2	25.6	36.6
8519352	864A	2.86	46.8	38.2	23.7	37.7
8519356	864A	3.03	61.7	35.7	25.1	37.3
8533100	864A	3.00	44.3	42.2	26.0	34.0
8533102	864A	3.05	68.8	84.5	26.6	62.8
8533107	864A	3.05	46.3	39.4	28.9	39.0
8534991	864A	2.99	82.0	89.5	34.6	61.8
8535786	864A	2.91	88.4	37.6	33.6	37.4

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of woven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



5/11/2001

American Colloid-Fairmount, GA

Kelly Miller

P.O. Box 88 Fairmont

GΑ

30139

BOL

80103162

PO O-OCW-31055

Ref:

This is to certify that Product 864A , a woven polypropylene geotextile produced by S I Corporation, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

Physical Property	Test Me	ethod	MAR	V		SI Units		
Mass Per Unit Area	ASTM D-5261	oz/yd2 - (g/m2)	2.80			(94.92)		
Thickness	ASTM D-5199	mils - (m				()		
Tensile Strength (Grab	ASTM D-4632	lb - (N)	75	х	30	(333.75)	Х	(133.5)
Elongation	ASTM D-4632	%	16	X	27			
Trapezoidal Tear	ASTM D-4533	lb - (N)		X		()	X	()
Mullen Burst	ASTM D-3786	psi - (Kpa	170			(1171.98		
Puncture Strength	ASTM D-4833	1b - (N)				()		
AOS	ASTM D-4751	US Sieve - (mm						
Permittivit	ASTM D-4491	SEC-1						
Permeability -	ASTM D-4491	cm - (sec)						
Water Flow Rate	ASTM D-4491	gpm/ft - (lpm/m2)				()		
UV Resistance-4	ASTM D-4355	% Retained	90					

Sincerely

John D. Cannon, P.E.

20 Amon

Regional Engineer

SI Geosolutions

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Roll#	Style	Weight	Tensile		Elong	gation
BOL# 'S	80103162	_	MD	XMD	MD	XMD
8503602	864A	2.95	42.0	45.3	27.6	37.2
8534991	864A	2.99	82.0	89.5	34.6	61.8
8535782	864A	3.01	63.6	74.9	26.2	49.6
8547496	864A	3.09	68.4	39.4	27.0	40.9
8550751	864A	2.98	31.8	38.9	23.9	39.6
8562497	864A	3.03	50.8	34.8	39.1	41.5
8563583	864A	2.90	58.3	43.0	25.9	37.1
8563585	864A	2.92	44.1	35.7	. 26.4	38.8

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX woven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our woven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

\mathbf{D}_{i}	AΤ	F:	05-Nov-01
$\boldsymbol{\nu}$	~ ı		03-1104-0

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

17-Jul-01

in

BNSF 422519

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	7.2
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

A.J.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

30-Aug-01

in

BN 455975

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	1
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	27
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

07-Sep-01

in

BNSF 420127

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.4

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

31-Aug-01

in

BNSF 422542

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

KELLY MILLER

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

04-Sep-01

in

BN 453791

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

20-Jun-01

in

BNSF 421014

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	9
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M.

Approved By: MOSES BRISENO

ACC

AMERICAN COLLOID 92 HWY 37 LOVELL, WYO. 82431

DATE:

05-Nov-01

TO:

CETCO

234 GORDON ST. S.E.

FAIRMOUNT, GA. 30139

ATTN:

ALISA FINDLEY

Dear Sirs:

A shipment of

CG 50

left our Loveli, WY plant on

18-Jun-01

in

BN 454241

as requested on your order no.

VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	1
MOISTURE	ASTM D 2216	12.0% MAX.	8.8
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.2

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

C.L.

Approved By: MOSES BRISENO

ACC

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: 12/5/01



To:	Handex of Florida, Inc.		Job:	06104-28936-	
10.	2306 Gravel Drive			W. Pasco County Landfill Expanded Cells A-3 and SW-2	nsion
	Ft. Worth, TX 76118-				
Attn:	Gary Conaway, V. P.				
	6_ print(s) each of the following Sut (Se	omittal: t 4 of 4)	D-02275-018-A () (43 rolls))	(QA/QC Roll Certificates: Claymax 2	
	which are:	1.	APPROVED		🗹
F		2.	APPROVED	AS NOTED	🗆
		3.	APPROVED.	AS NOTED/CONFIRM	\square
		4.	APPROVED A	AS NOTED/RESUBMIT	\square
		5.	NOT APPRO	VED	
		6.	COMMENTS	ATTACHED	\square
		7.	FOR YOUR II	NFORMATION	\square
		8.	FOR YOUR F	REVIEW	🗆
		1			
Com	monts:				
	ments:				
CC:	1 - Jack McHugh/CDM				

By // // // // Abdul Mulla-Saleh

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL	CONTROL	FODM
SUDMITTAL	CONTRUIT	FUKIVI

Project:	WEST PASCO COUNTY LANI	FILL EXPANS	SION - CELLS A-	3 AND	SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Pro	ject Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Pro	ject Manager:	Daniel Strobridge, Q.E.P
Contractor:	Handex of Florida, Inc.	Project No.	123477	Pro	ject Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	_ Pro	ject Manager:	Pablo J. Rivera
COMPLETED D	NV CONTRACTION					
COMPLETED B	BY CONTRACTOR:					
Certification State	By this submittal, I hereby materials, dimensions, cata applicable approved shop d	alog numbers and	similar data and I I	fied all fi nave chec	eld measuremen sked and coordi	ts, field construction criterinated each item with other
	Signature:	T/W	<u>r </u>	_	Date:	11-19-01
Submittal Identifie	er: D-02275-018-A	Original Su	bmittal	7 [Supplement	
Submitted:	November 19, 2001					·
No. of Copies:	8	Resubmittal			Information	Only
Submittal Descript	tion: QA/QC Roll Certificates:	Claymax 200R	(Set 4 of 4) (43 rolls)			
Specification Ident	o1300, 02275 Section 1.03A	A.1 (e)			<u></u>	
Manufacturer:	CETCO Lining Technologie	es, Inc.				
Installer:	COMANCO Environmental	Corporation				
No. of Copies Rece	Code 1 - Approved		No. of C	opies Ret		d As Noted, Resubmit
	<u> </u>					
	Code 2 - Approved As No	ted		С	ode 5 - Not App	roved
	Cade 2 A I A . N		¬			
	Code 3 - Approved As No	ted, Confirm]	C	ode 6 - Commen	ts Attached
Engineer Stamp of	or Remarks Area:					
· «B	SHOP DRAV	VING REVIEV	AI			
Ì	ENGWEER'S REVIEW	·	REQUIRED OF			
ĺ	Approved Not Assproved	CONT	RACTOR			
	Approved as Noted Comments Attached		ı∴mit □			
	The Engineer's review of this shop dimensions, equipment and metastos specifications and lor deelign concern converted from errors or omissions office responsibility of addressing an ents. The Contractor is responsible introduced and manuscrum, the mean procedures of construction and performing CAMP DRESSER & MCKEE INC.	pt. This review of in this submitted y devictions from for the details of	the Contract plans, soes not rolleve the or from the Contract Document dimensions of			
	By ANC	Dete 12/3/	101			

P.O. Box 428 • Lovell, Wyoming 82431 (307) 548-6521 • Fax (307) 548-6413

PO:	3256-000-OD		
Order #:	150062, 150063, 150064		
	,		
Sherri Sim-	-Connell,		
GSE Linin	g Technology, Inc.		
19103 Gui	ndle Road		
Houston	TX. 77073		
800-435-20	08		
Dear	Sherri Sim-Connell,		
Please find	enclosed the MQA/MQC Data Package for	GCL	shipments
to	GSE Lining Technology, Inc.	. These shipments left our	
CETCO - I	Lovell, Wy. plant on November	r 6, 2001	•
	·		
If you have	any questions regarding the enclosed QA/Q	QC information, please contact	
me at (800))322-1149 ext:423.		
Sincerely,			

Date:

NØE ØARCIA

Quality Assurance Coordinator

November 7, 2001

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME:

Pasco County Landfill

Spring Hill, FL. 34610

CUSTOMER P.O.:

3256-000-OD

PREPARED FOR:

GSE Lining Technology, Inc.

19103 Gundle Road

Houston

TX.

77073

Telephone #:

800-435-2008

PREPARED BY:

NOE GARCIA

Quality Assurance Coordinator

CETCO

P.O. Box 428 92 Hwy. 37

Lovell, Wy. 82431

Telephone #:

800-322-1149

(Ext. 423)

Fax #:

(307)548-6927,

(307)548-6413

E-Mail:

ngarc@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:

Pasco County Landfill

Prepared For:

GSE Lining Technology, Inc.

Customer PO:

3256-000-OD

Order Number:

150062, 150063, 150064

Ship Date:

11/6

CONTENTS:

- 1. PACKING LIST
- 2. DAILY CLAYMAX PRODUCTION CERTIFICATION
- 3. BENTONITE CLAY CERTIFICATION
- 4. CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
- 5. CLAYMAX MQA TRACKING FORM

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

COUNTY OF BIG HORN

Project Nar	ne:	Pasco County Landfill
Prepared Fo	or:	GSE Lining Technology, Inc.
Customer F	O:	3256-000-OD
Order Num	ber:	150062, 150063, 150064
Ship Date:		6-Nov
Colloid Environmenta	l Technologies Con	npany (CETCO) hereby affirms and certifies that
all of the C	laymax 200R	manufactured in this lot achieves the physical and chemical
criteria listed on the attac	ched analysis sheet.	
fl/1fl/		
Steve Wilkerson		
Pl ant Manager Red Lood Fred Fin K		
Subscribed and sworn to befo	re me this 7 day	of November 20 <u>01.</u>
Notary-Public	-	

BENTONITE CLAY CERTIFICATIONS

	TECHNICAL	D ATA	SHEET	
······································				

ORIGIN INFORMATION

BENTONITE

Manufacturer:

AMERICAN COLLOID COMPANY

PRODUCTION

Facility:

AMERICAN COLLOID COMPANY

92 HWY. 37

Lovell, WY 82431

Contact:

Moses Briseno

Quality Assurance Coordinator

(800)-322-1160

Brand Name:

CG 50

AMERICAN COLLOID

92 HWY. 37 LOVELL, WY 82431

TO:

CETCO - LOVELL PLANT

DATE:

31-Oct-01

P.O. BOX 428

92 HWY 37

LOVELL, WY. 82431

ATTN:

NOE GARCIA

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

103101A

in

TANK A

as requested on your order no.

VERBAL

sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM D 421	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	8.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	24.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	12.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M., D.M., C.L., I.G.

Approved By:

MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our

der Number

NA

AMERICAN COLLOID

92 HWY. 37 LOVELL, WY 82431

TO:

CETCO - LOVELL PLANT

DATE:

31-Oct-01

P.O. BOX 428

92 HWY 37

LOVELL, WY. 82431

ATTN:

NOE GARCIA

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

103101B

in

TANK A

as requested on your order no.

VERBAL

sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM D 421	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	8.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	24.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	12.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M., D.M., C.L., I.G.

Approved By:

MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our

ler Number

NA

AMERICAN COLLOID

92 HWY. 37 LOVELL, WY 82431

TO:

CETCO - LOVELL PLANT

DATE:

31-Oct-01

P.O. BOX 428 92 HWY 37

LOVELL, WY. 82431

ATTN:

NOE GARCIA

Dear Sirs:

A shipment of

CG 50

left our Lovell, WY plant on

103101C

in

TANK A

as requested on your order no.

VERBAL

sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM D 421	1 % (Max)	0.7
Moisture	ASTM D 2216	12.0 % (MAX)	6.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MiN.	24.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	12.8

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.

Product made in the U.S.A.

Tests Conducted By:

B.M., D.M., C.L., I.G.

Approved By:

MOSES BRISENO

ACC

In any correspondence regarding this shipment, please refer to our

der Number

NA

GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:

Pasco County Landfill

Prepared For:

GSE Lining Technology, Inc.

Customer PO:

3256-000-OD

Order Number:

150062, 150063, 150064

Ship Date:

6-Nov

CETCO hereby affirms and certifies that the

Claymax 200R

material supplied to this

project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE	
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	
Pentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	
entonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)	
Grab Strength	ASTM D 4632	150 lbs. MARV (machine direction)	
Grab Elongation	ASTM D 4632	15 Percent Typical	
Permeability	ASTM D 5084	5 x 10 (-9) cm/sec. (Max)	
Index Flux	ASTM D 5887	1.0 x 10 (-8) $m(3)/m(2)/sec.$ (max.)	

* Reported at 0 % moisture content.

GAI Lab Accredited Test Methods were followed during conformance testing for:

ASTM D 4632 - Grab Strength and Grab Elongation.

ASTM D 5887 - Index Flux.

ASTM D 5993 - Bentonite Mass/Area.

RESEARCH EDUCATION INFORMATION GEOSYNTHETIC INSTITUTE (GSI) ACCREDITATION CERTIFICATION

Colloid Environmental Technologies Co. (CETCO)

Subscribed and sworn to before me this

7 day of November

2001.

`Totary-Public

NOE GARCIA - NOTARY PUBLIC COUNTY OF

BIG HORN

MY COMMISSION EXPINES

QCG#FT2 QCT#FT2 11/07/01 14:57:06 CETCO

GCL QUALITY DATA

LOVELL CETCO PLANT

P.O. BOX 428

LOVELL

WY 82431

SHIP TO: PASCO COUN COMANCO/HA SPRING HIL

O R D E R # 000150062

MATERIAL	LOT No.	ROLL NO	BENTONITE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRENGTH 751bs marv ASTM D 4632
LO-CLAYMAX200R	200144LO	00002061	. 90	251.50
LO-CLAYMAX200R	200144LO	00002060	. 90	251.50
LO-CLAYMAX200R	200144LO	00002059	. 90	251.50
LO-CLAYMAX200R	200144LO	00002058	. 90	251.50
LO-CLAYMAX200R	200144LO	00002057	. 90	251.50
LO-CLAYMAX200R	200144LO	00002056	. 90	251.50
LO-CLAYMAX200R	200144LO	00002055	. 90	251.50
LO-CLAYMAX200R	200144LO	00002054	. 90	251.50
LO-CLAYMAX200R	200144LO	00002053	. 90 *	251.50*
LO-CLAYMAX200R	200144LO	00002052	. 9 5	245.00
LO-CLAYMAX200R	200144LQ	00002035	. 95	245.00
LO-CLAYMAX200R	200144LQ	00002034	. 95	245.00
LO-CLAYMAX200R	200144LO	00002033	. 95	245.00
LO-CLAYMAX200R	200144LO	00002032	. 95	245.00

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.

If an asterisk is not present, test results are based on the previous roll tested.

Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.

Bentonite Mass/Area is reported at 0% moisture content.

Grab Strength is tested a minimum of every 200,000sf.

Peel Strength is tested a minimum of every 40,000sf.

All tensile testing is in the machine direction

· · · End of Report · · ·

1

QCG#PT2 QCT#PT2 CETCO

11/07/01 14:57:52

GCL QUALITY DATA

LOVELL CETCO PLANT

P.O. BOX 428

LOVELL WY 82431

SHIP TO: PASCO COUN COMANCO/HA SPRING HIL

O R D E R # 000150063

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 075 lb/sqft ASTM D 5993	GRAB STRENGTH 751bs marv ASTM D 4632
LO-CLAYMAX200R	200144LO	00001992	. 93	245.00
LO-CLAYMAX200R	200144LO	00001960	. 90	180.40
LO-CLAYMAX200R	200144LO	00001954	. 90	180.40
LO-CLAYMAX200R	200144LO	00001952	. 90	180.40
LO-CLAYMAX200R	200144LO	00001951	.90*	180.40
LO-CLAYMAX200R	200144LO	00001948	. 91	180.40
LO-CLAYMAX200R	200144LO	00001940	. 91	180.40
LO-CLAYMAX200R	200144LO	00001939	. 91	180.40
LO-CLAYMAX200R	200144LO	00001938	.91	180.40
LO-CLAYMAX200R	200144LO	00001937	. 91	180.40
LO-CLAYMAX200R	200144LO	00001936	. 91	180.40
LO-CLAYMAX200R	200144LO	00001934	.91*	180.40
LO-CLAYMAX200R	200144LO	00001933	. 93	180.40
LO-CLAYMAX200R	200144LO	00001932	. 93	180.40
LO-CLAYMAX200R	200144L0	00001931	. 93	180.40

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.

If an asterisk is not present, test results are based on the previous roll tested.

Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.

Bentonite Mass/Area is reported at 0% moisture content.

Grab Strength is tested a minimum of every 200,000sf.

Peel Strength is tested a minimum of every 40,000sf.

All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2 11/07/01 14:58:39

CETCO

GCL QUALITY DATA

LOVELL CETCO PLANT

P.O. BOX 428

LOVELL

WY 82431

SHIP TO: PASCO COUN COMANCO/HA SPRING HIL

O R D E R # 000150064

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .075 lb/sqft ASTM D 5993	GRAB STRENGTH 751bs marv ASTM D 4632
LO-CLAYMAX200R	200144LO	00002031	. 95	245.00
LO-CLAYMAX200R	200144LO	00002030	. 95	245.00
LO-CLAYMAX200R	200144LO	00002029	. 95	245.00
LO-CLAYMAX200R	200144LO	00002028	. 95	245.00
LO-CLAYMAX200R	200144LO	00002027	. 95	245.00
LO-CLAYMAX200R	200144LO	00002026	. 95	245.00
LO-CLAYMAX200R	200144LO	00002025	. 95	245.00
LO-CLAYMAX200R	200144LO	00002009	. 93	245.00
LO-CLAYMAX200R	200144LO	00002008	. 93	245.00
LO-CLAYMAX200R	200144LO	00001961	. 90	180.40
LO-CLAYMAX200R	200144LO	00001957	. 90	180.40
LO-CLAYMAX200R	200144LO	00001956	. 9 0	180.40
LO-CLAYMAX200R	200144LO	00001955	. 90	180.40
LO-CLAYMAX200R	200144LO	00001953	. 90	180.40

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.

If an asterisk is not present, test results are based on the previous roll tested.

Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.

Bentonite Mass/Area is reported at 0% moisture content.

Grab Strength is tested a minimum of every 200,000sf.

Peel Strength is tested a minimum of every 40,000sf.

All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

QCG#TF1 11/07/01 QCT#TF1 14:57:06

CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

CETCO P.O. BOX 428 LOVELL

WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL F

FL

ORDER NUMBER 000150062 ------

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE	GEOTEXTILE	CLAY
LOT# 2001		LENGTH		WLIGHT	TOP LOT#	TOP RULL#	BOTTOM LOT#	BOTTOM ROLL#	LOT#
00002032	LO-CLAYMAX200R	150	2250	3028	8610898		8680235		103101C
00002033	LO-CLAYMAX200R	150	2250	3019	8610898		8680235		103101C
00002034	LO-CLAYMAX200R	150	2250	3025	8610898		8680235		103101C
00002035	LO-CLAYMAX200R	150	2250	3029	8610898		8680235		103101C
00002052	LO-CLAYMAX200R	150	2250	3053	8694475		8680235		103101C
00002053	LO-CLAYMAX200R	150	2250	3067	8694475		8680235		103101C
00002054	LO-CLAYMAX200R	150	2250	3059	8694475		8680235		103101C
00002055	LO-CLAYMAX200R	150	2250	3050	8694475		8680235		103101C
00002056	LO-CLAYMAX200R	150	2250	3045	8694475		8680235		103101C
00002057	LO-CLAYMAX200R	150	2250	3047	8694475		8680235		103101C
00002058	LO-CLAYMAX200R	150	2250	3038	8694475		8680235		103101C
00002059	LO-CLAYMAX200R	150	2250	3041	8694475		8680235		103101C
00002060	LO-CLAYMAX200R	150	2250	3032	8694475		8680235		103101C
00002061	LO-CLAYMAX200R	150	2250	3027	8694475	•	8680235		103101C
									1001010
TOT	AL SQUARE FEET			31.5	00 /				

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
11/07/01 14:57:51 GCL MQA/MQC TRACKING FORM

CETCO P.O. BOX 428 LOVELL WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL FL

ORDER NUMBER 000150063

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY
LOT# 2001 00001931	44LO LO-CLAYMAX200R	150	2250	3102	8688607	TOF ROLL#		DOTTOM RULL#	LOT#
							8694474		103101A
00001932	LO-CLAYMAX200R	150	2250	3100	8688607		8694474		103101A
00001933	LO-CLAYMAX200R	150	2250	3094	8688607		8694474		103101A
00001934	LO-CLAYMAX200R	150	2250	3080	8688607		8694474		103101A
00001936	LO-CLAYMAX200R	150	2250	3078	8688607		8694474		103101A
00001937	LO-CLAYMAX200R	150	2250	3072	8688607		8694474		103101A
00001938	LO-CLAYMAX200R	150	2250	3069	8688607		8694474		103101A
00001939	LO-CLAYMAX200R	150	2250	3073	8688607		8694474		103101A
00001940	LO-CLAYMAX200R	150	2250	3077	8688607		8694474		103101A
00001948	LO-CLAYMAX200R	150	2250	3047	8694473		8694474		103101B
00001951	LO-CLAYMAX200R	150	2250	3064	8694473		8694474		103101B
00001952	LO-CLAYMAX200R	150	2250	3060	8694473		8694474		103101B
00001954	LO-CLAYMAX200R	150	2250	3040	8694473		8694474		103101B
00001960	LO-CLAYMAX200R	150	2250	3039	8694473		8648579		103101B
00001992	LO-CLAYMAX200R	150	2250	3031	8534991		8648579		103101B
TOT	AL SOUADE EEET			22.7	C O.				

TOTAL PAGES 1

QCG#TF1 QCT#TF1 11/07/01 14:58:38 CETCO GCL MQA/MQC TRACKING FORM

PAGE: 1

CETCO P.O. BOX 428 LOVELL

WY 82431

SHIP TO: PASCO COUNTY LF / GSE COMANCO/HANDEX SPRING HILL FL

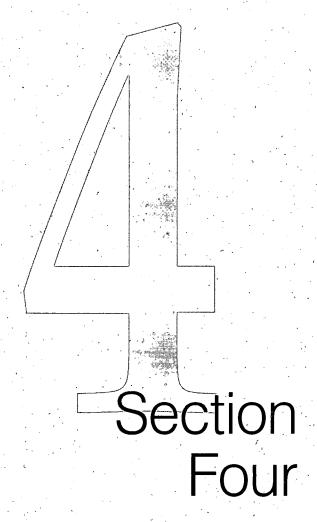
ORDER NUMBER 000150064

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 2001						10. 110227	2011011 2011	. DOTTOIT NOLL!	2011
00001953	LO-CLAYMAX200R	150	2250	3050	8694473	•	8694474		103101B
00001955	LO-CLAYMAX200R	150	2250	3045	8694473		8648579		103101B
00001956	LO-CLAYMAX200R	150	2250	3055	8694473		8648579		103101B
00001957	LO-CLAYMAX200R	150	2250	3065	8694473		8648579		103101B
00001961	LO-CLAYMAX200R	150	2250	3047	8694473		8648579		103101B
00002008	LO-CLAYMAX200R	150	2250	3033	8534991		8681806		103101B
00002009	LO-CLAYMAX200R	150	2250	3036	8610898		8681806		103101B
00002025	LO-CLAYMAX200R	150	2250	3029	8610898		8681806		103101B
00002026	LO-CLAYMAX200R	150	2250	3020	8610898		8681806		103101B
00002027	LO-CLAYMAX200R	150	2250	3019	8610898		8681806		103101B
00002028	LO-CLAYMAX200R	150	2250	3046	8610898		8680235		103101B
00002029	LO-CLAYMAX200R	150	2250	3030	8610898		8680235		103101B
00002030	LO-CLAYMAX200R	150	2250	3038	8610898		8680235		103101B
00002031	LO-CLAYMAX200R	150	2250	3032	8610898		8680235		103101B

TOTAL PAGES

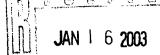
1

₩.



COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33637 Phone (813)988-8829 Fax (813)988-8779 www.comanco.net



TRANSMITTAL LETTER

Date:

January 15, 2003

Sent Via:

Federal Express Priority Overnight

From:

xc:

Pablo J. Rivera

Project Manager

Sent To:

Mr. Jack McHugh

CDM

1715 North Westshore Blvd, #875

Tampa, Florida 33607 Phone:

(813)281-2900

Fax:

(813)288-8787

Subject:

West Pasco County Landfill Expansion

CEC Project No. 010-848

Instructions:

URGENT - REVIEW IMMEDIATELY

Message:

Dear Mr. McHugh,

Enclosed please find copies of the MQC Roll Certificates for the 60 mil liner rolls you mentioned.

Please let me know if you need anything else.

Best regards,

-Pablo

SAFETY

Landfill Construction and Closures Golf Courses and Decorative Ponds Primary and Secondary Containments Theme Park Waterproofing Systems Vertical Barrier Systems Fabricated HDPE Products

QUALITY

Gypsum Stack Construction and Expansions Geomembrane and Geotextile Installation Geosynthetic Products and Services **HDPE** Pipe and Fittings **HDPE Concrete Embedment Products** Drainage Nets and Geocomposites

SERVICE

Concrete Construction Concrete Protective Liners **Temporary Containment** Chemical and Petrochemical **Building Construction** Geogrid Reinforcements

Lining Technology, Inc.

Roll No. 104111313

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION						
Roll Number	104111313	_	Lot Number	8211216						
Product Name	HDT060A000		Туре	K306						
Production Date	11/17/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 feet 158 meters		GS	GSE RESIN TEST DATA						
Width (Nominal)	22.5	feet	Property	Test Method	Results					
(110minut)	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	3,848 1,745	pounds kilograms								

Physical Property	Test	Test	Custom					Resu		
	Method	Frequency	Englisi	i A	1etric		English	Ι	Metric	
Thickness, mil (mm)	ASTM D 5994			۲.						
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	149	(260)
- MD		every roll	130	(228)	148	(260)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	159	(278)
- MD	•	every roll	90	(158)	204	(357)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll	**.	13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				412		
- MD	(51 mm)	every roll		150				550		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	· (.	478)	152	(676)
Puncture Resistance, lb. (N)	FTMS 101C/2065			٠.		•				
•		every 5th	80	(356)	100	(445) .
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*									
•		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		everý 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	٠		•				10	,	,
Views in Cat1 - Cat2		every 5th		9				10	•	
Asperity Height	GRI GM 12			10			,	19		
Average (mils) - Side A		every roll		IU				10		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104111314

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION						
Roll Number	104111314		Lot Number	8211216						
Product Name	HDT060A000		Туре	K306	,					
Production Date	11/17/01		Supplier	Phillips						
Length ≈(+/- 1%) 520 158		feet meters	GSE RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results					
(0.0	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	3,912 1,774	pounds kilograms								

DE-called December	Test	Test	Customer	r Mi	nimun	n	Test	Resu	ılts	
Physical Property	Method	Frequency	English	1	Metric	;	English	1	Metric	:
Thickness, mil (mm)	ASTM D 5994					-				
Average		every roll	60	(1.5)	63	, (1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	146	(255)
- MD		every roll	130	(228)	147	(257)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(262)
- MD		every roll	90	(158)	198	(346)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		•
, - MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				471		
- MD	(51 mm)	every roll		150				526		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
	•	every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
•		every 5th	80	(356)	95	(421)
Density, g/cc	ASTM D 1505									
	•	every 5th	0).940	•		().946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
•		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	·		_				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	A. (A. C. U		10				21		
Average (mils) - Side A		every roll		10				4 1		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104111315

ROLL	IDENTIFICAT	TION		ESIN INFORMATION							
Roll Number	104111315		Lot Number	8211216							
Product Name	HDT060A000		Type	K306							
Production Date	11/17/01		Supplier	Phillips							
Length ≈(+/- 1%)	%) 520 feet 158 meters		GS	GSE RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09						
Weight	3,853 1,748	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average	,	every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV	•					•			
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	155	(271)
- MD		every roll	130	(228)	146	(256)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	162	(284)
- MD		every roll	90	(158)	189	(330)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				472		
- MD	(51 mm)	every roll		150				551		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	61	. (271)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065						·			
		every 5th	80	٠(356)	- 95	(421)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			,	0.946		
Carbon Black Content, %	ASTM D 1603*	 .						0.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015			40				A2		
	4.0TM D 5500	every 5th		A2				72		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	every our		J						
Asperity Height Average (mils) - Side A	GRI GIVI 12	every roll		10				25		
Avorage (IIIIs) - Olde A		0.00, 1011								

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104111316

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION							
Roll Number	104111316		Lot Number	8211216							
Product Name	HDT060A000		Type	K306							
Production Date	11/17/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA								
Width (Nominal)	22.5	feet	Property	Test Method	Results						
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09						
Weight	3,842 1,743	pounds kilograms	•								

Physical Property	Test	Test	Custome				Test			
	Method	Frequency	English		Metri	С	English		Metric	<u>; </u>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	. (1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	157	(274)
- MD		every roll	130	(228)	154	. (269)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	170	(297)
- MD		every roll	90	(158)	188	(329)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll	•	13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				458		
- MD	(51 mm)	every roll		150				495		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	95	(421)
Density, g/cc	ASTM D 1505									
	•	every 5th	(0.940			C).946		
Carbon Black Content, %	ASTM D 1603*									
	:	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils) - Side A		every roll		10				23		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 104111317

ROLL	IDENTIFICA:	TION	RE	SIN İNFORMATION						
Roll Number	104111317		Lot Number	8211216						
Product Name	HDT060A000		Type	K306						
Production Date	11/17/01		Supplier	Phillips						
<i>Length</i> ≈(+/- 1%) 520 feet 158 meters			GSE RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	3,870 1,755	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	•
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	153	(267	,)
- MD		every roll	130	(228)	147	. (257)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	172	. (300)
- MD		every roll	90	(158)	202	(354)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				495		
- MD	(51 mm)	every roll		150				566		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD	•	every roll	42	(187)	56	(250)
- MD		every roll	42	(187)	56	(247)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	147	(-	652)
Puncture Resistance, lb. (N)	FTMS 101C/2065						•			
		every 5th	80	(356)	95	(421)
Density, g/cc	ASTM D 1505									
		every 5th	. ().940				0.946		
Carbon Black Content, %	ASTM D 1603*		*						•	
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	arran (Eth		42				4.0		
Carbon Black Dispersion	ACTALD FEOC	every 5th		A2				A2		
Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	3.37 047		٠						
Average (mils) - Side A	OIN OW IZ	every roll		10				26		
- · ·		•								

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 104111318

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104111318		Lot Number	8211216	· · · · · · · ·
Product Name	HDT060A000		Type	K306	
Production Date	11/17/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
•	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	3,854 1,748	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	ilts Metric	-
Thickness, mil (mm)	ASTM D 5994			•						
Average		every roll	60	(1.5)	. 60	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roli	130	(228)	152	(266)
- MD		every roll	130	(228)	150	(262)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	165	(289)
- MD		every roll	90	(158)	180	(315	·)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				353		
- MD	(51 mm)	every roll		150				503		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	(252)
- MD		every roll	42	(187)	53	(237)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	136	(605).
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	95	(421)
Density, g/cc	ASTM D 1505									
	•	every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
	,	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015								•	
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	511		•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over rell		10				22		
Average (mils) - Side A		every roll		10				22		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: <u>12/5/01</u>



To:	Handex of Florida, Inc.		Job:	06104-28936-	
10.	2306 Gravel Drive			W. Pasco County Landfill Expa Cells A-3 and SW-2	nsion
					-
	Ft. Worth, TX 76118-				
Attn:	Gary Conaway, V. P.				
	5 print(s) each of the following Sub	mittal: tured L	D-02776-012-A (iner (Set 1 of 4))	QA/QC Roll Certificates: 60 mil HD	PE
	which are:	 1.	APPROVED		· · · · · · ·
		2.	APPROVED A	AS NOTED	
		3.	APPROVED	AS NOTED/CONFIRM	
		4.	APPROVED	AS NOTED/RESUBMIT	
		5.	NOT APPRO	VED	
		6.	COMMENTS	ATTACHED	
		7.	FOR YOUR II	NFORMATION	🗆
		8.	FOR YOUR F	EVIEW	🗆
Ċám	ments:				
COIII					
CC:	1 - Jack McHugh/CDM				

By // // // // Axbdul Mulla-Saleh

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

	SUBM	ITTAL CO	ONTROL FOI	RM	
Project:	WEST PASCO COUNTY LAND	DFILL EXPANS	SION - CELLS A-3 A	AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Powell
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.F
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Gary L. Conaway, P.E. Pablo J. Rivera
					14010 5.1017014
COMPLETED E	BY CONTRACTOR:				
Certification State	By this submittal, I hereby materials, dimensions, cat applicable approved shop d	alog numbers and	similar data and I have	d all field measuremen e checked and coordi	ts, field construction criteri nated each item with oth
	Signature:	-17		Date:	11-15-01
Submittal Identifie	er: D-02776-012-A	Original Sul	bmittal	Supplement	<u> </u>
Submitted:	November 15, 2001				
No. of Copies:	8	Resubmittal		Information	Only
Submittal Descript	tion: QA/QC Roll Certificates:	60 mil UDDE To	untured Lines (Cod 1 of 4)	52 W.)	
Specification Ident			xtured Liner (Set 1 of 4) (52 rolls)	
Manufacturer:	GSE Lining Technologies, I	· · · · · · · · · · · · · · · · · · ·			
Installer:	COMANCO Environmental				
		Согрозилон			
No. of Copies Rece	eived:		No. of Copi	T	
Status:	Code 1 - Approved			Code 4 - Approve	d As Noted, Resubmit
	Code 2 - Approved As No	ted		Code 5 - Not Appr	oved
	Code 3 - Approved As No	ted Confirm	, , , , , , , , , , , , , , , , , , , 		
	Code 5 - Approved As 140	ied, Commi		Code 6 - Commen	ts Attached
Engineer Stamp	or Remarks Area:				.e0
				-	
	ENGINEER'S	HOP DRAWIP			
		1	RESPONSE REQUIR CONTRACTOR	ED OF	
	Approved es Noted □	t Asprovod □ Comments	Confirm [٠
	The Engineer's much	Attached 🗆	Recubmit 🗇		·
	dimensions, oquipment specifications and for	of this shop dre	ewing is limited to the presented in the Cont. This review door not in the cubmitted or time.	review of	·
	Onte The C-	is responsible for	wickions from the Contra	ne comra.	
	By AMS	. Date	12/3/0.	, , , , , , , , , , , , , , , , , , ,	

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	103109590		Lot Number	8210181	
Product Name	HDT060A000		Type	K306	
Production Date	3/17/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,971 1,801	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom Englisi		inimui Metri		Test English		ults Metrio	c
Thickness, mil (mm)	ASTM D 5994	•		-						
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	179	(313)
- MD		every roll	130	(228)	185	(324)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	189	(330)
- MD		every roll	90	(158)	225	(394)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				497		
- MD	(51 mm)	every roll		150				547		
Tear Resistance, lb. (N)	ASTM D 1004							į		
- TD		every roll	42	(187)	49	(218)
- MD		every roll	42	(187)	47	(209)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*	5.1		0.0						
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carbon Block Dispersion	ACTNAD SEGO	every 501	ir.	A2				AZ		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	Overy our	-	3				10		
Average (mils)	GRI GIVI 12	every roll		10				20		
3 - \		,		-				-		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified

GSE-4.10-007 Rev - - 07/00

₹.₽. 3/19/01

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Lining Technology, Inc.

Roll No. 103109593

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	103109593		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/17/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
, ,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,019 1,823	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimui Metrio		Test English	Resu	ilts Metric	;
Thickness, mil (mm)	ASTM D 5994				-					
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	187	(328)
- MD		every roll	130	. (228)	178	(312)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	184	(322)
- MD		every roll	90	(158)	137	(239)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				14		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				414		
- MD	(51 mm)	every roll		150				380		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356) 🚙.	105	(467)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			i	0.945		
Carbon Black Content, %	ASTM D 1603*	E.I.								
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	avan, Eth		A2				A2		
		every 5th		A2			, še.	72		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9			į	10 '		
	GRI GM 12	CVCI y Call		·						
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				21		
/ orago (milo)		213.7.3.								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 103109600

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	103109600		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/18/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,017 1,822	pounds kilograms			

D1	Test	Test	Custome	er Mi	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	ي !	Metrio	?	English		Metric	
Thickness, mil (mm)	ASTM D 5994									
Average	•	every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	181	(316)
- MD		every roll	130	(228)	174	(304)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	190	(333)
- MD		every roll	90	(158)	221	(387)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				513		
- MD	(51 mm)	every roll		150				55,7		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	63	(280)
- MD		every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833									
·		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		a. every 5th	80	(356)	112	(498)
Density, g/cc	ASTM D 1505									
		every 5th 🧀		0.940			().947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015			42				A1		
		every 5th		A2				Ai		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2	00/ 01/ 40	every 5th		3				10		
Asperity Height	GRI GM 12	every roll		10				19		
Average (mils)		every Toll						. •		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified





Roll No. 103109601

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	103109601		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/18/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	3,952 1,793	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimui Metri		Test English	Resu	ilts Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	179	(312)
- MD		every roll	130	(228)	189	(331)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	202	(354)
- MD		every roll	90	(158)	208	(363)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				478		
- MD	(51 mm)	every roll		150				530		
Tear Resistance, lb. (N)	ASTM D 1004							ř		
- TD		every roll	42	(187)	65	(289)
- MD		every roll	42	(187)	58	(258)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478	.)	174	(774)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th.	80	(356)	112	(498)
Density, g/cc	ASTM D 1505									
		every 5th		0 :9 40			C).947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th	A2			A1				
Carbon Black Dispersion	ASTM D 5596					40				
Views in Cat1 - Cat2		every 5th	9			10				
Asperity Height	GRI GM 12			10				21		
Average (mils)		every roll		10				21		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

ROLL IDENTIFICATION

Roll No. 103109602

RESIN INFORMATION

ROLL IDENTIFICATION RESILVE				CEDITY IIVI	JIMAI	101	<u> </u>			
Roll Number	103109602		Lot Number		821013	38				
Product Name	HDT060A000		Type		TR400	GS				
Production Date	3/18/01		Supplier		Phillips	;				
Length ≈(+/- 1%)	520 158	feet meters		GSE RESIN	TEST D	AT	A			
Width (Nominal)	22.5	feet	Property		Test M	etho	o <u>d</u>	R	esults	_
(Itominui)	6.9	meters	Density, g/cc		ASTM I) 15	05		0.937	
Sheet Area	11,70 <u>0</u> 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM	I D 1238	3 (1	90/2.16)		0.09	
Weight	3,978 1,804	pounds kilograms								
Physical P	roperty	Test	Test	Customer Minimum Test		t Results				
1 hysical 1	Toperty	Method	Frequency	English	Metric		English	<i>I</i>	Metric	
Thickness, mil (mm)		ASTM D 5994				,	0.5	,		
Average			every roll	60 ()	65	(1.6)
Minimum			every roll	54 (1.4)	56	(1.4)
Tensile Properties: Yield Strength,	oni (N/cm) TD	ASTM D 638, Type IV	/ every roll	130 (228)	191	1	335	}
rield Strength, j	- MD		every roll	130 ()	186	(326)
Break Strength,			every roll	90 ()	172	`(301)
break Jaengar,	- MD		every roll	90 ()	231	(404)
Yield Elongation		gauge length = 1.3"	•	13		,		16		•
riola ziongalio.	- MD	(33 mm)		13				16		
Break Elongatio		gauge length = 2.0"	-	150)			500		
Droum Elomgano	- MD	(51 mm)		150)			579		
Tear Resistance, lb. (ASTM D 1004	•							
(- TD		every roll	42 (187)	59	(263)
	- MD		every roll	42 (187)	55	(245)
Puncture Resistance,	łb. (N)	ASTM D 4833								
			every roll	108 (478)	172	(765)
Puncture Resistance,	lb. (N)	FTMS 101C/2065	, F11	00 /	256	,	110	,	498	١
		4.	every 5th	80 (356)	112	(490)
Density, g/cc		ASTM D 1505	every 5th	0.94	ŀO		1	0.947		
Carbon Black Content	+ 0/_	ASTM D 1603*	every our	0.0						
Carbon Black Content	·, /0	ACTIN D 1000	every 5th	2.0)			2.3		
Carbon Black Dispers	sion	ASTM D 3015	•							
			every 5th	A2				A1		
Carbon Black Dispers	sion	*ASTM D 5596								
	_			0				10		

every 5th

every roli

10

Order No.

Asperity Height

20979

Customer Name

Average (mils)

Views in Cat1 - Cat2

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

GRI GM 12

Location

*Modified GSE-4.10-007 Rev - - 07/00

R.P. 3/19/01 QA

10

18

Roll No. 103109603

ROLL	<i>IDENTIFICAT</i>	TION	RE	SIN INFORMATION						
Roll Number	103109603		Lot Number	r 8210138						
Product Name	HDT060A000		Type	TR400GS						
Production Date	3/18/01		Supplier Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	Property	Test Method	Results					
(6.75	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	4,038 1,832	pounds kilograms								

Discordant Down and	Test	Test	Custome	er Mi	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	! .	Metric	:	English	i	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	187	(327)
- MD		every roll	130	(228)	191	(335)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	212	(371)
- MD		every roll	90	(158)	239	(419)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				554		
- MD	(51 mm)	every roll		150				596		
Tear Resistance, lb. (N)	ASTM D 1004							ř.		
- TD	· ·	every roll	42	(187)	63	(280)
- MD		every roll	42	(187)	60	(267)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	169	(752)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	4.	every 5th	80	(356)	112	(498)
Density, g/cc	ASTM D 1505									
	ير	every 5th		0.940			(0.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015			••				۸.4		
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over rell		10				15		
Average (mils)	*	every roll		10				, 0		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 103109604

ROLL	IDENTIFICA:	TION	RESIN INFORMATION							
Roll Number	103109604		Lot Number	8210138						
Product Name	HDT060A000		Type	TR400GS						
Production Date	3/18/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA							
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
, ,	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	4,068 1,845	pounds kilograms								

Physical Property	Test	Test	Custom				Test			
1 hysical 1 toperty	Method	Frequency	English		Metri	2	English	Ī	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	65	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(303)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	194	(339)
- MD		every roli	90	(158)	216	(377)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				15		,
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				541		
- MD	(51 mm)	every roll		150				548		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
Aj.		every 5th	80	(356)	92	(409)
Density, g/cc	ASTM D 1505									
À		every 5th		0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2	001.011.40	every 5th		J				10		
Asperity Height	GRI GM 12	over roll		10				25		
Average (mils)		every roll		10				20		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 103109605

ROLL	IDENTIFICA:	TION	RESIN INFORMATION						
Roll Number	103109605		Lot Number	8210138					
Product Name	HDT060A000		Type	TR400GS					
Production Date	3/18/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA						
Width (Nominal)	22.5	feet	Property	Test Method	Results				
(6.0	6.9	meters	Density, g/cc	ASTM D 1505	0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09				
Weight	4,047 1,836	pounds kilograms							

Physical Property	Test Method	Test Frequency	Custome English		nimum Metric		Test English		ilts Metric	;
Thickness, mil (mm)	ASTM D 5994							-		
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	174	(304)
- MD		every roll	130	(228)	178	(312)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	199	(348)
- MD		every roll	90	(158)	149	(261)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			15			
- MD	(33 mm)	every roll		13			14			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				542		
- MD	(51 mm)	every roll		150				322		
Tear Resistance, lb. (N)	ASTM D 1004							ŧ.		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
eq.		every 5th	80	(356)	92	(409)
Density, g/cc	ASTM D 1505						_			
À		every 5th	(0.940			C).945		
Carbon Black Content, %	ASTM D 1603*							۰.		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	over Eth		A2				A1		
	10TH D 5500	every 5th		72				^1		
Carbon Black Dispersion * Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	CVCI y Cui		•				. •		
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				23		
, wordgo (mile)		,								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 103109606

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	103109606		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/19/01		Supplier	^h Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(1,10,10,10,10,10,10,10,10,10,10,10,10,10	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,012 1,820	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		iimun Metric		Te: Englis	st Resi h	ults Metric	:	
Thickness, mil (mm)	ASTM D 5994		 			•	<u> </u>				
Average .	,	every roll	60	· (1.5)	64	(1.6)	
Minimum		every roll	54	(1.4)	58	(1.5)	
Tensile Properties:	ASTM D 638, Type IV										
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	179	(314)	
- MD		every roll	130	(228)	172	(300)	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	162	(284)	
- MD		every roll	90	(158)	182	(318)	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16	16		
- MD	(33 mm)	every roll		13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				417			
- MD	(51 mm)	every roll		150				491			
Tear Resistance, lb. (N)	ASTM D 1004										
- TD		every roll	42	(187)	57	(254)	
- MD		every roll	42	(187)	54	(240)	
Puncture Resistance, lb. (N)	ASTM D 4833										
		every roll	108	(478)	149	(663)	
Puncture Resistance, lb. (N)	FTMS 101C/2065										
		every 5th	80	(356)	4. 92	(409)	
Density, g/cc	ASTM D 1505								n.f.		
		every 5th	ı	0.940				0.945	•		
Carbon Black Content, %	ASTM D 1603*	. Fal-		2.0				2.5			
		every 5th		2.0				2.5			
Carbon Black Dispersion	ASTM D 3015	every 5th	A2			A1					
	4 OTM D 5500	every our		72			;				
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10	f		
Asperity Height	GRI GM 12	,	y								
Average (mils)	OIA GW 12	every roll		10				21			
		-									

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Customer Name
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PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



ROLL	IDENTIFICA:	TION	RESIN INFORMATION							
Roll Number	103109608		Lot Number	8210138						
Product Name	HDT060A000		Type	TR400GS						
Production Date	3/19/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09					
Weight	3,982 1,806	pounds kilograms								

Physical Property	Test Method	Test	Custome English		nimun Metric		Tes Englisi	t Resu	lts Metric	
	W. W. C.	Frequency	Engusn		мети	; 	Engusi	i I	чин	—
Thickness, mil (mm)	ASTM D 5994	over rell	60	(1.5	`	65	,	1.7	١
Average		every roll		1()		()
Minimum		every roli	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV		130	,	228	,	172	,	300)
Yield Strength, ppi (N/cm) - TD		every roll		()		(•
- MD		every roll	130	()	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	()	174	(305)
- MD		every roll	90	(158)	188	(329)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				377		
- MD	(51 mm)	every roll		150				47,4		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	56	. (249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
, ,		every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	~ 92	(409)
Density, g/cc	ASTM D 1505									
7. 0		every 5th	C	0.940				0.945	<u>پر</u>	
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
·		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596							÷	•	
Views in Cat1 - Cat2		every 5th	9		10					
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				27		

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Lining Technology, Inc.

Roll No. 103109609

ROLL	IDENTIFICA:	TION		SIN INFORMATION	
Roll Number	103109609		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,004 1,816	pounds kilograms			

Physical Property	Test	Test	Custon				Test			
	Method	Frequency	Englis	ih .	Metri	С	English		Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	65	(1.7)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	188	(328)
- MD		every roll	130	(228)	186	(325)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	185	(324)
- MD		every roll	90	(158)	173	(302)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				482		
- MD	(51 mm)	every roll		150				506		
Fear Resistance, lb. (N)	ASTM D 1004							į.		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	. (187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	82	(365)
Density, g/cc	ASTM D 1505									
		every 5th	ph.	0.940			. 0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	÷.		•				40		
Views in Cat1 - Cat2		every.5th		9				10		
Asperity Height	GRI GM 12	aa 11		10				17		
Average (mils)		every roll		10				17		

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 103109610

ROLL	<i>IDENTIFICA</i>	TION	RE	SIN INFORMATION	
Roll Number	103109610		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,060 1,842	pounds kilograms			

Dhusiaal Danmarts	Test	Test	Custome	er Mi	nimui	n	Test	Resi	elts	
Physical Property	Method	Frequency	English		Metri	с	English		Metric	<u>; </u>
Thickness, mil (mm)	ASTM D 5994		•							
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	176	(308)
- MD	et .	every roll	130	(228)	168	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	151	(263)
- MD		every roll	90	(158)	184	(323)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				370		
- MD	(51 mm)	every roll		150				502		
Tear Resistance, lb. (N)	ASTM D 1004							;		
- TD		every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th 💂	80	(356)	82	(365)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			().946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015			4.0				42		
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.011.40	every our		Ð				10		
Asperity Height	GRI GM 12	every roll		10				23		
Average (mils)		every ron	• •							

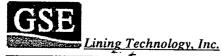
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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	103109611		Lot Number	8210138	
Product Name	HDT060A000		Type	TR400GS	
Production Date	3/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.09
Weight	4,073 1,848	pounds kilograms			

Physical Property	Test	Test	Custom	er Mi	nimu	m	Test	Resi	ılts	
	Method	Frequency	English	ı	Metri	с	English		Metric	<u>c</u>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	65	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	190	(333)
- MD	•	every roli	130	(228)	181	(316)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	194	(340)
MD		every roll	90	(158)	185	(324)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				508		
- MD	(51 mm)	every roll		150				471		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	65	(289)
- MD		every roll	42	(187)	65	(289)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	A5 ₆ .	every 5th	80	(356)	82	(365)
Density, g/cc	ASTM D 1505									
	À	every 5th	1	0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	- Fab		40				40		
	<u>in</u>	every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	oven, Eth		9				10		
	CDI CM 42	every 5th		J				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				22		
, waruge (mila)	14	04013 1011								

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	<i>IDENTIFICA</i>	TION		SIN INFORMATION	
Roll Number	104108345		Lot Number	8210142	
Product Name	- HDT060A000		Type	TR400GS	
Production Date	4/10/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,920 1,778	pounds kilograms			

Physical Property	Test	Test	Custom	er Mi	inimu	m	Test	Resi	ults	
	Method	Frequency	English	ł	Metri	c	English		Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	60	.(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	176	(308)
- MD		every roll	130	(228)	179	(314)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	145	(253)
· MD		every roll	90	(158)	164	(287)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				470		
- MD	(51 mm)	every roll		150				450		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	**	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
	À	every 5th	(0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
	. Van	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over rell		10				21		
Average (mils)		every roll		10				21		

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Customer Name

PASCO COUNTY LANDFILL

Location

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Roll No. 104108346

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108346		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/10/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
, ,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,953 1,793	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimui Metri		Test English	Resi	ılts Metrio	•
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	185	(323)
- MD		every roll	130	(228)	185	(323)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	195	(342)
- MD		every roll	90	(158)	175	(307)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13	•			16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				530		
- MD	(51 mm)	every roll		150				490		
Tear Resistance, lb. (N)	ASTM D 1004								•	
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
4.	.,*	every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
A		every 5th	(0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	over Eth		_				10		
	001 011 40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				25		
Average (iims)		every ron		10				20		

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Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108347		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/10/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,978 1,804	pounds kilograms	ı		

Physical Property	Test Method	Test Frequency	Custome English		nimur Metric				Results Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	ĺ.	1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV							•		
Yield Strength, ppi (N/cm) - TD		every roll	130	(228	}	176	(308)
- MD		every roll	130	(228)	180	(315)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	143	(251)
- MD		every roll	90	(158)	194	(340)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				400		
- MD	(51 mm)	every roll		150				40p		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833		•							
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
44-	. , (every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
· · · · · · · · · · · · · · · · · · ·		every 5th	C).940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	F.11								
· · · · · · · · · · · · · · · · · · ·		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	avan, Eth		0				10		
Views in Cat1 - Cat2	001.014.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				23		
Average (mils)		every roll								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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R.P. 4/12/01 QA



Roll No. 104108348

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108348		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/11/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	4,011 1,819	pounds kilograms			

Physical Property	Test	Test	Custome		nimur	n	Test	Resi	ılts	
1 Hysical 1 Toperty	Method	Frequency	English		Metric	:	English		Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	; 60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	61	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(287)
- MD		every roll	130	(228)	158	(277)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	182	(318)
- MD		every roll	90	(158) .	238	(417)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	,	13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				528		
- MD	(51 mm)	every roll	•	150				604		
Tear Resistance, lb. (N)	ASTM D 1004							·		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	51	(227)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	162	(721)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	.,*	every 5th	80	(356⊷)	101	(449)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940)ڊر	0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2			. *	A1		
Carbon Black Dispersion	ASTM D 5596			•			, j	10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	every roll		10				22		
Average (mils)		every roll		10			•	44		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



			_ ·		
ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108349		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/11/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,974 1,803	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu: Metri		Tesi English	Resi	ılts Metri	 с
Thickness, mil (mm)	ASTM D 5994		_							
Average		every roli	60	(. 1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV			•						
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	174	(304)
- MD		every roll	130	(228)	168	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	196	(343)
- MD		every roll	90	(158)	230	(403)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				572		
- MD	(51 mm)	every roll		150				572		
Tear Resistance, lb. (N)	ASTM D 1004	•	•							
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	107	(449)
Density, g/cc	ASTM D 1505								j	,
		every 5th	ı	0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1 *		
Carbon Black Dispersion	ASTM D 5596			_				J.		7
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			40				20		
Average (mils)		every roil		10				20		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RP ROUR RP. 4/12/01

Roll No. 104108351

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number			Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/11/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,849 1,746	pounds kilograms			

Physical Property	Test	Test	Custom	er Mi	nimu	m	Test	Resi	ılts	
1 Hysteat 1 Toperty	Method	Frequency	Englisi	h	Metri	c	English		Metri	с
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	63	(1.6	
Minimum		every roll	54	(1.4)	58	(1.5	
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	154	(270	
- MD		every roll	130	(228)	157	(275	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	233	(407	
- MD		every roll	90	(158)	230	(402	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				668		
- MD	(51 mm)	every roll		150				63,1		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	· 80	(356)	107	(476)
Density, g/cc	ASTM D 1505			تد						
		every 5th		0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th	. *	A2				A1		
Carbon Black Dispersion	ASTM D 5596	Fil	J.	•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	ought roll		10				10		
Average (mils)		every roll		- 10				18		

Order No.

20979

Customer Name Location

PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108352

ROLL	IDENTIFICA:	TION	RESIN INFORMATION								
Roll Number	104108352		Lot Number	8210142							
Product Name	HDT060A000		Type TR400GS					Type TR400G		•	
Production Date	4/11/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08						
Weight	3,952 1,793	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custom Englisi		nimur Metri		Test English		ılts Metrio	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roli	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	161	(281)
- MD		every roll	130	(228)	164	(287)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	158	(277)
- MD		every roll	90	(158)	155	(271)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				617		
- MD	(51 mm)	every roll		150				573		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187	·)	53	(236)
- MD		every roll	42	(187)	49	(218)
Puncture Resistance, lb. (N)	ASTM D 4833	•								
		every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065			Aş.						
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505						À			
		every 5th		0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
	AOTNA D 5500	every 5th		A2	**		i	^1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9	.•			10		
	GRI GM 12	Overy our		J						
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				18		
, 5, ago (o)		, - -				së				

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108353

ROLL	IDENTIFICAT	TION	 RESIN INFORMATION							
Roll Number	104108353		 Lot Number	8210142						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/11/01		 Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	 GSA	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,944 1,789	pounds kilograms								

n n	Test	Test	Custome	er Mi	nimun	n	Test	Resu	ilts	
Physical Property	Method	Frequency	English		Metric	:	English	i	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	. 63	(1.6)
Minimum		every roll	54	(1.4)	60	(1.5)
Tensile Properties:	ASTM D 638, Type IV	•								
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	155	(270)
- MD		every roll	130	(228)	157	(275)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	193	(338)
- MD		every roll	90	(158)	218	(382)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roil		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				586		
- MD	(51 mm)	every roll		150				613		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	70	(312)
- MD	·	every roll	42	(187)	48	(214)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	152	(676)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	_ <i>(</i>	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*	5.1		2.0				25		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				Α,		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.011.40	every our		J						
Asperity Height Average (mils)	GRI GM 12	every roll		10				24		
Average (mis)		0.5.yu								

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location D

*Modified



Roll No. 104108354

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108354		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/11/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,920 1,778	pounds kilograms	·		

Physical Property	Test Method	Test Frequency	Custom Englis		inimum Metric		Test English	Resi	ılts Metrio	
Thickness, mil (mm)	ASTM D 5994					-,,				
Average	1	every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	152	(266)
- MD		every roll	130	(228)	144	(253)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	143	(251)
- MD		every roll	90	(158)	174	(305)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				595		
- MD	(51 mm)	every roll		150				686		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	51	(227)
- MD		every roll	42	(187)	47	(209)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	, (a,	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5tb		0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		0				10		
	00101110	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				20		
Average (mins)		CVCI y TOIL		.0				20		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



ROLL IDENTIFICATION			RESIN INFORMATION					
Roll Number	104108355		Lot Number 8210142					
Product Name	HDT060A000		Type	TR400GS				
Production Date	4/11/01		Supplier	Phillips				
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA					
Width (Nominal)	22.5 6.9	22.5 feet	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08			
Weight	3,885 1,762	pounds kilograms						

Physical Property	Test Method	Test Frequency	Customer Minimum English Metric				Test Results English Metric			
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4) .	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228) .	174	(305)
- MD		every roll	130	(228)	173	(302)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	130	(228)
- MD		every roll	90	(158)	141	(246)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				16			
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				400			
MD	(51 mm)	every roll 150				520				
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD	•	every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833			•						
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
4 .	., 1	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
	<i>*</i>	every 5th	0	.940				0.946		
Carbon Black Content, %	ASTM D 1603°	TAIL		0.0						
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2 -				A1		
Corbon Blook Disposing	ACTM D FEOG	every 501		A2 ·				Α,		
Carbon Black Dispersion + Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	5.0., 541		Ū						
Average (mils)	OIN OW IZ	every roll		10				19		
47		•								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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Lining Technology, Inc.

Roll No. 104108356

ROLL	IDENTIFICA	TION	RE	RESIN INFORMATION							
Roll Number	104108356		Lot Number	8210142							
Product Name	HDT060A000		Type	TR400GS							
Production Date	4/11/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
	6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08						
Weight	3,916 1,776	pounds kilograms									

Physical Property	Test Method	Test Frequency				Tesi English	t Resi	ılts Metric	•	
Thickness, mil (mm)	ASTM D 5994	1704.000	27.8.0.0		1/100/0		Linguisi.		72 617 16	
Average	7.01M B 0004	every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	()	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									•
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	176	(308)
- MD		every roll	130	(228)	173	(302)
Break Strength, ppi (N/cm) - TD	ı	every roll	90	(158)	125	(218)
- MD		every roll	90	(158)	142	(248)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				370	•	
- MD	(51 mm)	every roll		150				520		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	51	(227	.)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065	•								
		every 5th	80	(356)	107	.(476)
Density, g/cc	ASTM D 1505									
×	بر	every 5th	(0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
	•	every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2			1	A1		
Carbon Black Dispersion ASTM D 5596				•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	0405 : 55!!		10				20		
Average (mils)	· .	every roll		10				20		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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Roll No. 104108358

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ROLL	IDENTIFICA:	TION	RESIN INFORMATION						
Roll Number	104108358		Lot Number	8210142					
Product Name	HDT060A000		Type	TR400GS					
Production Date	4/11/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA					
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results				
	6.9	meters	Density, g/cc	ASTM D 1505	0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08				
Weight	3,901 1,769	pounds kilograms							

Physical Property	Test Method	Test Frequency	Custom Englis		inimui Metri		Tes: English	t Resi	ults Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	(1.6)
Minimum ·		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV							·		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(297)
- MD		every roll	130	(228)	175	(307)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	198	(346)
- MD		every roll	90	(158)	178	(311)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				550		
- MD	(51 mm)	every roll	l 150					500		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	.(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	(every 5th	. 80	(356)	107	(476) _
Density, g/cc	ASTM D 1505									
ě		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th 2.0			2.5					
Carbon Black Dispersion	ASTM D 3015									
•		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			_						
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	avant sall		10				14		
Average (mils)		every roll		10				14		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108359

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108359		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/11/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937
Weight	3,915 1,776	pounds kilograms	:		

Physical Property	Test Method	Test Frequency	Custome English		nimu Metri		Tes English	t Resi	ults Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(, 1.6)
Minimum	mum		54	(1.4)	60	(1.5	.)
Tensile Properties:	ASTM D 638, Type IV									·
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	180	(315)
- MD		every roll	130	(228)	174	(305)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	166	(290)
- MD		every roll	90	(158)	153	(267)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				350		
- MD	(51 mm)	every roll 150				400				
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	55	. (245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
ą.	(every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
ير		every 5th	(0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
·		every 5th		2.0			•	2.5		
Carbon Black Dispersion	ASTM D 3015	·								
		every 5th A2			A1					
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cát2		every 5th		9				10		
Asperity Height	GRI GM 12	01107		10				20		
Average (mils)		every roll		10				20		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



GSE

Lining Technology, Inc.

Roll No. 104108360

ROLL IDENTIFICATION				RESIN INFORMATION						
Roll Number	104108360		Lot Number	8210142						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/11/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,911 1,774	pounds kilograms								

Physical Property	Test Method				Customer Minimum English Metric		E	Tes nglisi		Results Metric	
Thickness, mil (mm)	ASTM D 5994							8		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Average	,	every roll	60	, (1.5)		63	(1.6)
Minimum		every roll	54	(1.4)		58	. (1.5)
Tensile Properties:	ASTM D 638, Type IV										
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)		166	(291)
- MD		every roll	130	(228	•)		172	(301)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)		134	(234)
- MD		every roll	90	(158)		130	(227)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13					17		
- MD	(33 mm)	every roll		13					16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150					530		
- MD	(51 mm)	every roll		150					330		
Tear Resistance, lb. (N)	ASTM D 1004								1		
- TD		every roll	42	(187)		58	(258)
- MD		every roll	42	(187)		56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833										
		every roll	108	(478)		151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065										
		every 5th	80	(356)	4 .	102	(454)
Density, g/cc	ASTM D 1505										
		every 5th	0.	.940					0.947	ير	
Carbon Black Content, %	ASTM D 1603*	C4b	,						0.5		
		every 5th	•	2.0					2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2					A2		
Carbon Black Dispersion	ASTM D 5596	every our	,	~ 4				. 4	, <u>7</u> 2		
Views in Cat1 - Cat2	W2 LM D 2280	every 5th		9				ص		ŧ	
Asperity Height	GRI GM 12	5.5.y 5a.		•							
Average (mils)	OIG OIN IL	every roll		10					. 19		
• • • •		•							4+		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108363

ROLL	<i>IDENTIFICA</i>	TION	RE	RESIN INFORMATION						
Roll Number	104108363		Lot Number	8210142						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/12/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,977 1,804	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custom English		nimui Metri	-	Test English	Resu	ilts Metri	c
Thickness, mil (mm)	ASTM D 5994	·			-		 			
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(302)
- MD	•	every roll	130	(228)	162	(284)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	202	(354	.)
· - MD		every roll	90	(158)	220	(385)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roli		150				615		
- MD	(51 mm)	every roll		150		•		611		
Tear Resistance, lb. (N)	ASTM D 1004	•						1		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	102 💂	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			C	0.947		ينر
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			_					Ī	i
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over rel		10				10		
Average (mils)		every roll		10				18		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



GSE	
	Lining Technology, Inc.

Roll No. 104108364

ROLL	<i>IDENTIFICA</i>	TION	RE	ESIN INFORMATION	
Roll Number	104108364		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/12/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,848 1,745	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimui Metri		Test English	_	ilts Metri	с
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	161	(282)
- MD		every roll	130	(228)	158	(277)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	209	(365)
- MD		every roll	90	(158)	241	(421)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roli		13				19		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				585		
- MD	(51 mm)	every roll		150				640		
Tear Resistance, lb. (N)	ASTM D 1004	-						1		
- TD		every roll	.42	(187)	57	(254)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065				**					
	.,*	every ₂ 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th	بتر	0.940			0	.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	FAL								
		every 5th	ir.	A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th) .	9				10		
	CDI CM 12	every 501		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				20		
. Wordgo (millo)		0.01, 1011								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108366

ROLL	IDENTIFICA	TION		ESIN INFORMATION	
Roll Number	104108366		Lot Number	8210142	· ,
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/12/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
•	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,911 1,774	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimu Metri		Test English		ılts Metrio	
Thickness, mil (mm)	ASTM D 5994						21.5.1511		77 617 10	
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV							•		Í
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(302)
- MD		every roll	130	(228)	154	(270)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	228	(400)
- MD		every roll	90	(158)	238	(416)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				616		
- MD	(51 mm)	every roll		150				635		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
	•	every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	., (every:5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
		every 5th	~ 0).940			0	.946		
Carbon Black Content, %	ASTM D 1603*							۰.		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	every our	*	~ L				~ 2		
Views in Cat1 - Cat2	A3 1 M D 3330	every 5th	J. Company	9				10		
Asperity Height	GRI GM 12	- · · · · · · · · · · · · · · · · · · ·	•	-						
Average (mils)	5. ii 5.ii 12	every roll	*.	10				20		
		•	•							

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108368

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108368		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/12/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,913 1,775	pounds kilograms			

Physical Property	Test Method	Test Frequency	Customer English		nimun Metric		Test English		ılts Metrio	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	172	(300	.)
- MD		every roll	130	(228)	167	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	134	(234)
- MD		every roll	90	(158)	136	(238)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll	1	50				470		
- MD	(51 mm)	every roll	1	50			•	494		
Tear Resistance, lb. (N)	ASTM D 1004									•
- TD	•	every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
x,		every 5th	80	(356)	104	(463) .
Density, g/cc	ASTM D 1505									
	<i>*</i>	every 5th	0.9	940			0	946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th	2	2.0			:	2.5		
Carbon Black Dispersion	ASTM D 3015									
	*	every 5th	A	\2				A2		
Carbon Black Dispersion	ASTM D 5596	E.I.								
Views in Cat1 - Cat2		every 5th	,	9				10		
Asperity Height	GRI GM 12	over toll		^				47		
Average (mils)	•	every roll	1	0				17		
	.e.									

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108369

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108369		Lot Number	8210142	
Product Name	HDT060A000		Туре	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,914 1,775	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimu Metri		Tes English	t Resi	ults Metri	<u> </u>
Thickness, mil (mm)	ASTM D 5994								.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	. 54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					Í		`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(280)
- MD		every roll	130	(228)	163	(286)
Break Strength, ppi (N/cm) - TD	*	every roll	90	(-	158)	164	(287)
- MD		every roll	90	. (158)	219	(384)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				22		,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				429		
- MD	(51 mm)	every roll		150				600		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	51	(227)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	. , '	every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			. (0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	Fib								
Coshan Black Binnenia	* * * * * * * * * * * * * * * * * * *	every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	every Jui		J			-	10		
Average (mils)	GRI GIVI 12	every roll		10				21		
		- · · · · · ·						- '		
	2									

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RPROVE RP. 4/17/01

Roll No. 104108370

					10710057
ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108370		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,954 1,794	pounds kilograms			

Physical Property	Test	Test	Custom				Tes	t Res	ults	
1 3	Method	Frequency	English	'n	Metri	c	English	2	Metri	c
Thickness, mil (mm)	ASTM D 5994			-						
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	163	. (284)
- MD		every roll	130	(228)	163	(285)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	184	ĺ	322)
- MD		every roll	90	(158)	180	ì	316	, }
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150	*			678		
- MD	(51 mm)	every roll		150				662		
Tear Resistance, lb. (N)	ASTM D 1004	,		.00				002		
- TD		every roll	42	(187)	53	(236	١
- MD	•	every roll	42	. (187)	54	ì	240)
Puncture Resistance, lb. (N)	ASTM D 4833	·		•		,		`		,
•		every roll	108	(478)	161	(716)
Puncture Resistance, lb. (N)	FTMS 101C/2065					·		•		,
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505							•		•
•		every 5th	(0.940			C	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				18		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108371

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108371		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,934 1,784	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Te. Englis	st Res h	ults Metri	c c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	56	Ì	1.4)
Tensile Properties:	ASTM D 638, Type IV					·		`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	168	(293)
- MD		every roll	130	(228)	158	(277)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	172	. (302)
- MD		every roll	90	(158)	175	(307).
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		•
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				600		
MD	(51 mm)	every roll		150				658		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833							,		•
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	·· · · ·	every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
·		every 5th	+	0.940				0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
<u>.</u> <u>.</u> : <u>.</u> .		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	5		_						
	00/ 01/ 40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				10		
. Horago (IIIIIO)		every toll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108372

					1041003/
ROLL	IDENTIFICA	TION		ESIN INFORMATION	
Roll Number	104108372		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.937
Weight	3,937 1,786	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Tes English	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						25.785.57		172 617 6	
Average		every roll	60	(1.5)	62	(1.6	١
Minimum		every roll	54	(1.4	•	58	,	1.5)
Tensile Properties:	ASTM D 638, Type IV			•		,		. '	1.0	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	163	(285)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	175	ì	307)
- MD		every roll	90	(158	•	166	,	290	, 1
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		17	200	,
- MD	(33 mm)	every roll	. 13			17				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150		642					
- MD	(51 mm)	every roll		150				609		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	Ċ	187)	55	(245)
- MD	•	every roll	42	(187)	52	i	231	, 1
Puncture Resistance, lb. (N)	ASTM D 4833			•		,		`		,
		every roll	108	(478)	163	(725)
Puncture Resistance, lb. (N)	FTMS 101C/2065							,		·
	•	every 5th	[^] 80	(356)	106	(472)
Density, g/cc	ASTM D 1505				بر					
		every 5th	O	.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			,	2.4		
Carbon Black Dispersion	ASTM D 3015									
Corbon Blook Biran		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	5 5th		1	7					
Asperity Height	CDI CN 40	every 5th		9.				10		
Average (mils)	GRI GM 12	every roll		10				17		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

PROJE 8.7. 4/16/01

Roll No. 104108373

			_	21000 1101	1011000				
ROLL	IDENTIFICA	TION	RESIN INFORMATION						
Roll Number	104108373		Lot Number	8210142					
Product Name	HDT060A000		Type	TR400GS					
Production Date	4/14/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA					
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results				
•	6.9	meters	Density, g/cc	ASTM D 1505	0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0				
Weight	3,932 1,784	pounds kilograms							

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Tes Englisi	t Resi	ults Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV							·		ĺ
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	162	(283)
- MD		every roll	130	(228)	165	(289)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	176	(309)
- MD	•	every roll	90	(158)	173	(302)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		•
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				664		
- MD	(51 mm)	every roll		150				641		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065			.,						
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505						j.			
		every 5th	(0.940				0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2		ie		A2		
Carbon Black Dispersion	ASTM D 5596	C.I		_		1	•			
Views in Cat1 - Cat2	001.014.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				25		
·		every ron		. 10				25		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

R P R O V C O A / 16/01 QA



Roll No. 104108374

				1000 110.	1041003/
ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number Product Name Production Date	104108374 HDT060A000 4/14/01		Lot Number Type	8210142 TR400GS	
Froduction Date	4/ 14/0 1		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,924 1,780	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom Englisi		inimu Metri			t Res	-	
Thickness, mil (mm)	ASTM D 5994	Trequency	Ligisi	1	Metr	ic .	English	!	Metri	c
Average	ACTIVI D 3334	every roll	60	(1.5)	64	,		
Minimum		every roll	54	(1.4)	6 <u>1</u> 56	()
Tensile Properties:	ASTM D 638, Type IV		04	,	1.7	,	30	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(. 228)	153	,	268	١
- MD		every roll	130	ί	228		162	(283	,
Break Strength, ppi (N/cm) - TD		every roll	90	í	158	•	176	(308))
- MD		every roll	90	(158)	160	(281	′
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13	,,,,	,	100	17	201)
- MD	(33 mm)	every roll		13						
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			•	17		
- MD	(51 mm)	every roll		150				677		
Tear Resistance, lb. (N)	ASTM D 1004	5 vo. y vo.		150				620		
- TD	7.6.m 2 7667	every roll	42	(187)	53	,	236)
- MD		every roll	42	(187)	52	,	231)
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	32	'	231	,
		every roll	108	(478)	163	٠ (725)
Puncture Resistance, lb. (N)	FTMS 101C/2065			•		,		`		,
		" every 5th	80	(356)	105	(467	١
Density, g/cc	ASTM D 1505							•		,
		every 5th	. (0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
_		every 5th		2.0			;	2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	<i>)</i>								
		every. 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	oven:!!		40						
· · · · · · · · · · · · · · · · · · ·		every roll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108375

ROLL	IDENTIFICA	TION			104100373					
	IDENTIFICA	IION	RESIN INFORMATION							
Roll Number	104108375		Lot Number	8210142						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/14/01		Supplier	Phillips						
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
GI	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,920 1,778	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custon Englis		inimu Metri		Tes. English	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						Lingusia		MEUL	
Average	•	every roll	60	(1.5)	62	(1.6)
Minimum	•	every roll	54	(1.4	•	57	,	1.4)
Tensile Properties:	ASTM D 638, Type IV			•		,	•	,	•••	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(293)
- MD		every roll	130	(228)	155	(271)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	179	(312)
- MD		every roll	90	(158)	173	(303)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		17			,		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll	150		670					
- MD	(51 mm)	every roll		150				667		
Tear Resistance, lb. (N)	ASTM D 1004	·						00,		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833			`		,		•	200	,
		every roll	108	(478)	157	(699	}
Puncture Resistance, lb. (N)	FTMS 101C/2065				•			,		,
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505			ينر						·
		every 5th		0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			:	2.5		
Carbon Black Dispersion	ASTM D 3015									
Corbon Block Biography		every 5th	*	A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596		1	-						
Asperity Height	051.011.10	every 5th	•	9				10		
Aspenty Height Average (mils)	GRI GM 12									
		every roll		10			:	23		
·				is.						

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

P ROLE 8.2. 4/16/01



Roll No. 104108376

			11011 1101 101100376							
ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION						
Roll Number	104108376		Lot Number	8210142						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/14/01		Supplier	Phillips						
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,892 1,765	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custom Englisi		inimu Metri		Tes. English	t Resi	ults Metri	ic
Thickness, mil (mm)	ASTM D 5994			"						
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	. (1.4)
Tensile Properties:	ASTM D 638, Type IV							`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(291)
- MD		every roll	130	(228)	161	(281)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	203	·	355)
- MD	•	every roll	90	(158	.)	232	,	406	•
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		17		. '
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				587		
- MD	(51 mm)	every roll		150				607		
Tear Resistance, lb. (N)	ASTM D 1004	•								
- TD		every roll	42	(187)	54	. (240)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833						•	•		,
		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	105	(467	.)
Density, g/cc	ASTM D 1505									
•	,i	every 5th	1	0.940			C	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
	<u>.</u>	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2	i	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				17		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

PROVE R.P. 4/16/01 QA



Roll No. 104108377

			1101 101 101 1003/								
ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION							
Roll Number	104108377		Lot Number	8210142	7						
Product Name	HDT060A000		Type	TR400GS							
Production Date	4/14/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
	6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08						
Weight	3,878 1,759	pounds kilograms									

Physical Property	Test	Test	Customer Minimun			m	Test Results			
	Method	Frequency	English	1	Metri	c	English		Metri	с
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roil	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									,
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	167	(292)
- MD		every roll	130	(228)	166	(290)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	219	(383)
MD		every roll	90	(158)	225	(393)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			16			•
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				598		
- MD	(51 mm)	every roll		150				57,3		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD	,	every roll	42	(187)	57	(254	}
- MD		every roll	42	(187)	55	(245	}
Puncture Resistance, lb. (N)	ASTM D 4833			•		,		`		,
	4	every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065									·
	.,(every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
	£.	every 5th	(0.940			c	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
	ř	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	,								
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				25		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

R.P. 4/16/01 QA



Roll No. 104108378

ROLL	IDENTIFICA	TION	Di	ECIN INCODIA CON	10,1005/0
Roll Number Product Name Production Date	104108378 HDT060A000 4/14/01		Lot Number Type Supplier	8210142 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,830 1,737	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Tes Englisi	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994			·			2.181131		1716671	
Average		every roll	60	(1.5)	62	(1.6	١
Minimum		every roll	54	(1.4)	57	. ()
Tensile Properties:	ASTM D 638, Type IV			•		,	.	`	1.4	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(280	}
- MD		every roll	130	(228)	157	ì	276)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	197	ì	344)
- MD		every roll	90	(158	•	241	. ,	422)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		17	722	,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				579°		
- MD	(51 mm)	every roll		150						
Tear Resistance, lb. (N)	ASTM D 1004	3.3.7.3.		150				654		
- TD		every roll	42	(187)	57	,	254)
- MD		every roll	42	ì		•	54	,	240	
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	34	,	240)
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065			•		,		`	000	,
ı	· · · · ·	every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505					,		`		'
yk.		every 5th	O	.940			c	0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
- · · · · · · · · · · · · · · · · · · ·		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12									
Average (mils)		every roll		10				19		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 104108379

ROLL	IDENTIFICA	TION .	R.E.	ESIN INFORMATION	
Roll Number	104108379		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,790 1,719	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Test English	Resi	ults Metri	 c
Thickness, mil (mm)	ASTM D 5994		7				9			
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					· ·		`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(299)
- MD		every roll	130	(228)	165	(288)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	206	(360)
- MD		every roll	90	(158)	203	(356)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				581		
- MD	(51 mm)	every roll		150				579		
Tear Resistance, lb. (N)	ASTM D 1004	·						1		
- TD		every roll	42	(187)	56	. (249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833			•		•		`		,
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									·
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
, eli		every 5th	C).940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			:	2.5		
Carbon Black Dispersion	ASTM D 3015									
O-t- D D		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
	001.014.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				24		
		every roll		10				24		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



GSE Lining Technology, Inc.

Roll No. 104108380

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108380		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1303 ASTM D 1238 (190/2.16)	0.937
Weight	3,842 1,743	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom Englis)		inimu Metr		Tes Englisi	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						2.1.guar		MEUL	
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	,	1.4)
Tensile Properties:	ASTM D 638, Type IV			•		,	•	,	1.4	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	163	(284)
- MD		every roll	130	(228)	162	(284)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	206	·	361)
- MD		every roll	90	(158	•	215	ì	377)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		•		17	0	,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			590			
- MD	(51 mm)	every roll		150				57,8		
Tear Resistance, lb. (N)	ASTM D 1004	•	•					3,0		
- TD		every roll	42	(187)	55	. (245)
- MD		every roll	42	(187)	56	ì	249	ì
Puncture Resistance, lb. (N)	ASTM D 4833			•		•		`		,
•	,	every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	·	every 5th	80	(356)	105	(.	467)
Density, g/cc	ASTM D 1505									
		every 5th	C).940			C	.946		<i></i>
Carbon Black Content, %	ASTM D 1603*									
Contrar Black Bi		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion	40TH D #500	every 5th		A2				A2	ŝ	
Views in Cat1 - Cat2	ASTM D 5596	Sugar, Eth		•						*
Asperity Height	GRI GM 12	every 5th		9				10	•	
Average (mils)	GRI GIVI 12	every roll		10				18	-	

Irder No.

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Customer Name

PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

Location
*Modified

GSE-4.10-007 Rev - - 07/00

2.7. 4/16/01

GSE

Lining Technology, Inc.

Roll No. 104108382

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108382		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,925 1,780	pounds kilograms			

Physical Property	Test Method	Test Frequency	Customer English	Test Results English Metr						
Thickness, mil (mm)	ASTM D 5994			_	Metri					
Average		every roll	60	(1.5)	62	(1.6)
Minimum	•	every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV							,		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(293)
- MD		every roll	130	(228)	159	(278)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	220	(385)
- MD		every roll	90	(158)	257	(450)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		ĺ
- MD	(33 mm)	every roll	13				19			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				625			
- MD	(51 mm)	every roll	1	150				654		
Tear Resistance, lb. (N)	ASTM D 1004							ž,		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
·		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
		every 5th	0.9	940			0	.946		s):
Carbon Black Content, %	ASTM D 1603*									
		every 5th	2	2.0			;	2.5		
Carbon Black Dispersion	ASTM D 3015									
Onton Bl. 1 Bt		every 5th	A	\2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
	05/ 01/ 40	every 5th	,	9				10		
Asperity Height Average (mils)	GRI GM 12	every roll	1	0			:	20		

rder No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RP ROL RP. 4/16/01 QA

Roll No. 104108383

ROLL	IDENTIFICA	TION	- RI	ESIN INFORMATION	
Roll Number Product Name Production Date	104108383 HDT060A000 4/14/01		Lot Number Type Supplier	8210142 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,894 1,766	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Tes Englis)	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994		8				Digusi		Weiri	10
Average		every roll	60	(1.5)	62	(1.6	١
Minimum		every roll	54	(1.4	•	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV			•		,		,	1.4	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(286)
- MD		every roll	130	(228)	165	(289	•
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	233	ì	407	,
- MD		every roll	90	(158)	247	(:)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			17		,		
- MD	(33 mm)	every roll	13		18					
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			636				
- MD	(51 mm)	every roll		150				635		
Tear Resistance, lb. (N)	ASTM D 1004							,		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	55	ì	245)
Puncture Resistance, lb. (N)	ASTM D 4833					•		`		,
		every roli	108	(478)	161	(716	}
Puncture Resistance, lb. (N)	FTMS 101C/2065									•
		every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
		every 5th	Ò	.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
Contrary Black B		every 5th	**	A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				25		

Irder No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev -- 07/00

PROVE PROVE 4/16/01 QA

Roll No. 104108384

ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number	104108384		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,856 1,749	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Tes English	t Res	ults Metri	c
Thickness, mil (mm)	ASTM D 5994									_
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					Í		`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(296)
- MD		every roll	130	(228)	164	(288)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	238	(416)
- MD		every roll	90	(158)	267	(466)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			17			,	
- MD	(33 mm)	every roll	13			17				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			647				
- MD	(51 mm)	every roll		150				674		
Tear Resistance, lb. (N)	ASTM D 1004	·						1		
- TD		every roll	42	(187	}	59	. (263)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	0.	,	204	,
		every roll	108	(478)	161	(716)
Puncture Resistance, lb. (N)	FTMS 101C/2065							,		,
		every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
		every 5th	٠.	0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				17		-

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108385

ROLL	IDENTIFICA	TION	Ri	ESIN INFORMATION	10410030
Roll Number Product Name Production Date	104108385 HDT060A000 4/14/01		Lot Number Type Supplier	8210142 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1303 ASTM D 1238 (190/2.16)	0.937
Weight	3,920 1,778	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom Englisi		inimu Metr		Tes Englisi	st Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994			-			Lingus		Metr	:c
Average		every roll	60	(1.5		62	(1.6	,
Minimum		every roll	54	,	1.4	•	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV			•		,	O,	,	1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(288)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	242	ì	424)
- MD		every roll	90	(158	•	232	,	405)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		18	400	,
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				618		
- MD	(51 mm)	every roll		150						
Tear Resistance, lb. (N)	ASTM D 1004	0.0.7.0		150			٠	60 9		
- TD		every roll	42	(187)	58	,	250	,
- MD		every roll	42	(187)	58	(258)
Puncture Resistance, lb. (N)	ASTM D 4833	, , , , , , , ,	,-	`	107	,	36	(258)
		every roll	108	(478)	159	,	708	,
Puncture Resistance, lb. (N)	FTMS 101C/2065			•		,			, 00	,
		every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505			•		•		`		,
		every 5th	o	.940			c	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108386

DOLL	7			Kott No.	104108386
	IDENTIFICA	TION	R	ESIN INFORMATION	
Roll Number Product Name Production Date	104108386 HDT060A000 4/14/01		Lot Number Type Supplier	8210142 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,880 1,760	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Te: Englis	st Res		
Thickness, mil (mm)	ASTM D 5994				1.200		Lingus	-	Metr	<i>c</i>
Average		every roll	60	(1.5)	62	(1.6	,
Minimum		every roll	54	ì	1.4	•	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV			`		,	O,	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(289)
- MD		every roll	130	(228	·)	170	(298)
Break Strength, ppi (N/cm) - TD		every roll	90	(158	•	259	,	453)
- MD		every roll	90	(158	,	242	(424	•
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		,	242	18	444)	
- MD	(33 mm)	every roll	13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				673			
- MD	(51 mm)	every roll		150			620			
Tear Resistance, lb. (N)	ASTM D 1004	, . .		100				620		
- TD		every roll	42	(187)	59		263)
- MD		every roll	42	()	61	′	271	
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	01	(2/1)
		every roll	108	(478)	160	1	712)
Puncture Resistance, lb. (N)	FTMS 101C/2065			•		,		`		,
	•	every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505							,		,
		every 5th	C	.940			C	0.946		
Carbon Black Content, %	ASTM D 1603*									
Code Bullion		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
Carbon Block Discouries		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height	001.011.10	every 5th		9				10		
Average (mils)	GRI GM 12									
		every roll		10				20		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108387

DOLL	In minutes of			Rott 110.	104100387
ROLL	IDENTIFICA	TION		ESIN INFORMATION	
Roll Number	104108387		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,888 1,764	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Tes English	t Res	ults Metri	ia
Thickness, mil (mm)	ASTM D 5994						20081137		172617	
Average	•	every roll	60	(1.5)	62	(1.6)
Minimum [*]		every roll	54	(1.4)	57	()
Tensile Properties:	ASTM D 638, Type IV			•		,	0.	`	1.4	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(303)
- MD		every roll	130	(228)	170	(298)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	237	(415)
- MD		every roll	90	(158	•	235	(411)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		,		17	411	,	
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				609		
- MD	(51 mm)	every roll		150				614		
Tear Resistance, lb. (N)	ASTM D 1004	,						1		
- TD		every roll	42	(187)	58	: (258)
- MD		every roll	42	(187)	58	(258)
Puncture Resistance, lb. (N)	ASTM D 4833			•		,		•	200	,
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065							•		•
		every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
		every 5th	C	.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
Octor Division		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
	0.01.01.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Lining Technology, Inc.

Roll No. 104108388

		<u> </u>		
IDENTIFICA	TION	ESIN INFORMATION		
104108388		Lot Number	8210142	
HDT060A000		Type	TR400GS	
4/14/01		Supplier	Phillips	
520 158	feet meters	GS.	E RESIN TEST DATA	
22.5	feet	<u>Property</u>	Test Method	Results
6.9	meters	Density, g/cc	ASTM D 1505	0.937
11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
3,880 1,760	pounds kilograms			
	104108388 HDT060A000 4/14/01 520 158 22.5 6.9 11,700 1,086 3,880	HDT060A000 4/14/01 520 feet meters 22.5 feet 6.9 meters 11,700 sq. feet 1,086 sq. meters 3,880 pounds	104108388	Lot Number 8210142

Physical Property	Test Method	Test Frequency	Custome English		inimui Metri		Test English		ults Metri	с.
Thickness, mil (mm)	ASTM D 5994			•						
Average		every roll	60	(1.5)	62	. (1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV		,					•		·
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(281)
- MD		every roll	130	(228)	169	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	239	(418)
- MD		every roll	90	(158)	244	(427)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				17		·	
- MD	(33 mm)	every roll		13			17			
Break Elongation, % - TD	gauge length = 2.0"	every roli		150				622		
- MD	(51 mm)	every roll		150				625		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833							•		•
		every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
		every 5th	0	.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			:	2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	over 5th		^				40		
	001.014.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				22		
		010. y 10.11		. 0				- -		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108389

ROLL	IDENTIFICA	TION			107100507
		TION		ESIN INFORMATION	
Roll Number	104108389		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,787 1,718	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custon Englis					t Res	_	
Thickness, mil (mm)	ASTM D 5994	Trequency	Engus	n	Metr	ıc	English	n	Metri	c
Average	A31M D 3994	every roll	60	,	4-	,				
Minimum		every roll	54	(1.5	•	62	()
Tensile Properties:	ASTM D 638, Type IV	every ton	54	(1.4)	56	(1.4)
Yield Strength, ppi (N/cm) - TD	, 10 1111 D 000, 13pc 14	every roll	130	(228	`	170	,	204	
- MD		every roll	130	(228		172	(301)
Break Strength, ppi (N/cm) - TD		every roll	90	(•	168	(295) .
- MD		every roll		(158		257	(450)
Yield Elongation, % - TD	gauge length = 1.3"	·	90	(158)	243	(426)
- MD	-	every roll		13				17		
Break Elongation, % - TD	(33 mm)	every roll		13				16		
	gauge length = 2.0"	every roll		150				651		
, - MD	(51 mm)	every roll	•	150				612		
Tear Resistance, lb. (N)	ASTM D 1004							٠.		
- TD		every roll	42	(187	·)	61	(271)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833							·		•
		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065	•								
	· · · ·	every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505							•		•
		every 5th	(0.940	-		C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				20		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



<u>Lining Technology, Inc.</u>

Roll No. 104108390

ROLL	IDENTIFICA	TION			104100390
		TION		ESIN INFORMATION	
Roll Number	104108390		Lot Number	8210142	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
67	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,841 1,742	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English	inimu Metr		Test Results				
Thickness, mil (mm)	ASTM D 5994	1 requercy	Lingusi	ı	Meir	ic	English	n	Metri	c
Average	7 10 THI D 0004	every roll	60	,	1.5	,	60			
Minimum		every roll	54	(1.5	•	62	(1.6)
Tensile Properties:	ASTM D 638, Type IV	Overy ren	34	(1.4)	56	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	,	200	,
- MD		every roli	130	(228	•	171	(289)
Break Strength, ppi (N/cm) - TD		every roll	90	′	158	,		(300)
- MD		every roll	90	(,	249	(436)
Yield Elongation, % - TD	gauge length = 1.3"	·	90	10	158)	254	(445)
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	•	every roll	13			16				
- MD	gauge length = 2.0"	every roll		150				642		
· ·-	(51 mm)	every roll		150				634		
Tear Resistance, lb. (N) - TD	ASTM D 1004							2		
- MD		every roll	42	(187)	59	(263)
··· ·		every roll	42	(187)	61	(271)
Puncture Resistance, lb. (N)	ASTM D 4833									
Puncture Perioden and the (A1)		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
Donoity of		every 5th	8C	(356)	105	(467)
Density, g/cc	ASTM D 1505									
Carbon Black Content, %		every 5th	0).940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
Carbon Black Dispersion		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion		every 5th		A2				A2		
Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height	0.51.01.4.5	every 5th		9				10		
Average (mils)	GRI GM 12									
		every roll		10				20		

`rder No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RPROVED 8.7. 4/16/01 QA



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 16, 2001

PSN# 4137-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210138

P.O. Number: Date Shipped:

02/16/01

Package:

PSPX 6808

Quantity:

185100 LBS.

Melt Index, ASTM D1238:

.090 G/10 MIN

HLMI Flow Rate, ASTM D1238: 10.3 G/10 MIN

.937 G/CC

Density, ASTM D1505: HLMI/MI Ratio:

114.

Production Date:

02/08/01

ESCR, F/50, Cond. B:

1500 HOURS **

Brittleness Temperature:

<-70 C **

Color:

134.000

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630

EED_16_7004

D6 2 1 1 2... . D2 4... . 1



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 23, 2001

PSN# 4860-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type: HHM TR-400GS

Lot Number: 8210142

P.O. Number:
Date Shipped: 02/23/01

Package: PSPX 6639
Quantity: 184950 LBS.
Melt Index, ASTM D1238: .080 G/10 MIN

HLMI Flow Rate, ASTM D1238: 11.9 G/10 MIN

Density, ASTM D1505: .937 G/CC
HLMI/MI Ratio: 149.
Production Date: 02/09/01
ESCR, F/50, Cond. B: 1500 HOURS **

Brittleness Temperature: <-70 C ** Color: 110.250

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630

11



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 27, 2001

PSN# 5206-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

K306

Lot Number:

8210181

P.O. Number: Date Shipped:

02/27/01

Package:

PSPX 6610

Quantity:

184200 LBS.

HLMI Flow Rate, ASTM D1238: 10.2 G/10 MIN Density, ASTM D1505:

.937 G/CC

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630 11

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations



			Date:	12/5/01
To:	Handex of Florida, Inc.		Job:	06104-28936-
10.	2306 Gravel Drive			W. Pasco County Landfill Expansion Cells A-3 and SW-2
	Ft. Worth, TX 76118-	<u> </u>		
Attn:	Gary Conaway, V. P.			
	6_print(s) each of the following Subj	mittal: r(Set	D-02776-013-A (2 of 4))	QA/QC Roll Certificates: 60 mil Textured
	which are:	1.	APPROVED	∑
		2.	APPROVED	AS NOTED
		3.	APPROVED	AS NOTED/CONFIRM
		4.	APPROVED /	AS NOTED/RESUBMIT
		5.		VED□
		6.		ATTACHED□
		7.	FOR YOUR I	NFORMATION
		8.	FOR YOUR F	REVIEW
		1		
Com	ments:			
	1 - Jack McHugh/CDM			

By // // // // // Abdul Mulla-Saleh

COMANCO ENVIRONMENTAL CORPORATION 7911 Professional Place, Tampa, Florida 33527

Phone (813)988-8829 Fax (813)988-3720

	SUBM	IITTAL CO	NTROL FO)RM	Many and Apply a		
Project:	WEST PASCO COUNTY LAI	NDFILL EXPANS	SION - CELLS A-	3 AND SW-2			
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Powell		
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.P		
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.		
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera		
COMPLETED B	Y CONTRACTOR:	<u>, , , , , , , , , , , , , , , , , , , </u>					
Certification States	ment: By this submittal, I hereb materials, dimensions, c applicable approved shop	atalog numbers and	similar data and I h	fied all field measuremen ave checked and coord Date:	ats, field construction criteri inated each item with oth		
Submittal Identifie	т: D-02776-013-А	Original Sul	hmittal	Supplement			
Submitted:	November 15, 2001	Original Sur		Supplement			
No. of Copies:	8	Resubmittal		Information	Only		
.		<u> </u>		J	Ciny		
Submittal Descripti	ion: QA/QC Roll Certificates:	60 mil HDPE Tex	ctured Liner (Set 2 of 4	(52 rolls)			
Specification Identi	oifier: 01300, 02776 Section 1.0.						
Manufacturer:	GSE Lining Technologies	, Inc.					
Installer:	COMANCO Environment						
COMPLETED BY No. of Copies Rece Status:			No. of Co	opies Returned: Code 4 - Approve	d As Noted, Resubmit		
	Code 2 Amerovad As N	Total	, <u> </u>				
	Code 2 - Approved As N	loted	J	Code 5 - Not App	roved		
	Code 3 - Approved As N	Joted, Confirm		Code 6 - Commen	ts Attached		
Engineer Stamp o	/						
	1	DRAWING RE					
	Approved A Not Approved as Moted Command Command Command Command Command Command Command Command Contractor from error or or otor's responsibility of addresses the Contractor from error or or otor's responsibility of addresses the Contractor is responsibility of addresses of construction and manufacture, procedures of construction and CAMP DRESSER & McKEE INC.	oved one mones ched of this shop drawing in materials as prosen gn concept. This remindesions in this out easing any deviations	iviow does not rollevential or from the Contract D	ow of plana, e tho ontra-ocum-			



Roll No. 104108391

ROLL IDENTIFICATION			RESIN INFORMATION							
Roll Number 104108391		Lot Number	Lot Number 8210163							
Product Name	HDT060A000		Туре	TR400GS						
Production Date	4/14/01		Supplier							
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cć	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.938					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07					
Weight	3,878 1,759	pounds kilograms								

Dissoir al Dans auto	Test	Test	Customer Minimum				Test Results			
Physical Property	Method	Frequency	English		Metric		English	1	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average	!	every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(303)
- MD		every roll	130	(228)	160	(281)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	177	(310)
- MD		every roll	90	(158)	201	(352)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				19		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length ≈ 2.0"	every roll		150				500		
- MD	(51 mm)	every roll	150				527			
Tear Resistance, lb. (N)	ASTM D 1004							ŧ		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	54	. (240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	147	(654)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
		every 5th	•	0.940			().946		
Carbon Black Content, %	ASTM D 1603*							٥.		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	545		42				A2		
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	every 5th		۵				10		
Views in Cat1 - Cat2	001.014.40	every out		3				10		
Asperity Height	GRI GM 12	every roll		10				23		
Average (mils)		every roll	130 (228) 130 (228) 90 (158) 90 (158) 13 13 150 150 42 (187) 42 (187)							

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108392

ROLL	IDENTIFICAT	TION	RESIN INFORMATION							
Roll Number Product Name Production Date	104108392 HDT060A000 4/14/01		Lot Number Type Supplier	8210163 TR400GS Phillips						
Length ≈(+/- 1%)	520	feet	GS	GSE RESIN TEST DATA						
Width (Nominal)	158 meters		<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.938					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07					
Weight	3,934 1,784	pounds kilograms								

Physical Property	Test Method	1631		Customer Minimum English Metric				Test Results English Metric		
Thickness, mil (mm)	ASTM D 5994							,		,
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	153	(268)
- MD		every roll	130	(228)	156	(273)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	190	(332)
- MD		every roll	90	(158)	209	(365)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			16			
- MD	(33 mm)	every roll		13			17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			578			
- MD	(51 mm)	every roll		150			581			
Tear Resistance, lb. (N)	ASTM D 1004					Ž.				
- TD		every roll	42	(187	•	52	(231)
- MD		every roll	42	(187)	48	(214)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	161	(716)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505	every 5th		0.940		0.946				
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0			2.5			
Carbon Black Dispersion	ASTM D 3015	every 5th	A2				A2			
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th	9			10				
Asperity Height Average (mils)	GRI GM 12	every roll	10				21			

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified





Lining Technology, Inc.

Roll No. 104108395

ROLL	IDENTIFICA	TION	RE	RESIN INFORMATION					
Roll Number	104108395		Lot Number	8210163					
Product Name	HDT060A000		Type	TR400GS					
Production Date	4/14/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GSI	E RESIN TEST DATA					
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results				
	6.9	meters	Density, g/cc	ASTM D 1505	0.938				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07				
Weight	3,900 1,769	pounds kilograms							

Physical Property	Test	Test	Custom					Res		
	Method	Frequency	English	t .	Metri	c	English		Metric	<i>c</i>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(290)
- MD		every roll	130	(228)	158	(277)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	162	(283)
- MD		every roll	90	(158)	233	(408)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				519		
- MD	(51 mm)	every roll		150				636		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	50	(223) ·
Puncture Resistance, lb. (N)	ASTM D 4833	•								
		every roll	108	(478)	153	. (681)
Puncture Resistance, lb. (N)	FTMS 101C/2065				•					
		every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
	•	every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	4								
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12							•		
Average (mils)		every roll		10				20		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 104108396

ROLL	<i>IDENTIFICAT</i>	TION	RE	SIN INFORMATION	
Roll Number Product Name Production Date	104108396 HDT060A000 4/14/01		Lot Number Type Supplier	8210163 TR400GS Phillips	
Length ≈(+/- 1%)	520	feet	GSZ	E RESIN TEST DATA	
Width (Nominal)	158 22.5 ∵6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,872 1,756	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		iimum Metric		Test English	Resu M	lts Aetric	
Thickness, mil (mm)	ASTM D 5994		60	(1.5	}	63	,	1.6)
Average		every roll		(•	57	,	1.4)
Minimum		every roll	54	(1.4)	37	(1.7	,
Tensile Properties:	ASTM D 638, Type IV	-vee rell	130	(228)	164	ı	287)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	156	(273)
- MD		every roll		(•	174	,	305)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)		(324)
- MD		every roll	90	(158)	185		324	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				510		
- MD	(51 mm)	every roll		150				523		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187	•	53	(236)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833	every roli	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	98		436)
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified



GSE
Lining Technology, Inc.

Roll No. 104108399

ROLL	<i>IDENTIFICA</i>	TION	RE	SIN INFORMATION	
Roll Number	104108399		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,912 1,774	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimu Metri		Test English	Resi	ults Metri	 c
Thickness, mil (mm)	ASTM D 5994		 							
Average		every roll	60	(1.5)	¹ 61	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	179	(314)
- MD		every roll	130	(228)	182	(318)
Break Strength, ppi (N/cm) - TD	,	every roll	90	(158)	190	(332)
- MD		every roll	90	(158)	144	(252)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll	•	150				530		
- MD	(51 mm)	every roll		150				440		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	.,•	every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	avea. Eth		•						
Views in Cat1 - Cat2	001 011 10	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				17		
Average (mile)		every roll.		10				17		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

R.P. 4/16/01 QA

Lining Technology, Inc.

Roll No. 104108400

ROLL	IDENTIFICA:	TION		SIN INFORMATION	
Roll Number	104108400		Lot Number	8210163	***********
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,888 1,764	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metri		Test English		ılts Metrio	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5) :	61	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD		every roll	130	(228)	171	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	201	(351)
- MD		every roll	90	(158)	179	(314)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				560		
- MD	(51 mm)	every roll		150				530		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065							,		
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
•		every 5th	•	0.940			C).946		
Carbon Black Content, %	ASTM D 1603*							0.0		
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Outhor Black Biography	ACTNA D EEOC	every Sur		74				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	3.31y 341		_						
Aspenty neight Average (mils)	OIN OW 12	every roll		10				22		
		•								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108401

Littig	Technology, 1				
ROLL	IDENTIFICAT	TION	1	RESIN INFORMATION	
Roll Number Product Name Production Date	104108401 HDT060A000 4/15/01		Lot Number Type Supplier	8210163 TR400GS Phillips	
Length ≈(+/- 1%)	520	feet	(GSE RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,947 1,790	pounds kilograms			
Physical P	roperty	Test Method	Test Frequency	Customer Minimum Test I English Metric English	Results Metric

	Test	Test	Custome					Kesu.		
Physical Property	Method	Frequency	English	/	1etric		English	Λ	1etric	
Thickness, mil (mm)	ASTM D 5994			,	4.5	`	61	(1.5)
Average		every roll	60	(1.5)	56	(1.4)
Minimum		every roll	54	(1.4)	56	(1.4	,
Tensile Properties:	ASTM D 638, Type IV		130	(228)	182	(319)
Yield Strength, ppi (N/cm) - TD		every roll		•	228)	173	ì	302)
- MD		every roll	130	()	140	(245)
Break Strength, ppi (N/cm) - TD		every roll	90	(•	181	(316)
- MD		every roll	90	(158)	101	16	310	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13						
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				327		
- MD	(51 mm)	every roll		150				540		
Tear Resistance, lb. (N)	ASTM D 1004						67		254)
- TD		every roll	42	(187	•	57	(Ċ
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	143	(636)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.946	i	
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified GSE-4.10-007 Rev - - 07/00 R.P. 4/16/01 QA



Roll No. 104108402

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	104108402		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,943 1,789	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu. Metri		Test English	Resi	ılts Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	182	(319)
- MD		every roll	130	(228)	183	(321)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	141	(246)
- MD		every roll	90	(158)	173	(302)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				350		
- MD	(51 mm)	every roll		150				460		
Tear Resistance, lb. (N)	ASTM D 1004		_					1		
- TD	•	every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
•		every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	. (every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th	I	0.940			C).946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
Onthe Black Bing		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	every Jul		3				10		
Aspenty neight Average (mils)	GRI GIVI 12	every roll		10				22		
· · · · · · · · · · · · · · · · · · ·		0.0.7.0.0		10						

Order No.

20979

Location

Customer Name PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108403

	-		•		
ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108403		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,896 1,767	pounds kilograms			

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	ilts	
Physical Property	Method	Frequency	English	1	Metric	;	English		Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	172	(301)
- MD		every roll	130	(228)	173	(302)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(262)
- MD		every roll	90	(158)	173	(302)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				470		
- MD	(51 mm)	every roll		150				500		
Fear Resistance, lb. (N)	ASTM D 1004									
- TD	•	every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
, ,		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	`	every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505	2.0								
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015			40				A2		
	•	every 5th		A2				AZ		
Carbon Black Dispersion	ASTM D 5596	Eth		9				10		
Views in Cat1 - Cat2		every 5th		J				ŲΟ		
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		every roll		10				. •		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108404

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108404		Lot Number	8210163	V-1-
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
,	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,825 1,735	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metric		Test English		ilts Metric	
Thickness, mil (mm)	ASTM D 5994		'							_
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	60	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	163	(284)
- MD		every roll	130	(228)	155	(271)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	188	(328)
- MD		every roll	90	(158)	224	(393)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				575		
- MD	(51 mm)	every roll		150				623		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	64	(285)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	•	every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505	· · ·	_							
		every 5th	C	0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*	EAL		2.0				0.0		
Onthe Black Black	A OTA D 0045	every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	overy our		/ 12				7.2		
Views in Cat1 - Cat2	ACTIVID 0000	every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				19		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108405

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108405		Lot Number	8210163	
Product Name	HDT060A000	•	Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	500 152	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.938
Sheet Area	11,250 1,045	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,765 1,708	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English		lts Metric	;
Thickness, mil (mm)	ASTM D 5994	· · · · · · · · · · · · · · · · · · ·								
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	158	(276)
- MD		every roll	130	(228)	156	(272)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	194	(339)
- MD		every roll	. 90	(158)	240	(420)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			•	575		
- MD	(51 mm)	every roll		150		•		648		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	51	(227)
- MD		every roll	42	(187)	48	(214)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
•	.,•	every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			().945		
Carbon Black Content, %	ASTM D 1603*							2 5		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				Λ'		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.014.40	every 5th		3						
Asperity Height	GRI GM 12	every roll		10				22		
Average (mils)		Gvery full		. 0						

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

R.P. 4/16/01 QA



Roll No. 104108407

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108407		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01	·	Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Ivominae)	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,872 1,756	pounds kilograms	•		·

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu l	lts Metric	<u>,</u>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					٠				
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(289)
- MD		every roll	130	(228)	159	(279)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	202	(353)
- MD		every roll	90	(158)	218	(382)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll	13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				591		
- MD	(51 mm)	every roll		150				60,1		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	55	(·	245)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
•		every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505	·								
	•	every 5th		0.940			(0.945		
Carbon Black Content, %	ASTM D 1603*							2.5		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				^'		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2		every 5th		3						
Asperity Height	GRI GM 12	every roll		10				22		
Average (mils)		51519 1011		. •				_		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



GSE

Lining Technology, Inc.

Roll No. 104108408

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108408		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
•	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,878 1,759	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimui Metri		Test English		ılts Metri	 с
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5	:)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	158	(277)
- MD		every roll	130	(228)	152	(266)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	191	(334)
- MD		every roll	90	(158)	213	(373)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				567		
- MD	(51 mm)	every roll		150				592		
Tear Resistance, lb. (N)	ASTM D 1004							\$		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	104	. (463)
Density, g/cc	ASTM D 1505									
•		every 5th		0.940			C	.945		•
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1	٠.	
Carbon Black Dispersion	ASTM D 5596	F#L		9				10		
Views in Cat1 - Cat2	051.011.40	every 5th		9				10		
Asperity Height	GRI GM 12	even roll		10				21		
Average (mils)		every roll		10				۷ ۱		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108409

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108409		Lot Number	8210163	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/15/01	· .	Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
, ,	6.9	meters	Density, g/cc	ASTM D 1505	0.938
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,894 1,766	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimur Metri		Tes English	t Resi	ults Metri	с С
Thickness, mil (mm)	ASTM D 5994		-							
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	157	(275)
- MD	•	every roll	130	(228)	160	(281)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	195	(341)
- MD		every roll	. 90	(158)	222	(389)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				-17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				571		
· - MD	(51 mm)	every roll		150				61,0		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	53	(236)
- MD		every roli	42	(187)	51	(227)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	152	(676)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
•		every 5th		0.940				0.945		
Carbon Black Content, %	ASTM D 1603*	514								
_		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Outhor Black Biographic	ACTM D SECS	every 5th		74				Ο.		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	2 : 3: y - 4:		_						
Average (mils)	OI (1 OIII 12	every roll		10				18		
		-								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



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Lining Technology, Inc.

Roll No. 104108410

ROLL	IDENTIFICA	TION	RE	RESIN INFORMATION							
Roll Number	104108410		Lot Number	8210163							
Product Name	HDT060A000		Туре	TR400GS							
Production Date	4/15/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
,	6.9	meters	Density, g/cc	ASTM D 1505	0.938						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07						
Weight	3,936 1,785	pounds kilograms									

Physical Property	Test Method	Test Frequency	Customer Minim English Met				Test English	Resi	ilts Metric	
Thickness, mil (mm)	ASTM D 5994	Trequency	271811311		7200700		Digitan		116111	
Average	A3 1 W D 3394	every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV	•		,				,		,
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	163	(286)
- MD		every roll	130	(228)	160	(279)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	189	(330)
- MD		every roll	90	(158)	239	(418)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			16				
- MD	(33 mm)	every roll	13				18			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				632		
- MD	(51 mm)	every roll		150				622		
Tear Resistance, lb. (N)	ASTM D 1004							*		
- TD		every roll	42	(187)	52	(231)
- MD		every roil	42	(187)	51	(227)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	.•.80	(356)	107	(476)
Density, g/cc	ASTM D 1505		_				_			
		every 5th	(0.940			C).946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.7		
Carbon Block Bionomian	ASTM D 3015	every 5th		2.0				2.1		
Carbon Black Dispersion	A3 1 W D 30 13	every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			•						
Views in Cat1 - Cat2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	every 5th		9				10		
Asperity Height	GRI GM 12	•								
Average (mils)		every roll		10				29		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108411

ROLL	IDENTIFICA:	TION	R	ESIN INFORMATION					
Roll Number	104108411		Lot Number	8210163					
Product Name	HDT060A000		Type	TR400GS					
Production Date	4/15/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	G.	SE RESIN TEST DATA					
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.938				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07				
Weight	3,850 1,746	pounds kilograms	•						

th = 1.3" (33 mm)	every roll	60 54 130 130 90 90	((((((((((((((((((((228 228))	61 56 219	(1.6 1.4)
th = 1.3" (33 mm)	every roll every roll every roll every roll every roll every roll	54 130 130 90	((((((((((((((((((((1.4 228 228)	56	(1.4)
th = 1.3" (33 mm)	every roll every roll every roll every roll	130 130 90	((((((((((((((((((((228 228)		()
th = 1.3" (33 mm)	every roll every roll every roll	130 90	(228	•	219	(,
th = 1.3" (33 mm)	every roll every roll every roll	130 90	(228	•	219	(
h = 1.3" (33 mm)	every roll every roll every roll	90	()		•	383)
th = 1.3" (33 mm)	every roll		(158		222	(388)
th = 1.3" (33 mm)	every roll	90	,	, ,		225	(393)
(33 mm)	•		(158)	224	(391)
•	every roll		13			17			
h - 2 0"	every roll 13		13			18			
.ii → ∠.U	every roll	150					443		
(51 mm)	every roll		150				485		
1004				÷	•				
	every roll	42	(187)	76	(338)
	every roll	42	(187)	74	(329)
4833					•				
	every roll	108	(478)	189	(841)
C/2065		••							
. 🖍	every 5th	80	(356)	107	(476)
1505									
	every 5th	ı	0.940				0.946		
1603*									
	every 5th		2.0				2.7		
	A2				۸2				
	every our		72				74		
			9				10		
5596	every 5th	9 10							
5596	every 5th						24		
	5596	every 5th 5596 every 5th	every 5th 5596 every 5th	every 5th A2 5596 every 5th 9	every 5th A2 5596 every 5th 9 4 12	every 5th A2 5596 every 5th 9 4 12	every 5th A2 5596 every 5th 9	every 5th A2 A2 5596 every 5th 9 10	every 5th A2 A2 5596 every 5th 9 10

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location

*Modified



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Lining Technology, Inc.

Roll No. 104108412

ROLL	IDENTIFICA:	TION	RE	RESIN INFORMATION						
Roll Number	104108412		Lot Number	8210163						
Product Name	HDT060A000		Туре	TR400GS						
Production Date	4/15/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
	6.9	meters	Density, g/cc	ASTM D 1505	0.938					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07					
Weight	3,873 1,757	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custome English		nimur Metri		Test English	Resu	ilts Metric	:
Thickness, mil (mm)	ASTM D 5994			_						
Average	1	every roll	60	(1.5)	62	(1.6)
Minimum	•	every roll	54	(1.4)	57	(1.4	
Tensile Properties:	ASTM D 638, Type IV				•					
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(293	
- MD		every roll	130	(228)	171	(300	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	218	(382	
- MD		every roll	90	(158)	178	(311)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				570		
- MD	. (51 mm)	every roll		150				480		
Tear Resistance, lb. (N)	ASTM D 1004	•						1		
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	152	(676	
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	4	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505						•			
		every 5th	ı	0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.7		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			•				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over sell		10				23		
Average (mils)		every roll		10				23		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY; FLORIDA

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Roll No. 104108413

. ROLL	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number	104108413		Lot Number	8210163						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/16/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
(1.0//////////	6.9	meters	Density, g/cc	ASTM D 1505	0.938					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07					
Weight	3,847 1,745	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custom English		nimur Met r i		Test English		ilts Metrio	;
Thickness, mil (mm)	ASTM D 5994					-			•	_
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	168	(294	,
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	193	(337)
- MD		every roll	90	(158)	227	(398)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13					16		
- MD	(33 mm)	every roll	13					16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			;	520		
- MD	(51 mm)	every roll		150				600		
Fear Resistance, lb. (N)	ASTM D 1004	•						ŧ		
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	••	every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.7		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	augas Esh		0				10		
Views in Cat1 - Cat2	0.014.40	every 5th		9				10		
Asperity Height	GRI GM 12	even roll		10				24		
Average (mils)		every roll		10				~ 4		

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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GSE
Lining Technology, Inc.

Roll No. 104108416

POLL	<i>IDENTIFICA</i>	TION	RESIN INFORMATION							
KULL	IDENTIFICA	HON		SIN INFORMATION						
Roll Number	104108416		Lot Number	8210143						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/16/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	Property	Test Method	Results					
	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,881 1,760	pounds kilograms								

Physical Property	Test	Test	Custom	er Mi	nimu	m	Test	Resi	ults	
1 nysicai 1 roperty	Method	Frequency	English	1	Metri	с	English		Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(297)
- MD		every roll	130	(228)	171	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	196	(343)
- MD		every roll	90	(158)	206	(361)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				16			
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				500		
- MD	(51 mm)	every roll		150				550		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5th	0.940				C	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	,		_						
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			40				00		
Average (mils)		every roll		10				23		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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GSE-4.10-007 Rev - - 07/00

R.P. 4/17/01 QA

GSE		
	Lining	Technology

Roll No. 104108417

ROLL	IDENTIFICA	TION	DI	ESIN INFORMATION				
Roll Number Product Name Production Date	104108417 HDT060A000 4/16/01		Lot Number Type	Lot Number 8210143				
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA				
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08			
Weight	3,911 1,774	pounds kilograms						

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Tes English	t Res	ults Metri		
Thickness, mil (mm)	ASTM D 5994			-	~	_			1,100,1		
Average	•	every roll	60	(1.5)	62	(1.6)	
Minimum		every roll	54	(1.4)	57	(1.4)	
Tensile Properties:	ASTM D 638, Type IV					•		`		,	
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(296)	
- MD		every roll	130	(228)	168	(294)	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	225	ì	394)	
- MD		every roll	90	(158)	237	ì	415)	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		16		,	
- MD	(33 mm)	every roll		13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				596				
- MD	(51 mm)	every roll		150				617			
Tear Resistance, lb. (N)	ASTM D 1004	ŕ						1			
- TD		every roll	42	(187)	60	(267)	
- MD		every roll	42	(187)	56	(249)	
Puncture Resistance, lb. (N)	ASTM D 4833			•		•		. `		,	
		every roll	108	(478)	152	(676)	
Puncture Resistance, lb. (N)	FTMS 101C/2065										
		every 5th	80	(356)	107	(476)	
Density, g/cc	ASTM D 1505										
		every 5th	C	0.940			0	.945			
Carbon Black Content, %	ASTM D 1603*										
		every 5th		2.0				2.6			
Carbon Black Dispersion	ASTM D 3015										
		every 5th		A2			•	A1			
Carbon Black Dispersion	ASTM D 5596										
Views in Cat1 - Cat2		every 5th		9				10			
Asperity Height Average (mils)	GRI GM 12	every roll		10				19			
•											

Order No.

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Customer Name

GSE-4.10-007 Rev - - 07/00

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

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GSE
Lining Technology, Inc.

Roll No. 104108418

ROLL	IDENTIFICA:	TION	RESIN INFORMATION							
Roll Number	104108418		Lot Number	8210143						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/16/01		Supplier Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GSZ	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0					
Weight	3,863 1,752	pounds kilograms								

Method	Test Frequency	Customer Minimum English Metric				Test Results English Metr			•	
ASTM D 5994						÷				
	every roll	60	(1.5)	61	(1.6)	
	every roll	54	(1.4)	54	(1.4)	
ASTM D 638, Type IV										
	every roll	130	(228)	165	(288)	
	every roll	130	(228)	161	(283)	
	every roll	90	(158)	166	(290)	
	every roll	90	(158)	169	(296)	
gauge length = 1.3"	every roll		13			16				
(33 mm)	every roll		13				16			
gauge length = 2.0"	every roll		150				471			
(51 mm)	every roll		150				553			
ASTM D 1004									,	
	every roll	42	(187)	51	(227)	
	every roll	42	(187)	47	(209)	
ASTM D 4833										
	every roll	108	(478)	153	(681)	
FTMS 101C/2065										
	every 5th	80	(356)	107	., (476)	
ASTM D 1505										
	every 5th		0.940			(0.945			
ASTM D 1603*	·		2.0				2.6			
	every 5th		2.0				2.0			
ASTM D 3015	oven, Eth		Δ2				Δ1			
40TM D 5500	every our		74				, , ,			
42 IM D 2280	every 5th		9				10			
GPI GM 12	0.019 0.11		-							
GRI GW 12	every roll		10				23			
	ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	ASTM D 5994 every roli gauge length = 1.3" every roli (33 mm) every roli gauge length = 2.0" every roli (51 mm) every roli every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th GRI GM 12	ASTM D 5994 every roll 60 every roll 54 ASTM D 638, Type IV every roll 130 every roll 90 every roll 90 every roll 90 gauge length = 1.3" every roll (33 mm) every roll (31 mm) every roll (51 mm) every roll ASTM D 1004 every roll 42 every roll 42 ASTM D 4833 every roll 108 FTMS 101C/2065 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th	ASTM D 5994 every roll 60 (every roll 54 () ASTM D 638, Type IV every roll 130 (every roll 130 (every roll 90 (every roll 90 (every roll 90 (every roll 91 13 () every roll 90 () every roll 90 () gauge length = 1.3" every roll 13 () gauge length = 2.0" every roll 150 () (51 mm) every roll 150 () ASTM D 1004 every roll 42 (every roll 42 () every roll 42 () every roll 108 () FTMS 101C/2065 every 5th 80 () ASTM D 1505 every 5th 0.940 ASTM D 3015 every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9	ASTM D 5994 every roll	ASTM D 5994 every roll 60	ASTM D 5994 every roll 60 (1.5) 61 every roll 54 (1.4) 54 ASTM D 638, Type IV every roll 130 (228) 165 every roll 130 (228) 161 every roll 90 (158) 166 every roll 90 (158) 169 gauge length = 1.3" every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) 51 every roll 42 (187) 47 ASTM D 4833 every roll 108 (478) 153 FTMS 101C/2065 every 5th 80 (356) 107 ASTM D 1603* every 5th 0.940 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	ASTM D 5994 every roll 60	ASTM D 5994 every roll 60	

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



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Lining Technology, Inc.

Roll No. 104108419

			100 100 104100415							
ROLL	IDENTIFICA	TION	RE	SIN INFORMATION						
Roll Number	104108419		Lot Number	8210143						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/16/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA							
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
` ,	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,789 1,719	pounds kilograms								

Physical Property	Test	Test	Customer Minimum				Test			
	Method	Frequency	English	ı	Metri	С	English		Metri	<u>c</u>
Thickness, mil (mm)	ASTM D 5994						•			
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	162	(284)
- MD		every roll	130	(228)	162	(284)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	176	(309)
- MD		every roll	90	(158)	216	(377)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			18			
- MD	(33 mm)	every roll		13			18			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				468		
- MD	(51 mm)	every roll		150				580		
Tear Resistance, lb. (N)	ASTM D 1004							ļ		
- TD		every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	145	(645)
Puncture Resistance, lb. (N)	FTMS 101C/2065								•	
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				17		
er.										

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified

RP. 00 4/17/01 QA



Roll No. 104108420

ROLL	IDENTIFICA	TION	Dr	RESIN INFORMATION							
Roll Number Product Name Production Date	104108420 HDT060A000 4/16/01		Lot Number Type	Lot Number 8210143							
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	Test Method	Results						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08						
Weight	3,824 1,735	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custom English		inimu Metr		Te. Englis	st Res	_	•
Thickness, mil (mm)	ASTM D 5994		2.78.0.		171 667	-	Engus	n	Metr	ıc
Average		every roll	60	(1.5)	61	(1.6	
Minimum		every roll	54	·	1.4	•	56	•		,
Tensile Properties:	ASTM D 638, Type IV			•		,	30	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	1	288)
- MD ·		every roll	130	(228	•	160	1	280	,
Break Strength, ppi (N/cm) - TD		every roll	90	(158	•	177	(•
- MD		every roll	90	,	158	•	211	(309 369	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll	•	13	130	,	,)
- MD	(33 mm)	every roll						18		
Break Elongation, % - TD	gauge length = 2.0"	·		13				18		
- MD	(51 mm)	every roll		150				519		
Tear Resistance, lb. (N)	ASTM D 1004	every roll		150				578		
- TD	ASTM D 1004	even, roll	40	,	40-					
- MD		every roll	42	(187	•	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	42	(187)	50	(223)
, , ,	A01W D 4003	every roll	108	,	470					
Puncture Resistance, lb. (N)	FTMS 101C/2065	every for	106	(478)	150	(668)
. ,	· · · · · · · · · · · · · · · · · · ·	every 5th	80	,	256	,	440			
Density, g/cc	ASTM D 1505	overy our	00	(356)	110	(490)
	7.67.11.2 1000	every 5th	0	.940			,	0.40		
Carbon Black Content, %	ASTM D 1603*	,	•	.540			,).946		
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	•		0				2.0		
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			_			•	Α1		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12						. *	. •		
Average (mils)	•	every roll		10				25		
	•					•				

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

R.P. 4/17/01 QA

Lining Technology, Inc.

Roll No. 104108421

ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION				
Roll Number Product Name Production Date	104108421 HDT060A000 4/16/01		Lot Number Type					
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA				
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method ASTM D 1505	<u>Results</u> 0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08			
Weight	3,940 1,787	pounds kilograms						

Physical Property	Test Method	Test Frequency			Customer Minimum English Metric			st Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						Englisi		Metri	
Average		every roll	60	(1.5)	63	(1.6	١
Minimum		every roll	54	(1.4	•	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV	-		`		,	00	`	1.5	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD		every roll	130	(228)	164	(288)
Break Strength, ppi (N/cm) - TD	•	every roll	90	(158	•	193	(339)
- MD		every roll	90	. (158	•	228	(400)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,	220	18	400	,
- MD	(33 mm)	every roll	13			18				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			488				
- MD	(51 mm)	every roll		150				609		
Tear Resistance, lb. (N)	ASTM D 1004	,		100				1		
- TD		every roll	42	(187)	56	. ,	249	1
- MD		every roll	42	(187	•	54	(240) }
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	04	,	240	,
		every roll	108	(478)	153	(681	١
Puncture Resistance, lb. (N)	FTMS 101C/2065			,		,		,		
		every 5th	80	(356)	110	(490	}
Density, g/cc	ASTM D 1505					·		,		,
		every 5th	0	.940			· · ·	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
0.1. 5 5.		every 5th		A2		•		A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				17		
· ,		- · - · / · - · ·						17		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104109422

DOLL				Kou No.	104108422						
	IDENTIFICA	TION	R	RESIN INFORMATION							
Roll Number Product Name Production Date	104108422 HDT060A000 4/16/01		Lot Number Type Supplier	8210143 TR400GS Phillips							
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	Test Method	Results						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08						
Weight	3,872 1,756	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custon Englis		inimi Metr			st Res		
Thickness, mil (mm)	ASTM D 5994	1	2.08.03		Men		Englis	n	Metr	ic
Average	!	every roll	60	(1.5	;)	62	(1.6	١
Minimum		every roll	54	(1.4)	58	Ì	1.5)
Tensile Properties:	ASTM D 638, Type IV					,		,	1.5	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	151	(264)
- MD		every roll	130	(228)	163	(286)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	165	,	289)
- MD		every roll	90	(158		217	,	379	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		22	3/9)
- MD	(33 mm)	every roll		13						
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				18		
- MD	(51 mm)	every roll		150				463		
Tear Resistance, lb. (N)	ASTM D 1004			100				589 1		
- TD		every roll	42	(187)	52		231	,
- MD		every roll	42	(187)	49	()
Puncture Resistance, lb. (N)	ASTM D 4833	·		`	.0,	,	43	(218)
		every roll	108	(478)	147	,	654	١
Puncture Resistance, lb. (N)	FTMS 101C/2065			•		,	1-77	'	034	,
	·	every 5th	80	(356)	110	(490)
Density, g/cc	ASTM D 1505					•		`	400	,
0.1. 5		every 5th	C	.940			0	.946		
Carbon Black Content, %	ASTM D 1603*							-		
Corbon Black Br		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion		every 5th		A2				A1		
Views in Cat1 - Cat2	ASTM D 5596	•								
Asperity Height		every 5th		9				10		
Average (mils)	GRI GM 12									
		every roll		10			2	22		
		,								

rder No.

20979

Customer Name PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



GSE

Lining Technology, Inc.

Roll No. 104108423

IDENTIFICA:	TION	RE	SIN INFORMATION	
104108423		Lot Number	8210143	
HDT060A000		Type	TR400GS	
4/16/01		Supplier	Phillips	
520 158	feet meters	GSA	E RESIN TEST DATA	
		Property	Test Method	Results
6.9	meters	Density, g/cc	ASTM D 1505	0.937
11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
3,872 1,756	pounds kilograms			
	IDENTIFICA 104108423 HDT060A000 4/16/01 520 158 22.5 6.9 11,700 1,086 3,872	IDENTIFICATION 104108423 HDT060A000 4/16/01 520 feet 158 meters 22.5 feet 6.9 meters 11,700 sq. feet 1,086 sq. meters 3,872 pounds	IDENTIFICATION RE	104108423 Lot Number 8210143 HDT060A000 Type TR400GS 4/16/01 Supplier Phillips 520 feet meters GSE RESIN TEST DATA 22.5 feet feet 6.9 meters Property Test Method 6.9 meters Density, g/cc ASTM D 1505 11,700 sq. feet 1,086 sq. meters Melt index, g/10 min. ASTM D 1238 (190/2.16) 3,872 pounds Pounds

Physical Property	Test Method	Test Frequency	Custome English		nimur Metric		Test English	Resi	ılts Metric	
Thickness, mil (mm)	ASTM D 5994	1.04.00.09					23.78.0.0		1700700	—
Average	A3110 3334	every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV	·								·
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	160	(280)
- MD		every roll	130	(228)	159	(279)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	172	(301)
- MD		every roll	90	(158)	224	(392)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				563		
- MD	(51 mm)	every roll		150				609		
Tear Resistance, lb. (N)	ASTM D 1004							Ž.		
- TD		every roll	42	(187)	52	(231)
- MD		every roll	42	(187)	51	(227)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	110	(490)
Density, g/cc	ASTM D 1505		• •							
		every 5th		0.940			().946		
Carbon Black Content, %	ASTM D 1603*	F AL		2.0				2.6		
	40TH B 004F	every 5th		2.0				2.0		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	every our		,				,,,		
Views in Cat1 - Cat2	A3 1W D 3390	every 5th		9				10		
Asperity Height	GRI GM 12	- ,								
Average (mils)		every roll		10				18		
<u>-</u> . ,										

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

Location

*Modified GSE-4.10-007 Rev - - 07/00 R.P. 4/17/01



Roll No. 104108424

ROLL	IDENTIFICA:	TION	RESIN INFORMATION						
Roll Number	104108424		Lot Number	8210143					
Product Name	HDT060A000		Туре	TR400GS					
Production Date	4/16/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 453	feet	GSI	E RESIN TEST DATA					
Width (Nominal)	158 22.5	meters feet	Property	Test Method	Results				
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08				
Weight	3,797 1,722	pounds kilograms							

Test Test Test Customer Minimum Test Result English Metric English Me	sults			
Average. Minimum ASTM D 638, Type IV Yield Strength, ppi (N/cm) - TD - MD Break Strength, ppi (N/cm) - TD - MD - MSTM D 1004 - TD - MD - MD - TD - MD - MSTM D 4833 - Weery roll - MSTM D 1505 - Weery fill	Metric	c		_
Average. Minimum ASTM D 638, Type IV Yield Strength, ppi (N/cm) - TD - MD Break Strength, ppi (N/cm) - TD - MD - MD Break Strength, ppi (N/cm) - TD - MD - MSTM D 1004 - TD - MD - MSTM D 4833 - Weery roll - MD - MSTM D 1505 - Weery foll - We				
Tensile Properties: ASTM D 638, Type IV Yield Strength, ppi (N/cm) - TD - MD - MD - MD - MD - Wevry roll - MD - Wevry roll - MD - Wevry roll - MD - MD - Wevry roll - MD - MD - Wevry roll - MD	(1.6)	J
Yield Strength, ppi (N/cm) - TD	(1.4))
No				
Break Strength, ppi (N/cm) - TD	(280)	I
No	(257))
Yield Elongation, % - TD gauge length = 1.3" every roll 13 18 - MD (33 mm) every roll 13 23 Break Elongation, % - TD gauge length = 2.0" every roll 150 563 - MD (51 mm) every roll 150 614 Tear Resistance, lb. (N) ASTM D 1004 every roll 42 (187) 52 (- MD ASTM D 4833 every roll 42 (187) 45 (Puncture Resistance, lb. (N) ASTM D 4833 every roll 108 (478) 144 (Puncture Resistance, lb. (N) FTMS 101C/2065 every 5th 80 (356)) 110 (Density, g/cc ASTM D 1505 every 5th 0.940 0.946 Carbon Black Content, % ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion ASTM D 5596 every 5th 9 10 Asperity Height GRI GM 12 40 40 40 40	(345))
First Description Firs	(382))
Break Elongation, % - TD gauge length = 2.0" every roll 150 563				
Freak Elongation, % - 1D Gat mm every roll 150 614				
Tear Resistance, Ib. (N)	š			
- TD	ŀ			
- TD				
Puncture Resistance, Ib. (N) Puncture Resistance, Ib. (N) FTMS 101C/2065 every 5th every 5th Carbon Black Content, % ASTM D 1603* Every 5th Carbon Black Dispersion ASTM D 3015 Every 5th Bevery 5th B	(231))
Puncture Resistance, Ib. (N) FTMS 101C/2065 every 5th 80 (356) 110 (Density, g/cc ASTM D 1505 every 5th 0.940 0.946	(200))
Puncture Resistance, Ib. (N) FTMS 101C/2065 every 5th 80 (356) 110 (Density, g/cc ASTM D 1505 every 5th 0.940 Carbon Black Content, % ASTM D 1603* every 5th 2.0 2.6 Carbon Black Dispersion ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion Views in Cat1 - Cat2 Asperity Height GRI GM 12				
Density, g/cc	(639))
Density, g/cc ASTM D 1505 every 5th 0.940 0.946 Carbon Black Content, % ASTM D 1603* every 5th 2.0 2.6 Carbon Black Dispersion ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion ASTM D 5596 every 5th 9 10 Asperity Height GRI GM 12 10 10				
Every 5th 0.940 0.946	(490))
Carbon Black Content, % ASTM D 1603* every 5th 2.0 2.6 Carbon Black Dispersion ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion ASTM D 5596 every 5th 9 10 Asperity Height GRI GM 12 10 10				
Carbon Black Dispersion ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion ASTM D 5596 every 5th 9 10 Aspenity Height GRI GM 12 10 10	6			
Carbon Black Dispersion ASTM D 3015 every 5th A2 A1 Carbon Black Dispersion ASTM D 5596 every 5th 9 10 Asperity Height GRI GM 12 10 10				
Carbon Black Dispersion ASTM D 5596 Every 5th A2 A1 Views in Cat1 - Cat2 every 5th 9 10 Asperity Height GRI GM 12 10 10				
Carbon Black Dispersion ASTM D 5596 Views in Cat1 - Cat2 every 5th 9 10 Asperity Height GRI GM 12 10 10				
Views in Cat1 - Cat2 every 5th 9 10 Asperity Height GRI GM 12				
Asperity Height GRI GM 12				
7,000 Mg 10.9 Mg 10.0				
Average (mils)				

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108425

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION				
Roll Number	104108425		Lot Number	8210143				
Product Name	HDT060A000		Type	TR400GS				
Production Date	4/16/01		Supplier Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA				
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results			
	6.9	meters	Density, g/cc	ASTM D 1505	0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08			
Weight	3,808 1,727	pounds kilograms						

Physical Property	Test Method	Test Frequency	Custom English		nimui Metri		Test English	Resi	ults Metric	•
Thickness, mil (mm)	ASTM D 5994	1104.000	Digitali	*	1716171		Linguisii		Meiri	
Average	A3 1W D 3554	every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					·		`		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	186	(325)
- MD		every roll	130	(228)	181	(316)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	138	(241)
- MD		every roll	90	(158)	172	(301)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16	•	
- MD	(33 mm)	every roll		13				17		•
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				395		
- MD	(51 mm)	every roll		150				420		
Tear Resistance, lb. (N)	ASTM D 1004							٠.		
- TD		every roll	42	(187)	58	(258).
- MD	•	every roll	42	(187	.)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	159	(708	}
Puncture Resistance, lb. (N)	FTMS 101C/2065	•								
		every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			C).947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carban Black Biogenian	ACTN D SECO	every our		A2				Αı		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	375.7 5		J	9 10					
Average (mils)	ON OW 12	every roll		10				22		
Average (mils)		every roll		10				22		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 104108426

ROLL	IDENTIFICAT	TION	RESIN INFORMATION						
Roll Number Product Name Production Date	104108426 HDT060A000 4/16/01		Lot Number Type Supplier	er 8210143 TR400GS Phillips					
Length ≈(+/- 1%)	520	feet	GSA	E RESIN TEST DATA					
Width (Nominal)	158 22.5 6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	∵ 0.08				
Weight	3,890 1,765	pounds kilograms							

	Test	Test	Custome	r Mir	iimum	!	Test	Resu	lts	
Physical Property	Method	Frequency	English	Customer Minimum English Test Results English Metric 60 (1.5) 61 (1.6) 54 (1.4) 56 (1.4) 130 (228) 178 (311) 130 (228) 180 (315) 90 (158) 152 (266) 90 (158) 162 (284) 13 16 13 16 150 460 150 530 24 (187) 58 (258) 42 (187) 55 (245) 108 (478) 155 (690) 80 (356) 102 (454) 0.940 0.947 2.0 2.4						
Thickness, mil (mm)	ASTM D 5994						0.4	,	4.6	,
Average		every roll		(,		(•
Minimum		every roll	54	(1.4)	56	(1.4	.)
Tensile Properties:	ASTM D 638, Type IV		120	. ,	228	١	178	(311)
Yield Strength, ppi (N/cm) - TD		every roll		,		•		(
- MD		every roll		(•		1		
Break Strength, ppi (N/cm) - TD		every roll		•		•		(
- MD		every roll	90	•	158)	102	16	204	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll								
- MD	(33 mm)	every roll								
Break Elongation, % - TD	gauge length = 2.0"	every roll								
- MD	(51 mm)	every roll		150						
Tear Resistance, lb. (N)	ASTM D 1004								050	,
- TD		every roll		((•
- MD		every roll	42	(187)	55	(245	}
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.947		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				24		

Order No.

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Customer Name Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified GSE-4.10-007 Rev - - 07/00 4/17/01

Lining Technology, Inc.

	IDENTIFICA	TION		Roll No.	104108431				
Roll Number	104108431	ITON		ESIN INFORMATION					
Product Name Production Date	HDT060A000 4/16/01		Lot Number Type Supplier						
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08				
Weight	3,918 1,777	pounds kilograms		ŕ					

Physical Property	Test Method	Test Frequency	Custon				st Re				
Thickness, mil (mm)	ASTM D 5994	Trequency	English Metric			ic	Englis	h	Metric		
Average.	, 10 1 M D 0004	every roll	60	,							
Minimum		•	60	(1.5	,	61		(1.5	5	
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4)	58		(1.5	;	
Yield Strength, ppi (N/cm) - TD	= 555, .ypc (V	every roll	130	,	200						
- MD		every roll	130	(228	•	164	(287	•	
Break Strength, ppi (N/cm) - TD		every roll	90	(228	-	161	(281		
- MD		every roll		(158		234	(409)	
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158)	233	(407)	
- MD	(33 mm)	•		13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		13				18			
- MD		every roll		150				600			
Tear Resistance, lb. (N)	(51 mm) ASTM D 1004	every roll		150				610			
- TD	ASTIVID 1004	Ovoru roll	40					ŧ			
- MD		every roll	42	(187)	59	(263)	
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	42	(187)	55	(245)	
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	148	(659)	
Pensity, g/cc	ASTM D 1505	every 5th	80	(356)	97	(432)	
arbon Black Content, %	ASTM D 1603*	every 5th	C	.940			0.	.947			
arbon Black Dispersion	ASTM D 3015	every 5th		2.0			2	2.6			
arbon Black Dispersion	ASTM D 5596	every 5th		A2			,	42			
Views in Cat1 - Cat2 sperity Height	GRI GM 12	every 5th		9			1	10			
Average (mils)		every roll		10			2	25			

rder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108432

ROLL	IDENTIFICA:	TION	RE	RESIN INFORMATION							
Roll Number	104108432		Lot Number	8210143							
Product Name	HDT060A000		Type	TR400GS							
Production Date	4/16/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results						
(6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08						
Weight	3,914 1,775	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custome English		nimur Metric		Test English	Resu	ilts Metric	;
Thickness, mil (mm)	ASTM D 5994			•		-				
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(280)
- MD		every roll	130	(228)	155	(271)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	207	(362)
- MD		every roli	90	(158)	218	(382)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				18			
- MD	(33 mm)	every roll	13			19				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150					610		
- MD	(51 mm)	every roll		150				637		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(`356)	97	(432)
Density, g/cc	ASTM D 1505						er e*			
		every 5th		0.940			C).947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015	avany Eth		A2				A2		
Control Disch Biomeraica	ACTA D CCCC	every 5th		MZ		•		M2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	GRI GM 12	070.y 0.11		•						
Average (mils)	OIN GIVE 12	every roll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RP ROVE RP. 4/18/01 QA



Roll No. 104108433

ROLL	IDENTIFICAT	TION	RE.	SIN INFORMATION	
Roll Number Product Name Production Date	104108433 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520	feet	GSI	E RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	Property Density, g/cc	Test Method ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,901 1,769	pounds kilograms			

	Test	Test	Customer Minimum				Test Results			
Physical Property	Method	Frequency	English	Λ	1etric		English	<u>N</u>	1etric	
Thickness, mil (mm)	ASTM D 5994						0.4	,	4 =	,
Average		every roll	60	(1.5)	61	(1.5	,
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV	.,	130	(228)	169	(296)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(280)
- MD		every roll	90	(158)	212	(370)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	217	ì	381)
- MD		every roll	90	13	130	,		-16		,
Yield Elongation, % - TD	gauge length = 1.3"	every roll						17		
- MD	(33 mm)	every roll		13				592		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150						
- MD	(51 mm)	every roll		150				592		
Tear Resistance, lb. (N)	ASTM D 1004			•	407	.1	57	,	254)
- TD		every roll	42	(187		50	,	223	
- MD		every roll	42	(187)	50	(225	,
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	. (478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	97	.(432)
Density, g/cc	ASTM D 1505	every 5th		0.940)		est.	0.947	0.947	
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0			·	2.6		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2		•		A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				23		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108435

ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number	104108435		Lot Number	8210143	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/17/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,889 1,764	pounds kilograms			

Physical Property	Test	Test	Custom		inimu	m	Tes	st Res	ults	
	Method	Frequency	English	ı	Metr	ic	English	h	Metri	c
Thickness, mil (mm)	ASTM D 5994									
Average	ı	every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV							·		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(289)
- MD	•	every roll	130	(228)	157	(275)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	204		358)
- MD		every roll	90	(158)	222	ì	389)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,	_	17	-	,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roli		150				600		
- MD	(51 mm)	every roll		150				600		
Tear Resistance, lb. (N)	ASTM D 1004			.00				1		
- TD		every roll	42	(187)	51		227)
- MD		every roll	42	(187)	50	,	223	,
Puncture Resistance, lb. (N)	ASTM D 4833	· , · - · ·		`	101	,	50	(223)
		every roll	108	(478)	152	1	676)
Puncture Resistance, lb. (N)	FTMS 101C/2065	·		`		,	.02	`	0,0	,
	•	every 5th	80	(356)	106	(472	١
Density, g/cc	ASTM D 1505			`		,	.00	,	712	,
		every 5th	(0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*						·			
•		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				25		

Irder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



GSE
Lining Technology, Inc.

Roll No. 104108436

			— · ——————————————————————————————————	Rott Ivo.	10410843
ROLL	IDENTIFICA	TION		ESIN INFORMATION	
Roll Number Product Name Production Date	104108436 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,851 1,747	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custon Englis		inimu Metr		Tes Englisi	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994	1	8		1,100		Lingusi	-	Meir	·C
Average	1	every roll	60	(1.5)	62	(1.6	,
Minimum		every roll	54	(1.4	•	55	(•
Tensile Properties:	ASTM D 638, Type IV	,		`	1	,	33	(1.4)
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	160	(279	١
- MD		every roll	130	. (228		154	,	270)
Break Strength, ppi (N/cm) - TD		every roll	90	ì	158	,	204	(357	
- MD		every roll	90	ì	158	,	208	(364)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		,	•		304)	
- MD	(33 mm)	every roll	13			17 18				
Break Elongation, % - TD	gauge length = 2.0"	every roll		150						
- MD	(51 mm)	every roll		150				604		
Tear Resistance, lb. (N)	ASTM D 1004	every foll		150				572		
- TD	710 FW 15 1004	every roll	42	,	187	١	E7			
- MD		every roll	42	(,	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833	every ron	42	(187)	55	(245)
• • •	7.01W B 4000	every roll	108	(478	,	150	,	070	
Puncture Resistance, lb. (N)	FTMS 101C/2065	0.01, 1011	100	(4/0)	152	(676)
	\	every 5th	80	(356)	106	,	470	
Density, g/cc	ASTM D 1505	·	•	`	000	,	100	(472)
		every 5th	(0.940			n	.946		
Carbon Black Content, %	ASTM D 1603*	•					·	.540		
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596							_		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roli		10			:	25		

Irder No.

20979

Customer Name Location PASCO COUNTY LANDFILL

DADE CITY, FLORIDA

*Modified



<u>GSE</u>
<u>Lining Technology, Inc.</u>

Roll No. 104108437

2005			· · · · · · · · · · · · · · · · · · ·	Kou No.	104108437
	IDENTIFICA	TION	R	ESIN INFORMATION	
Roll Number Product Name Production Date	104108437 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1303 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,904 1,771	pounds kilograms			

ASTM D 5994 ASTM D 638, Type IV	every roll	English 60	,	Metr		Englis	ı	Metri	<u>.c</u>
ASTM D 638, Type IV	•	60	,						_
ASTM D 638, Type IV	every roll		- (1.5)	61	,	1.5	,
ASTM D 638, Type IV		54	ì	1.4	•	55	()
			`	•••	,	33	(1.4)
	every roll	130	(228)	160	(281)
	every roll	130	(•		(
	every roll	90	(•		()
	every roll	90	(,		()
gauge length = 1.3"	every roll		13	100	,	232	16	407)
(33 mm)	every roll		-						
•	-								
	-								
	every ron		150						
7101111 1004	every roll	42	,	107	١	50			
	•		(•		()
ASTM D 4833	every for	42	(187)	54	(240)
1000	every roll	108	1	478	,	150	,	700	
FTMS 101C/2065	,	,,,,	(7/0	,	156	(703)
	every 5th	80	(356	١	106	,	470	,
ASTM D 1505	•		`	000	,	100	(4/2)
	every 5th	0	.940				046		
ASTM D 1603*	·						7.340		
	every 5th		2.0				26		
ASTM D 3015							2.0		
	every 5th		A2				A2		
ASTM D 5596	•						,		
	every 5th		9				10		
GRI GM 12									
	every roll		10				21		
	(33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505 ASTM D 1603* ASTM D 3015 ASTM D 5596	every roll every roll every roll every roll every roll gauge length = 1.3" (33 mm) every roll every roll (51 mm) every roll every roll ASTM D 1004 every roll every roll every roll every roll every roll ASTM D 4833 every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th GRI GM 12	every roll 90 every roll 90 every roll 90 gauge length = 1.3" every roll (33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll ASTM D 1004 every roll 42 every sth 80 ASTM D 1505 every 5th 80 ASTM D 1603* every 5th 90 ASTM D 3015 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596	every roll 130 (every roll 90 (every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (every roll 42 (every roll 42 (every roll 108 (FTMS 101C/2065 every 5th 80 (ASTM D 1505 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	every roll 130 (228 every roll 90 (158 gauge length = 1.3" every roll 13 (33 mm) every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187 every roll 42 (187 every roll 42 (187 every roll 108 (478 FTMS 101C/2065 every 5th 80 (356 ASTM D 1505 every 5th 0.940 ASTM D 3015 every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	every roll 130 (228) every roll 90 (158) every roll 90 (158) every roll 90 (158) gauge length = 1.3" every roll 13 (33 mm) every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) ASTM D 4833 every roll 108 (478) FTMS 101C/2065 every 5th 80 (356) ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	every roll 130 (228) 156 every roll 90 (158) 211 every roll 90 (158) 232 gauge length = 1.3" every roll 13 (33 mm) every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) 56 every roll 42 (187) 54 ASTM D 4833 every roll 108 (478) 158 FTMS 101C/2065 every 5th 80 (356) 106 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	every roll 130 (228) 156 (every roll 90 (158) 211 (every roll 90 (158) 232 (gauge length = 1.3" every roll 13 16 (33 mm) every roll 13 20 gauge length = 2.0" every roll 150 573 (51 mm) every roll 150 597 ASTM D 1004 every roll 42 (187) 56 (every roll 42 (187) 54 (ASTM D 4833 every roll 108 (478) 158 (FTMS 101C/2065 every 5th 80 (356) 106 (ASTM D 1603* every 5th 2.0 2.6 ASTM D 3015 every 5th A2 A2 ASTM D 5596 every 5th 9 10 GRI GM 12	every roll 130 (228) 156 (273 every roll 90 (158) 211 (370 every roll 90 (158) 232 (407 every roll 90 (158) 232 (407 every roll 150) 232 (407

rder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 104108438

					10/10072
ROLL	IDENTIFICA	TION	R	ESIN INFORMATION	
Roll Number	104108438	- · · · · · · · · · · · · · · · · · · ·	Lot Number	8210143	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/17/01		Supplier	Phillips	
Length ≈(+/-1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u>	Test Method	Results
C1			Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,980 1,805	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Test English	Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994	·								
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV	•		,		•		`	•••	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(289)
- MD		every roll	130	(228)	160	(281)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	217	(380)
- MD		every roll	90	(158)	243	(426	'.)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		17		,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				587		
- MD	(51 mm)	every roll		150				638		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833							·		·
		every roll	108	(478)	161	(716)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			;	2.6		
Carbon Black Dispersion	ASTM D 3015									
October District		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	5.00 Eth		_						
Asperity Height	CDI CM 40	every 5th		9				10		
Average (mils)	GRI GM 12	every roll		10			:	22		
·										

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



<u>Lining Technology, Inc.</u>

Roll No. 104108439

DOLL ID DIVING			Note 110, 104100439							
KULL	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number 104108439			Lot Number	8210143	3210143					
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/17/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	GSE RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,825 1,735	pounds kilograms								

Physical Property	Test Method	Test Frequency	Customer Minimum English Metric			Test Results English Metric				
Thickness, mil (mm)	ASTM D 5994	7	28		1/101/10		Lingusi		Metric	
Average ·		every roll	60	(1.5)	62	(1.6	,
Minimum		every roll	54	(1.4	•	59	(,
Tensile Properties:	ASTM D 638, Type IV	•		`	1.4	,	39	(1.5)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	152	,	266)
- MD		every roll	130	(228	•	149	(261)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	222	(389)
- MD		every roll	90	(158	,	234	(409)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		,	17			,	
- MD	(33 mm)	every roll	13				18			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				608			
- MD	(51 mm)	every roll	150				616			
Tear Resistance, lb. (N)	ASTM D 1004			.00				100		
- TĐ		every roll	42	(187)	58		258	}
- MD		every roll	42	(187)	60	(267	
Puncture Resistance, lb. (N)	ASTM D 4833	•			10,	,	00	(207)
		every roll	108	(478)	162	1	721	١
Puncture Resistance, lb. (N)	FTMS 101C/2065			`		,	,	`	, 1	,
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505					·		•		
		every 5th	0.940		0.946					
Carbon Black Content, %	ASTM D 1603*									
Contrar Black Bt		every 5th	2.0			2.6				
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion		every 5th	A2		A2					
Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height	CDI CN 40	every 5th		9				10		
Average (mils)	GRI GM 12	every roll		10			:	21		

Irder No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108440

ROLL IDENTIFICATION			RESIN INFORMATION							
Roll Number 104108440 Product Name HDT060A000 Production Date 4/17/01			Lot Number Type Supplier	8210143 TR400GS Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08					
Weight	3,867 1,754	pounds kilograms								

Physical Property	Test Method	Test Frequency	Customer Minimum English Metric			Test Results English Metric				
Thickness, mil (mm)	ASTM D 5994				1.101.		Lingusi		Meiri	<u>c</u>
Average		every roll	60	(1.5	j	63	(1.6)
Minimum		every roll	54	(1.4	•	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV			·		,		`	1.0	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	152	(266)
- MD		every roll	130	(228)	155	(272)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	214	(374)
- MD		every roll	90	(158)	206	ì	361)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13		,	17		001	,	
- MD	(33 mm)	every roll	13			18				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				576			
- MD	(51 mm)	every roll	150			567				
Tear Resistance, lb. (N)	ASTM D 1004	,	100					307		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	60	(267	
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	00	`	201)
		every roll	108	(478)	163	ſ	725)
Puncture Resistance, lb. (N)	FTMS 101C/2065			·		,		`.	. 20	,
		every 5th	80	(356)	108	ì	481)
Density, g/cc	ASTM D 1505							`		,
		every 5th	0.940		0.946					
Carbon Black Content, %	ASTM D 1603*									
		every 5th	very 5th 2.0		2.4					
Carbon Black Dispersion	ASTM D 3015									
Cortes Di I Di		every 5th	A2		A2					
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height		every 5th	9				10			
Average (mils)	GRI GM 12	H								
		every roll		10				19		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified

GSE-4.10-007 Rev - - 07/00

R.P. 4/18/01 QA

Roll No. 104108441

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108441		Lot Number	8210143	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/17/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,807 1,727	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metrio		Test English		ılts Metric	:
Thickness, mil (mm)	ASTM D 5994	1 1						-		
Average	ACTIVID 0004	every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	149	(261)
- MD		every roll	130	(228)	162	(283)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	215	(376)
- MD		every roll	90	(158)	240	(421)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				584		
- MD	(51 mm)	every roll		150				660		
Tear Resistance, lb. (N)	ASTM D 1004							Š		
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	60	(267)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80 `	(356)	108	(481)
Density, g/cc	ASTM D 1505	-	,	0.40			,	. 0.40		
		every 5th	· ·	0.940			().946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.4		
Carlon Blank Birmanian	ASTM D 3015	every 5th		2.0				۷.٦		
Carbon Black Dispersion	ASTM D 3013	every 5th		A2	٠.			A2		
Carbon Black Dispersion	ASTM D 5596				•.					
Views in Cat1 - Cat2	7101111 2 0000	every 5th		9				10		
Asperity Height	GRI GM 12	-								
Average (mils)		every roll		10				21		

Order No.

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Customer Name Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

	z recunology,			Roll No.	104108442
ROLL Roll Number	IDENTIFICA	TION		ESIN INFORMATION	
Product Name Production Date	104108442 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS	
Length ≈(+/- 1%)	520 158	feet meters		Phillips E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,850 1,746	pounds kilograms		,	

Physical Property	Test Method	Test	Customer Minimum Test Results							
Thickness, mil (mm)	ASTM D 5994	Frequency	Englis	ih.	Met	ic	Englis		Metr	ic
Average	A31W D 5994	• · · · · · · · · · · · · · · · · · · ·								
Minimum		every roll	60	(1.	•	64		(1.6)
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4)	56		(1.4)
Yield Strength, ppi (N/cm) - TD	ACTIVI D 030, Type IV	Over rell	400							
- MD		every roll	130	(3)	152	(266)
Break Strength, ppi (N/cm) - TD		every roll	130	(3)	153	(269)
- MD		every roll	90	(158)	193	(338)
Yield Elongation, % - TD		every roll	90	(158)	217	(380)
- MD	gauge length = 1.3"	every roli		13				17		•
	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				565		
- MD	(51 mm)	every roll		150						
Tear Resistance, lb. (N)	ASTM D 1004	·		.00			,	620 1		
- TD		every roll	42	(-	187	1	59		000	
- MD		every roll	42	ì	187	•		(263)
Puncture Resistance, lb. (N)	ASTM D 4833	•		`	107	,	57	(254)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	157	(699)
Density, g/cc		every 5th	80	(356)	108	(481	١
Density, g/cc	ASTM D 1505				•.,			`		,
Carbon Black Content, %	ASTM D 1603*	every 5th	().940			C	0.946		
Carbon Black Dispersion	ASTM D 3015	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 5596	every 5th		A2 ·				A2		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12							-		
		every roll		10			;	20		

rder No.

20979

Sustomer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Lutti				Roll No.	104108443
	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number Product Name Production Date	104108443 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,854 1,748	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom					- 000 100000000		
Thickness, mil (mm)	ASTM D 5994	Trequency	Englis	n	Metr	ic	Englis	h	Metr	ic
Average	ACTIVID 3994	every roll	60	,						
Minimum		every roll		(1.5	•	63	(1.6	•
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4)	57	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	,	228	,	450			
- MD		every roll	130	(•	158	(276	,
Break Strength, ppi (N/cm) - TD		every roll	90	(228	,	158	(277)
- MD		·		(158		216	(378)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158)	209	(365)
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll	13				18			
- MD	-	every roll	150					611		
Tear Resistance, lb. (N)	(51 mm)	every roll		150				565		
- TD	ASTM D 1004							1		
- MD		every roll	42	()	60	(267)
Puncture Resistance, lb. (N)	ACTM D 4000	every roll	42	(187)	61	(271)
(14)	ASTM D 4833									
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roli	108	(478)	155	(690)
	7 TWIS 10 1C/2005	Over 5th	20							
Density, g/cc	ASTM D 1505	every 5th	80	(356)	108	(481)
•	AO 110 D 1000	every 5th	0							
Carbon Black Content, %	ASTM D 1603*	every 5th	U	.940			С	.946		
	7.67.11.2 1000	every 5th		2.0						
Carbon Black Dispersion	ASTM D 3015	5.5.y 5		2.0				2.4		
		every 5th		A2				A 2		
arbon Black Dispersion	ASTM D 5596							A2		
Views in Cat1 - Cat2		every 5th		9				10		
sperity Height	GRI GM 12	-		-				,0		
Average (mils)		every roll		10				19		

rder No.

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L'ustomer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

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Lining Technology, Inc.

Roll No. 104108444

ROLL	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number	104108444		Lot Number	8210143						
Product Name	HDT060A000		Type	TR400GS						
Production Date	4/17/01		Supplier	Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results					
·	6.9	meters	Density, g/cc	ASTM D 1505	0.937					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08					
Weight	3,845 1,744	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Tesi English	Resi	ults Metri	с
Thickness, mil (mm)	ASTM D 5994						<u>`</u>			
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									•
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	155	(271)
- MD		every roll	130	(228)	152	(265)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	216	(378)
- MD		every roll	90	(158)	192	(336)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		-
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				635		
- MD	(51 mm)	every roll		150				553		
Tear Resistance, lb. (N)	ASTM D 1004	•						•		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833							·		•
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	•	every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	avan - Eth						40		
	001.014.40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		
. Tologo (milo)		every ron		10				10		

Order No.

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Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

	k rechnology,			Roll No.	104108446
	IDENTIFICA	TION	R	ESIN INFORMATION	
Roll Number Product Name Production Date	104108446 HDT060A000 4/17/01		Lot Number Type Supplier	8210143 TR400GS	
Length ≈(+/- 1%)	520 158	feet meters		Phillips E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,815 1,730	pounds kilograms		,	

Physical Property	Test Method	Test Frequency	Custon Englis		linim Met			est Re		
Thickness, mil (mm)	ASTM D 5994		Digits	71	wiei	ric	Engli	sh	Metr	ic
Average		every roll	60	(1.5	5)	62		, ,,	
Minimum		every roll	54	(1.4	•	57		(1.6	,
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	,				,	(1.4)
- MD		every roll	130	(228	•	149	(261)
Break Strength, ppi (N/cm) - TD		every roll		(228		153	(267)
- MD		-	90	(158	•	210	(367)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158)	209	(365)
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		13				16		
- MD	-	every roll		150				605		
Tear Resistance, lb. (N)	(51 mm)	every roll		150				599		
- TD	ASTM D 1004							4.		
- MD		every roll	42	(187	,	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	161	(716)
Density, g/cc	ASTM D 1505	every 5th	80	(356)	105	(467)
Carbon Black Content, %	ASTM D 1603*	every 5th	C).940			(0.945		
Carbon Black Dispersion	ASTM D 3015	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 5596	every 5th		A2				A1		
Views in Cat1 - Cat2 Asperity Height		every 5th		9				10		
Average (mils)	GRI GM 12	every roll		10				19		

rder No.

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Sustomer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



<u>CSE</u>
<u>Lining Technology, Inc.</u>

Roll No. 104108447

ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	107100777
Roll Number Product Name Production Date	104108447 HDT060A000 4/18/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,856 1,749	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custon Englis		inimu Metr		Tes English	t Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						Linguist		Metri	
Average ·		every roll	60	(1.5)	61	(1.6	١
Minimum		every roll	54	(1.4	•	56	,	1.4)
Tensile Properties:	ASTM D 638, Type IV			,		,		,	1.4	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	160	(279)
- MD		every roll	130	(228)	149		262)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	215	ì	376	, 1
- MD		every roll	90	(158)	219	·	383)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		17	000	,
- MD	(33 mm)	every roll	13				19			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				608			
- MD	(51 mm)	every roll		150				609		
Tear Resistance, lb. (N)	ASTM D 1004	•		,00				009		
- TD		every roll	42	(187)	54	1	240)
- MD		every roll	42	(187)	54	(240	,
Puncture Resistance, lb. (N)	ASTM D 4833	•		`		,	04	,	240	,
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065					,		,		,
·		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505							•		,
		every 5th	(0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
0.1.0.1.0.		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion		every 5th		A2				A1		
Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height	001.014.40	every 5th		9				10		
Average (mils)	GRI GM 12	every roll		10		•	:	24		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ε.χ. 4/18/01

Lining Technology, Inc.

Roll No. 104108448

POLL	IDEAMING	/TV 0 > 1		Kou No.	104108448
	IDENTIFICA	TION	R	ESIN INFORMATION	
Roll Number Product Name Production Date	104108448 HDT060A000 4/18/01		Lot Number Type Supplier	8210143 TR400GS Phillips	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,878 1,759	pounds kilograms			

Physical Property	Test Method	Test	Custor					st Res	ults	
Thickness, mil (mm)		Frequency	Englis	i h	Met	ic	English	h	Metr	ic
Average	ASTM D 5994									
Minimum		every roll	60	(1.5	•	61	(1.5)
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4	.)	5 5	(1.4)
Yield Strength, ppi (N/cm) - TD	ASTIM D 636, Type IV	0.40= . == II	400							
- MD		every roll	130	(228	,	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	130	(228		161	(283)
- MD		every roll	90	(158)	205	(359)
Yield Elongation, % - TD		every roll	90	(158)	218	(381)
_	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				578		
- MD	(51 mm)	every roll		150				581		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	54		240	,
- MD		every roll	42	(187)	57	(,
Puncture Resistance, lb. (N)	ASTM D 4833	,		`	107	,	57	(254)
		every roll	108	1	478)	160	,	740	,
Puncture Resistance, lb. (N)	FTMS 101C/2065	•		`		,	100	(712)
		every 5th	80	(356)	105	,	407	,
Density, g/cc	ASTM D 1505	•		`	000	,	105	(467)
		every 5th		0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*	•					U	.945		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	·					•	4.4		
		every 5th		A2				A 1		
Carbon Black Dispersion	ASTM D 5596						,	~ i		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	-		-				10		
Average (mils)		every roll		10				18		
		-								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108449

POLI	IDENTIFICA			Kou No.	10410844					
	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number Product Name Production Date	104108449 HDT060A000 4/18/01		Lot Number Type Supplier	8210143 TR400GS Phillips						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08					
Weight	3,862 1,752	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custor					st Re		
Thickness, mil (mm)	ASTM D 5994	Frequency	Englis	in .	Meti	ic	Englis	h	Metr	ic
Average.	A3 1W D 5994	Over, sell	20	i,		_				
Minimum		every roll	60	(•	61		(1.5)
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4	.)	55	1	1.4)
Yield Strength, ppi (N/cm) - TD	7.67.11 D 000, Type (V	every roll	130	,	. 004					
- MD		every roll	130	(228	•	164	(286)
Break Strength, ppi (N/cm) - TD		•		(228	•	156	(274)
- MD		every roll	90	(158	•	198	(346)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158)	214	(375)
- MD	-	every roll		13				16		
Break Elongation, % - TD	(33 mm)	every roll		13				18		
	gauge length = 2.0"	every roll		150				564		
- MD	(51 mm)	every roll		150				575		
Tear Resistance, lb. (N) - TD	ASTM D 1004							B .		
		every roll	42	(187)	54	(240)
- MD Puncture Resistance, lb. (N)		every roll	42	(187)	52	(231)
dictare Resistance, Ib. (N)	ASTM D 4833									•
Puncture Resistance, lb. (N)		every roll	108	(478)	151	(672)
anotare resistance, ib. (N)	FTMS 101C/2065						· ·			
Density, g/cc		every 5th	80	(356)	104	(463)
zanany, groc	ASTM D 1505									
Carbon Black Content, %	AOTH 5 4000	every 5th	(0.940			0	.945		
July Diddie Contone, 70	ASTM D 1603*									
Carbon Black Dispersion	ASTA D COAS	every 5th		2.0				2.6		
The state of the s	ASTM D 3015									
Carbon Black Dispersion	ASTM D 5596	every 5th		A2				A2		
Views in Cat1 - Cat2	WO LIM D 2080	Sugar Sth		_						
sperity Height	GRI GM 12	every 5th		9				10		
Average (mils)	OIN GW 12	every roll		10						
		CVG/y ION		10			•	16		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

POLI			· ·	Roll No.	104108450					
	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number Product Name Production Date	104108450 HDT060A000 4/18/01		Lot Number Type Supplier	8210141 TR400GS						
Length ≈(+/- 1%)	520 158	feet meters		Phillips E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08					
Weight	3,861 1,751	pounds kilograms		,						

Physical Property	Test Method	Test Frequency	Custor Engli					est Re		
Thickness, mil (mm)	ASTM D 5994	Trequency	Engil	in .	Met	ric	Englis	sh	Metr	ic
Average.	7.0714 0 3334	every roll	60							
Minimum		•	60	(1.	•	61		(1.5	;)
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4	1)	55		(1.4	.)
Yield Strength, ppi (N/cm) - TD	7.6 т.т. 2 000, туре ту	every roll	130	,	200					
- MD		every roll		(22	•	175	(306)
Break Strength, ppi (N/cm) - TD		-	130	(228	,	163	(285)
- MD		every roll	90	(158	′	209	(366)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158)	200	(349)
- MD	-	every roll		13				16		
Break Elongation, % - TD	(33 mm)	every roll		13				18		
- MD	gauge length = 2.0"	every roll		150				598		
Tear Resistance, lb. (N)	(51 mm)	every roll		150				551		
- TD	ASTM D 1004							į.		
		every roll	42	(187)	56	(249)
- MD Puncture Resistance, lb. (N)		every roll	42	(187)	51	. (227)
dictore Resistance, Ib. (N)	ASTM D 4833							`		,
Puncture Resistance, lb. (N)		every roll	108	(478)	153	(681)
Tristale (Nesistance, Ib. (N)	FTMS 101C/2065							,		,
Density, g/cc		every 5th	80	(356)	104	(463)
	ASTM D 1505		***							,
Carbon Black Content, %		every 5th	(0.940			C	0.945		
Jack Coment, 76	ASTM D 1603*									
Carbon Black Dispersion		every 5th		2.0				2.6		
State	ASTM D 3015									
Carbon Black Dispersion	ACTN D sees	every 5th		A2				A2		
Views in Cat1 - Cat2	ASTM D 5596									
sperity Height	GRI GM 12	every 5th		9				10		
Average (mils)	GRI GIVI 12	Over 1 5 = 11								
		every roll		10				17		

Irder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108451

POLI	IDENTIFICA	mr. c		Kou No.	104108451					
	IDENTIFICA	TION	RESIN INFORMATION							
Roll Number Product Name Production Date	104108451 HDT060A000 4/18/01		Lot Number Type Supplier	8210141 TR400GS						
Length ≈(+/- 1%)	520 158	feet meters		Phillips E RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	Test Method	Results					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08					
Weight	3,864 1,753	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custon					st Res	ults	
Thickness, mil (mm)	ASTM D 5994	Trequency	Englis	n	Metr	ıc	Englis	h	Metri	ic
Average.		every roll	60	(1.5)	61	,		
Minimum		every roll	54	(1.4	•	57	(1.6)
Tensile Properties:	ASTM D 638, Type IV	,	0.	,	1,-	,	57	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	,	303	,
- MD		every roll	130	ì	228	,	166	(290)
Break Strength, ppi (N/cm) - TD		every roll	90	ì	158	,	223	()
- MD		every roll	90	(158	•	244	(390)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13	100	,	244	4~	427)
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				18		
- MD	(51 mm)	every roll		150				609		
Tear Resistance, lb. (N)	ASTM D 1004	0101y 1011		150				623		
- TD		every roll	42	1	187)	56		0.40	
- MD		every roll	42	(187			(249)
Puncture Resistance, lb. (N)	ASTM D 4833		***	,	107)	54	(240)
		every roll	108	(478)	158	(703	,
Puncture Resistance, lb. (N)	FTMS 101C/2065	- -		`	., 0	′	.50	(703)
	`	every 5th	80	(356	}	104	1	463	١
Density, g/cc	ASTM D 1505	***		•		,		,	400	,
		every 5th	(0.940			0	.945		
Carbon Black Content, %	ASTM D 1603*									
Corbon Blank B:		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion		every 5th		A2				A2		
Views in Cat1 - Cat2	ASTM D 5596									
Asperity Height	ODI 011 40	every 5th		9				10		
Average (mils)	GRI GM 12	OVOD (== 11		4.5						
- ,		every roll		10			:	26		
		•								

Irder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



<u>GSE</u>
<u>Lining Technology, Inc.</u>

Roll No. 104108452

	ROLL	IDENTIFICA	TION		Rott No.	104108452
)	Roll Number Product Name Production Date	104108452 HDT060A000 4/18/01	11014	Lot Number Type	ESIN INFORMATION 8210141 TR400GS	
	Length ≈(+/- 1%) Width (Naminal)	158	feet meters		Phillips E RESIN TEST DATA	
	Width (Nominal) Sheet Area	22.5 6.9 11,700 1,086	feet meters sq. feet sq. meters	<u>Property</u> Density, g/cc Melt index, g/10 min.	<u>Test Method</u> ASTM D 1505 ASTM D 1238 (190/2.16)	<u>Results</u> 0.937 0.08
-	Weight	3,865 1,753	pounds kilograms		(** 32.20)	0.00

Physical Property	Test Method	Test Frequency	Custom English		linimu Metr			st Res		
Thickness, mil (mm)	ASTM D 5994		Lingus		Men	ic .	Englis	h	Metr	ic
Average Minimum		every roli	60	(1.5)	61	(1.5)
Tensile Properties:	ASTM D 638, Type IV	every roli	54	(1.4)	56	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(297)
- MD		every roll	130	(228)	164	(287	•
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	214	(375)
- MD		every roll	90	(158)	246	ì	430)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17	.00	,
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				589		
- MD	(51 mm)	every roll		150				636		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	55		245)
- MD		every roll	42	()	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833			,		,	02	'	231	,
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	147	(654)
Density, g/cc	ASTM D 1505	every 5th	80	(356)	104	(463)
Carbon Black Content, %	ASTM D 1603*	every 5th	0	.940			C	.945		
Carbon Black Dispersion	ASTM D 3015	every 5th	:	2.0				2.6		
Carbon Black Dispersion	ASTM D 5596	every 5th	,	A 2				A2		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12									
Average (IIIIIS)		every roll	1	0				17		

rder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 104108453

DOLL	770 773 774			Koll No.	104108453						
	IDENTIFICA	TION	R	RESIN INFORMATION							
Roll Number Product Name Production Date	104108453 HDT060A000 4/18/01	-	Lot Number Type Supplier	8210141 TR400GS							
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA								
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08						
Weight	3,825 1,735	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custon Englis		linimu Metr			st Res		
Thickness, mil (mm)	ASTM D 5994		Digits	72	Metr	ıc	Englis	h	Metr	ic
Average		every roll	60	(1.5)	61	,	4-	
Minimum		every roll	54	,	1.4	•		(1.5	,
Tensile Properties:	ASTM D 638, Type IV	,	•	,	1)	55	(1.4)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	155	(272	,
- MD		every roll	130	ì	228	-	160	(•
Break Strength, ppi (N/cm) - TD		every roll	90	ì	158	•	232	(280	
- MD		every roll	90	(158)		(406)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13	100	,	235	(411)
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll						18		
- MD	(51 mm)	every roll		150				639		
Tear Resistance, lb. (N)	ASTM D 1004	every roll		150				635		
- TD	1.01.11.2 1004	every roll	42	,	187	,	=0	,		
- MD		every roll	42	()	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833	Cvery ron	42	(187)	53	(236)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	159	(708)
Density, g/cc	•	every 5th	80	(356)	101	(449	}
Delisity, g/cc	ASTM D 1505							·		,
Carbon Black Content, %	ASTM D 1603*	every 5th		0.940			0	.945		
Carbon Black Dispersion	ASTM D 3015	every 5th		2.0	•			2.4		
Carbon Black Dispersion	ASTM D 5596	every 5th		A2				A2		
Views in Cat1 - Cat2		every 5th		9				10		
Average (mile)	GRI GM 12									
Average (mils)		every roll		10			:	25		

\rder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

	IDENTIFICA	TION		Roll No.	104108456
Roll Number	104108456	TION	R	ESIN INFORMATION	
Product Name Production Date	HDT060A000 4/18/01		Lot Number Type Supplier	8210141 TR400GS	
Length ≈(+/- 1%)	520 158	feet meters		Phillips E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	Test Method	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1505 ASTM D 1238 (190/2.16)	0.937 0.08
Weight	3,871 1,756	pounds kilograms		- (=>0/2.10)	5.06

Physical Property	Test Method	Test Frequency	Custo						st Res	ults	_
Thickness, mil (mm)	ASTM D 5994	2 requency	Engli	sn	Met	ric		Englis	h	Metr	ic
Average	2 0007	every roll	60			_					
Minimum		•	60	(1.)	63	(1.6	;
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4	4)	59	(1.5	j
Yield Strength, ppi (N/cm) - TD		every roll	120	,		_					
- MD		every roll	130	()	161	(282	<u> </u>
Break Strength, ppi (N/cm) - TD			130	(228)	158	(277	
- MD		every roll	90	(158	3)	230	(402	
Yield Elongation, % - TD	gauge length = 1.3"	every roll	90	(158	3)	230	(403	
- MD		every roll		13					18		
Break Elongation, % - TD	(33 mm)	every roll		13					18		
- MD	gauge length = 2.0"	every roll		150					639		
Fear Resistance, lb. (N)	(51 mm)	every roll		150					621		
	ASTM D 1004								Į.		
- TD		every roll	42	(187)		54	. ,	240	
- MD		every roll	42	(187)		53	(240	,
uncture Resistance, lb. (N)	ASTM D 4833			`		,		55	(236	,
Inclure Besistant III (4)		every roll	108	(478)		159	,	700	
uncture Resistance, lb. (N)	FTMS 101C/2065			•	_	′		100	(708)
ensity, g/cc		every 5th	80	(356)		101	,	440	,
ensity, g/cc	ASTM D 1505					′		101	(449)
arbon Block Control of		every 5th	(0.940				0	.945		
arbon Black Content, %	ASTM D 1603*							O.	.343		
arbon Black Dispersion		every 5th		2.0					2.4		
arbon black Dispersion	ASTM D 3015							•			
arbon Black Dispersion		every 5th		A2					A 2		
Views in Cat1 - Cat2	ASTM D 5596							,			
perity Height		every 5th		9				1	10		
Average (mils)	GRI GM 12							•	-		
- 3- (mms)		every roll		10				1	8		

'rder No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

ROLL	IDENTIFICA			Roll No.	104108457
Roll Number Product Name Production Date	104108457 HDT060A000	IIION	Lot Number Type	ESIN INFORMATION 8210141 TR400GS	
Length $\approx (+/-1\%)$ Width (Naminal)	520 158	feet meters	Supplier GS	Phillips E RESIN TEST DATA	
Width (Nominal) Sheet Area	22.5 6.9 11,700 1,086	feet meters sq. feet sq. meters	<u>Property</u> Density, g/cc Melt index, g/10 min.	Test Method ASTM D 1505	<u>Results</u> 0.937
Weight	3,872 1,756	pounds kilograms	76	ASTM D 1238 (190/2.16)	0.08

Physical Property	Test Method	Test Frequency	Custo	mer N				est Re	sults	
Thickness, mil (mm)	ASTM D 5994	Trequency	Engli	sn	Met	ric	Engli		Met	ric
Average	2 0004	even, reli							i	
Minimum		every roll	60	(• • • • • • • • • • • • • • • • • • • •		62		(1.6	3
Tensile Properties:	ASTM D 638, Type IV	every roll	54	(1.4	1)	59		(1.5	5
Yield Strength, ppi (N/cm) - TD	2 000, турету	every roll	450							
- MD		•	130	(228	,	162	(283	3
Break Strength, ppi (N/cm) - TD		every roll	130	(228	3)	163	(285	5
- MD		every roll	90	(158)	243	(425	i
Yield Elongation, % - TD		every roll	90	(158)	228	(400	
- MD	gauge length = 1.3"	every roll		13				17		
	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150						
- MD	(51 mm)	every roll		150				646		
Tear Resistance, lb. (N)	ASTM D 1004	•		,50			•	629		
- TD		every roll	42	(187	١.	F.4			
- MD		every roll	42	•		,	51	(227	ì
Puncture Resistance, lb. (N)	ASTM D 4833	2. C. y . C.	42	(187)	55	(245)
uncture Resistance, lb. (N)	FTMS 101C/2065	every roll	108	(478)	162	(721)
ensity, g/cc	ASTM D 1505	every 5th	80	(356)	101	(449)
arbon Black Content, %		every 5th	0	.940			•	.945		
a con black Content, %	ASTM D 1603*									
arbon Black Dispersion	ASTM D 3015	every 5th		2.0				2.4		
rbon Black Dispersion	ASTM D 5596	every 5th	,	A2				A2		
Views in Cat1 - Cat2 Perity Height		every 5th		9				10		
Average (mils)	GRI GM 12									
,	•	every roll	1	10			2	20		

rder No.

20979

ustomer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



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3/30/01

9:55: PAGE 001/1

RightFAX



February 26, 2001

Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501

PSN# 4859-01

FAX: 281-230-2510

1.1

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210141

P.O. Number:

02/23/01

Date Shipped: Package:

PSPX 7123

Quantity: 180100 LBS.
Melt Index, ASTM D1238: .080 G/10 MIN HLMI Flow Rate, ASTM D1238: 11.8 G/10 MIN

Density, ASTM D1505:

.937 G/CC

HLMI/MI Ratio:

.08

Production Date:

02/09/01

ESCR, F/50, Cond. B: 1500 HOURS **

Brittleness Temperature: <-70 C **

Color:

114.800

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

microscia in a distribution

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630

05*/

Phillips Petroleum 2/23/01 4:14: PAGE 001/1 RightFAX



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 23, 2001

PSN# 4861-01

FAX: 281-230-2510

3 \$

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type: Lot Number:

HHM TR-400GS

P.O. Number:

8210143

Date Shipped:

02/23/01

Package:

PSPX 1292

Quantity:

185400 LBS.

Melt Index, ASTM D1238: .080 G/10 MIN

HLMI Flow Rate, ASTM D1238: 12.2 G/10 MIN

Density, ASTM D1505: .937 G/CC HLMI/MI Ratio: 152.

Production Date:

02/09/01 1500 HOURS **

ESCR, F/50, Cond. B: Brittleness Temperature: <-70 C **

Color:

110.250

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 23, 2001

PSN# 4857-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210163

P.O. Number:

02/23/01

Date Shipped: Package:

PSPX 2213

Quantity:

187150 LBS.

Melt Index, ASTM D1238:

.070 G/10 MIN

HLMI Flow Rate, ASTM D1238: 10.2 G/10 MIN

Density, ASTM D1505:

.938 G/CC

HLMI/MI Ratio:

146.

Production Date:

02/13/01

ESCR, F/50, Cond. B:

1500 HOURS **

Brittleness Temperature: <-70 C **

Color:

108.500

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: 12/5/01



To:	Handex of Florida, Inc.		Job:	06104-28936-	
10.	2306 Gravel Drive			W. Pasco County Landfill Expans Cells A-3 and SW-2	ion
	Ft. Worth, TX 76118-				
Attn:	Gary Conaway, V. P.				
	6 print(s) each of the following Subr Text	mittal: ured L	D-02776-014-A (iner (Set 3 of 4))	(QA/QC Roll Certificates: 60 mil HDPE	<u></u>
	which are:	1.	APPROVED		. 🗹
		2.	APPROVED	AS NOTED	. 🗆
		3.	APPROVED	AS NOTED/CONFIRM	. 🗆
		4.	APPROVED	AS NOTED/RESUBMIT	. 🗆
		5.	NOT APPRO	VED	. \square
		6.	COMMENTS	ATTACHED	. 🗆
		7.	FOR YOUR II	NFORMATION	. 🗆
		8.	FOR YOUR F	REVIEW	. \square
0					
Com	ments:				
<u>.</u>					
CC:	1 - Jack McHugh/CDM				

Abdul Mulla-Saleh

, COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

ST PASCO COUNTY LAND to County B.O.C.C. In Dresser & McKee dex of Florida, Inc. MANCO Environmental Corp. VTRACTOR: By this submittal, I hereby a materials, dimensions, cata applicable approved shop described by the submittal of the submit	Project No. Project No. Project No. Project No. Project No. Project No. Original Su Resubmitta 60 mil HDPE Te A.1(d) nc.	01-063 6104-28936 123477 010-848 The property of the similar data and I is contract requirements.	Proj Proj Proj Proj	ect Manager: ect Manager: ect Manager: ect Manager: ect Manager: ect Manager: Date: Supplemen	II-(5-0)
D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03.4 GSE Lining Technologies, In COMANCO Environmental	Project No. Project No. Project No. Project No. Project No. Project No. Original Su Resubmitta 60 mil HDPE Tel A.1(d) nc.	6104-28936 123477 010-848 The determined and verified similar data and I have the contract requirements. The determined and verified similar data and I have the contract requirements.	Proj Proj Proj ified all fie	ect Manager: ect Manager: ect Manager: ect Manager: ect Manager: Date: Supplemen Information	Daniel Strobridge, Q.E. Gary L. Conaway, P.E. Pablo J. Rivera nts, field construction crite linated each item with ot 11-15-01
dex of Florida, Inc. MANCO Environmental Corp. WTRACTOR: By this submittal, I hereby materials, dimensions, cata applicable approved shop dr. Signature: D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, Inc. COMANCO Environmental	Project No. Project No. Project No. Project No. represent that I have alog numbers and rawings and all Co Original Su Resubmitta 60 mil HDPE Te A.1(d) nc.	123477 010-848 The determined and verification of the similar data and I is contract requirements. The determined and verification of the similar data and I is contract requirements.	Proj Proj ified all fie	ect Manager: ect Manager: eld measuremer ced and coord Date: Supplemen Information	Gary L. Conaway, P.E. Pablo J. Rivera nts, field construction crite linated each item with ot 11-15-01
MANCO Environmental Corp. STRACTOR: By this submittal, I hereby i materials, dimensions, cata applicable approved shop di Signature: D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03 A GSE Lining Technologies, In COMANCO Environmental	Project No. represent that I have along numbers and all Comider and all Comid	010-848 The determined and verification of the contract requirements. The submittal	Proj	ect Manager: old measuremer ced and coord Date: Supplemen Information	Pablo J. Rivera nts, field construction crite linated each item with ot 11-15-01
By this submittal, I hereby is materials, dimensions, cata applicable approved shop discontinuous Signature: D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, In COMANCO Environmental	represent that I havalog numbers and rawings and all Co Original Su Resubmitta 60 mil HDPE Te A.1(d) nc.	ve determined and verification of the similar data and I had been seen to be seen the similar data and I had been seen to be seen to	ified all fie	old measurement ded and coord Date: Supplement	nts, field construction crite linated each item with ot $11-15-01$
By this submittal, I hereby materials, dimensions, cata applicable approved shop discontinuous Signature: D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, Incomental	Original Su Resubmitta 60 mil HDPE Te A.1(d) nc.	d similar data and I hontract requirements. The boundary of t	nave check	Date: Supplemen	II-(5-0)
materials, dimensions, cate applicable approved shop di Signature: D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, li COMANCO Environmental	Original Su Resubmitta 60 mil HDPE Te A.1(d) nc.	d similar data and I hontract requirements. The boundary of t	nave check	Date: Supplemen	II-(5-0)
D-02776-014-A November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, In COMANCO Environmental	Resubmitta 60 mil HDPE Te A.1(d) nc.	al	4) (52 rolls	Supplemen	at
November 15, 2001 8 QA/QC Roll Certificates: 01300, 02776 Section 1.03 A GSE Lining Technologies, In COMANCO Environmental	Resubmitta 60 mil HDPE Te A.1(d) nc.	al	4) (52 rolls	Information	
8 QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, In COMANCO Environmental	60 mil HDPE Te A.1(d) nc.		4) (52 rolls		n Only
QA/QC Roll Certificates: 01300, 02776 Section 1.03A GSE Lining Technologies, la COMANCO Environmental	60 mil HDPE Te A.1(d) nc.		4) (52 rolls		n Only
01300, 02776 Section 1.03A GSE Lining Technologies, In COMANCO Environmental	A.1(d) nc.	extured Liner (Set 3 of	4) (52 rolls	s)	
01300, 02776 Section 1.03A GSE Lining Technologies, In COMANCO Environmental	A.1(d) nc.				
GSE Lining Technologies, la COMANCO Environmental	nc.				
COMANCO Environmental					
	Corporation			•	
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Code 2 - Approved As No	oted		Co	ode 5 - Not App	proved
Code 3 - Approved As No	oted. Confirm	7	Co	ode 6 - Comme	nts Attached
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arks Area:					
SHOP DI	RAWING RE	VIEW		-	
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appointing the property of the second	neions in the sub ng any deviceions include for the de	Smittal or from the C from the Contract D etails and dimensions of techniques, sequence	in nitth.		
	Approved Not Approved Approved Not Approved Appr	SHOP DRAWING RE ENGINEER'S REVIEW RESPONDER'S REVIEW Approved Not Approved Approved Commons Attached Commons Attach	SHOP DRAWING REVIEW PNOWNER'S REVIEW RESPONSE REQUIRED O CONTRACTOR Approved Not Approved Commons Approved Not Approved Commons Attached Commons Attac	SHOP DRAWING REVIEW PRESPONSE REQUIRED OF CONTRACTOR Approved Not Approved Commons Attached Commons Attached Commons Attached Commons Attached Commons Attached Contractor in the Contract plans, openitications and for decign cencept. This review does not relieve the contractor in preparability of addressing any deviations from the Contract Decumdents. The Contractor is responsibility of addressing any deviations from the Contract Decumdents. The Contractor is responsibility for the details and dimensions of fabrication and manufacture, the means, methods, techniques, sequences or separation and performing his work in a sets manner.	SHOP DRAWING REVIEW PNGWEER'S REVIEW RESPONSE REQUIRED OF CONTRACTOR Approved Not Approved Confirm Approved Commons Approved Not Approved Recording to Hinted to the coview of dimensions, equipment and materials as presented in the Contract plans, appetitioations and for dodgar concept. This review does not relieve the contractor is responsibility of addressing any deviations from the Contract Contractor is responsibility of addressing any deviations from the Contract Documents. The Contractor is responsible for the details and dimensions of fabrication and manufacture, the means, methods, techniques, sequences or procedures of concruction and performing his work in a segment.

Roll No. 104108458

ROLL	IDENTIFICA:	TION	RESIN INFORMATION								
Roll Number	104108458		Lot Number	8210141							
Product Name	HDT060A000		Туре	TR400GS							
Production Date	oduction Date 4/18/01 ngth ≈(+/- 1%) 520 158		Supplier	Phillips	<u>-</u>						
Length ≈(+/- 1%)		feet meters	GSI	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0						
Weight	3,842 1,743	pounds kilograms									

od	Frequency					Test Results				
	Frequency	English Metric				English	Λ	1etric		
5994										
	every roll	60	(1.5)	61	(1.5)	
	every roll	54	(1.4)	55	(1.4)	
8, Type IV										
	every roll	130	()	163	(285)	
	every roll	130	(228)	168	(294)	
	every roll	90	(158)	225	(393)	
	every roll	90	(158)	234	(409)	
th = 1.3"	every roll		13				17			
(33 mm)	every roll		13				17			
gth = 2.0"	every roll		150				619			
(51 mm)	every roll		150				622			
1004							ļ.			
	every roll	42	(187)	54	(240)	
	every roll	42	(187)	54	(240)	
4833										
	every roll	108	(478)	155	(690)	
1C/2065										
	every 5th	80	(356)	100	(445)	
1505										
	every 5th		0.940				0.946			
1603*										
	every 5th		2.0				2.4			
3015			••				42			
	every 5th		A2				AZ			
5596			۵				10			
	every 5th		9				10			
M 12										
···· ·-	every roll		10				22			
1	1004 4833 C/2065 1505 1603* 3015	1004	every roll 42 every roll 42 every roll 42 4833 every roll 108 C/2065 every 5th 80 1505 every 5th 1603* every 5th 23015 every 5th	1004	1004 every roll 42 (187 every roll 42 (187 4833 every roll 108 (478 C/2065 every 5th 80 (356 1505 every 5th 0.940 1603* every 5th 2.0 3015 every 5th A2 9 5596 every 5th 9	1004 every roll	1004 every roll	1004 every roll 42 (187) 54 (every roll 42 (187) 54 (4833 every roll 108 (478) 155 (C/2065 every 5th 80 (356) 100 (1505 every 5th 0.940 0.946 1603* every 5th 2.0 2.4 3015 every 5th A2 A2 0.5596 every 5th 9 10	1004 every roll 42 (187) 54 (240 every roll 42 (187) 54 (240 4833 every roll 108 (478) 155 (690 C/2065 every 5th 80 (356) 100 (445 1505 every 5th 0.940 0.946 1603* every 5th 2.0 2.4 3015 every 5th A2 A2 65596 every 5th 9 10	

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

ε.χ. 4/19/01 QA

Roll No. 104108459

ROLL	IDENTIFICA:	TION	RES	RESIN INFORMATION								
Roll Number	104108459		Lot Number	8210141								
Product Name	HDT060A000		Type	TR400GS								
Production Date	4/18/01		Supplier	Phillips								
Length ≈(+/- 1%)	520 158	feet meters	GSE	RESIN TEST DATA								
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results							
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937							
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08							
Weight	3,883 1,761	pounds kilograms										

Physical Property	Test	Test	Custom					Resu		
Thysical Property	Method	Frequency	English	!	Metric	;	English	1	Metric	
Thickness, mil (mm)	ASTM D 5994		•							
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	169	(297)
- MD		every roll	130	(228)	161	(281)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	238	(417)
- MD		every roll	90	(158)	238	(416)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Eiongation, % - TD	gauge length = 2.0"	every roll		150				644		
- MD	(51 mm)	every roll		150				625		
Tear Resistance, lb. (N)	ASTM D 1004							*		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065									,
		every 5th	80 .	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			•	0.946		
Carbon Black Content, %	ASTM D 1603*			2.0				2.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	augus Eile		A2				A2		
		every 5th		A4				72		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2		every 5th		J						
Asperity Height	GRI GM 12	every roll		10				19		
Average (mils)		CVCI y 1011								

Order No.

20979

Location

Customer Name PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108460

ROLL	IDENTIFICA:	TION		RESIN INFORMATION								
Roll Number	104108460			Lot Number	8210141							
Product Name	HDT060A000			Type	TR400GS							
Production Date	roduction Date 4/19/01			Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet meters		GSI	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	_	<u>Property</u>	Test Method	Results						
(Nominal)	6.9	meters		Density, g/cc	ASTM D 1505	0.937						
Sheet Area	11,700 1,086	sq. feet sq. meters		Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08						
Weight	3,834 1,739	pounds kilograms										

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric	:	English	Ì	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum	'	every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	159	(278)
- MD		every roll	130	(228)	156	(273)
Break Strength, ppi (N/cm) - TD		every roli	90	(158)	197	(345)
- MD		every roll	90	(158)	221	(387)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				586		
- MD	(51 mm)	every roll		150				606		
Tear Resistance, lb. (N)	ASTM D 1004							16		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699) .
Puncture Resistance, lb. (N)	FTMS 101C/2065								=	
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			•	0.946		
Carbon Black Content, %	ASTM D 1603*			0.0				2.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	augus Eth		A2				A2		
		every 5th		~2				/ _		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	CDLCM 12	every our		ū						
Asperity Height	GRI GM 12	every roll		10				13		
Average (mils)		5.5., .5								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 104108462

										-	_
ROLL	<i>IDENTIFICAT</i>	TION		RESIN IN	<i>FO</i>	RMAT	101	V			
Roll Number	104108462		Lot Number			821014	41	· · · · · · · · · · · · · · · · · · ·			
Product Name	HDT060A000		Type			TR400	GS				
Production Date	4/19/01		Supplier			Phillips	3				
Length ≈(+/- 1%)	520 158	feet meters	(GSE RESI	N T	EST D	AT.	A			
Width (Nominal)	22.5	feet	Property		<u> 2</u>	est M	etho	<u>od</u>	<u>R</u>	esults	_
(Nominal)	6.9	meters	Density, g/cc		A .	STM I	D 15	05	(0.937	
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	AS	TM I	D 1238	8 (1	90/2.16)		80.0	
Weight	3,918 1,777	pounds kilograms									
Physical Pi	roperty	Test Method	Test Frequency	Custome English		nimun Metric		Test . English		lts Metric	
Thickness, mil (mm)		ASTM D 5994									
Average			every roll	60	(1.5)	62	(1.6)
Minimum			every roll	54	(1.4)	59	(1.5)
Tensile Properties:		ASTM D 638, Type	₽ IV								
Yield Strength,	ppi (N/cm) - TD		every roll	130	(228)	171	(299	}
	- MD		every roll	130	(228)	168	(294)
Break Strength,	ppi (N/cm) - TD		every roll	90	()	225	(394)
	- MD		every roll	90	(158)	205	(359)
Yield Elongation	n, % - TD	gauge length = 1.	3" every roll		13				17		
	- MD	(33 mr	m) every roll		13				18		
Break Elongatio	n, % - TD	gauge length = 2.	0" every roll		150				567		
	- MD	(51 mr	m) every roll		150				557 1		
Tear Resistance, lb. (ASTM D 1004		40	,	187	`	56		249)
	- TD		every roll	42	(Ċ	53	1	236	١
	- MD		every roll	42	(187)	55	'	230	. ,
Puncture Resistance,	ib. (N)	ASTM D 4833	every roll	108	(478)	160	(712)
Puncture Resistance,	ib. (N)	FTMS 101C/206	5 every 5th	80	. (356)	100	(445)
Density, g/cc		ASTM D 1505	•	,	0.940			ſ	0.946		
Carbon Black Conten	ıt, %	ASTM D 1603*	every 5th	,				`			
			every 5th		2.0				2.4		
Carbon Black Dispers	sion	ASTM D 3015	every 5th		A2				A2		

every 5th

every roll

10

Order No.

Asperity Height

20979

Customer Name Location

Carbon Black Dispersion

Average (mils)

Views in Cat1 - Cat2

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

ASTM D 5596

GRI GM 12

*Modified

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16



Lining Technology, Inc.

Roll No. 104108463

ROLL	IDENTIFICA:	TION		SIN INFORMATION	
Roll Number	104108463		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(110/////////	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,858 1,750	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	ilts Metric	:
Thickness, mil (mm)	ASTM D 5994									_
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(292)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	216	(378)
- MD		every roll	90	(158)	224	(393)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				588		
- MD	(51 mm)	every roll		150				578		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD	,	every roll	42	(187)	53	(236)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
• •		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	•	every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505									
	•	every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015			4.0						
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	oven reli		10				19		
Average (mils)		every roll		10				13		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified

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P R O L R O 4/20/01

QA



Roll No. 104108464

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108464		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(110mman)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,888 1,764	pounds kilograms			

Physical Property	Test	Test	Custome English		nimun Metric		Test English	Resu	lts Metric	
	Method	Frequency	Engusn		vieiri	,	Engusn		vienu	
Thickness, mil (mm)	ASTM D 5994								4.0	
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD		every roll	130	(228)	172	(301)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	196	(343)
- MD		every roll	90	(158)	208	(364)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				576		
- MD	(51 mm)	every roll		150				548		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
Tanada Nasiatanas, 12. (1.)		every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
, , , , , , , , , , , , , , , , , , , ,		every 5th	80	(356)	99	(441) .
Density, g/cc	ASTM D 1505									
Zoneny g. co		every 5th		0.940			i	0.946		
Carbon Black Content, %	ASTM D 1603*									
,		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
·		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				11		
, words (come)										

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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RPROURD R.P. 4/20/01 QA



Lining Technology, Inc.

Roll No. 104108466

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	104108466		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(1.0	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,938 1,786	pounds kilograms			

DI . ID .	Test	Test	Custome	er Mi	nimur	n	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric	?	English	i	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum	•	every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	175	(306)
- MD	•	every roll	130	(228)	176	(308)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	133	(233	')
- MD		every roll	90	(158)	131	(230)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				349		
- MD	(51 mm)	every roll		150				4117		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240	.)
Puncture Resistance, lb. (N)	ASTM D 4833								,	
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
·	· · · ·	every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			().946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			_				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			40				17		
Average (mils)		every roll		10				17		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Technology, Inc. Roll No. 104108468

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108468 HDT060A000		Lot Number	8210141 TR400GS	
Product Name Production Date	4/19/01		Type Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSZ	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,929 1,782	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimum Metric		Test English	Resu 1	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	174	(304)
- MD		every roll	130	()	176	(307)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	147	(258)
- MD		every roll	90	(158)	223	(391)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				400		
- MD	(51 mm)	every roll		150				570		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065				050	,	407	,	470	,
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505	5 11	,	0.040				0.946		
		every 5th	(0.940				0.540		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.4		
	10TH D 2045	every 5th		2.0						
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carban Black Bionamian	ASTM D 5596									
Carbon Black Dispersion Views in Cat1 - Cat2	A01111 B 0000	every 5th		9				10		
Asperity Height	GRI GM 12	-								
Average (mils)		every roll		10				16		
- 3 (

Order No.

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Customer Name Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

PROUR R.P. 4/20/01 QA

Roll No. 104108469

ROLL	IDENTIFICA:	TION	RI	ESIN INFORMATION	
Roll Number	104108469		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,900 1,769	pounds kilograms			
		Test	Test C	Sustomer Minimum Test	Results

Physical Property	Test Method	Test Frequency	Custome English		Metric		English	Kesu	us Metric	,
Thickness, mil (mm)	ASTM D 5994					-				
Average		every roll	60	(1.5)	61	. (1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	180	(315)
- MD		every roli	130	(228)	183	(320)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	135	(236)
- MD		every roll	90	(158)	145	(255)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				256		
- MD	(51 mm)	every roll		150				340		
Tear Resistance, lb. (N)	ASTM D 1004							ţ		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	164	(730)
Puncture Resistance, lb. (N)	FTMS 101C/2065								470	
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505							0.040		
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*			2.0				2.4		
		every 5th	•	2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
	ACTIA D SECS	every 5th		/_				,		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	2.2., 2								
Asperity Height	ON GWI 12	every roll		10				17		

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 104108470

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	104108470		Lot Number	8210141	
Product Name	HDT060A000		Туре	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSI	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
With (Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,898 1,768	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu 1	lts Metric	;
Thickness, mil (mm)	ASTM D 5994				_					
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4).	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	175	(307)
- MD		every roll	130	(228)	178	(311)
Break Strength, ppi (N/cm) - TD		every roll	90	()	174	(305)
- MD		every roll	90	(158)	142	(249)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				510		
- MD	(51 mm)	every roll		150				350		
Tear Resistance, lb. (N)	ASTM D 1004							***		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
	•	every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	107	(476)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*							0.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015							A2		
		every 5th		A2				^2		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		Ð						
Asperity Height	GRI GM 12	over reli		10				26		
Average (mils)		every roll		10						

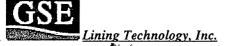
Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108471		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(ivominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,853 1,748	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu 1	lts Metric	
Thickness, mil (mm)	ASTM D 5994			-						
Average		every roll	60	1(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	171	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(263)
- MD		every roll	90	(158)	181	(316)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				430		
- MD	(51 mm)	every roll		150				380		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	60	. (267)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	. 107	(476)
Density, g/cc	ASTM D 1505	every 5th		0.940			,	0.946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				19		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107893

ROLL	IDENTIFICA?	TION	RE	SIN INFORMATION	
Roll Number	105107893		Lot Number	8210165	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,886 1,763	pounds kilograms			

Physical Property	Test Method	Test Frequency	Customer English	Minimum Metric	Test . English	Results Metric	:
Thickness, mil (mm)	ASTM D 5994				0.4	, 45	
Average		every roll	60 ((1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV	,,	400	/ 220 \	170	(297	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)		(289)
- MD		every roll	130	(228)	165	•)
Break Strength, ppi (N/cm) - TD		every roli	90	(158)	166	(291)
- MD		every roll	90	(158)	180	(315)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		16	
- MD	(33 mm)	every roll	•	13		16	
Break Elongation, % - TD	gauge length = 2.0"	every roll	1	50		492	
- MD	(51 mm)	every roll	1	50		488 1	
Tear Resistance, lb. (N)	ASTM D 1004						
- TD		every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833						
		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065						
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505				_		
		every 5th	0.	940	į.).947	
Carbon Black Content, %	ASTM D 1603*		,			2.2	
		every 5th	4	2.0		2.2	
Carbon Black Dispersion	ASTM D 3015	File		A2		A2	
		every 5th	•	A2		AZ	
Carbon Black Dispersion	ASTM D 5596	avan, Eth		9		10	
Views in Cat1 - Cat2		every 5th		J			
Asperity Height	GRI GM 12	every roll		10		25	
Average (mils)		every roll		, ,		-	

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location DADE CITY, FLORIDA

*Modified



GSE

Lining Technology, Inc.

Roll No. 104108472

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	104108472		Lot Number	8210141	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/19/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(6.6)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,814 1,730	pounds kilograms			

ni tr	Test	Test	Custome	r Mi	nimun	n	Test	Resu	ilts	
Physical Property	Method	Frequency	English	i	Metric	:	English		Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum	ı	every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	177	(309)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	203	(356)
- MD		every roll	90	(158)	196	(343)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				580		
- MD	(51 mm)	every roll		150				490		
Tear Resistance, lb. (N)	ASTM D 1004							14.		
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			C	.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			•				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over reli		10				21		
Average (mils)		every roll		10				۲ ا		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location *Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number Product Name Production Date	104108473 HDT060A000 4/20/01		Lot Number Type Supplier	8210141 TR400GS Phillips	
Length ≈(+/- 1%)	520	feet	GS	E RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,844 1,744	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English		lts Aetric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	, 60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV		130	(228)	170	,	298	١
Yield Strength, ppi (N/cm) - TD		every roll	130	•	228)	173	(302)
- MD		every roll		(158	•	209	,	365)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	174	(304)
- MD		every roll	90	(150)	174	16	304	,
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				600		
- MD	(51 mm)	every roll		150				470 1		
Tear Resistance, lb. (N)	ASTM D 1004				•					
- TD		every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	158	(703)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	. 80	(356)	102	(454)
Density, g/cc	ASTM D 1505	every 5th		0.940			•	0.947		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A 1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				23		

Order No.

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Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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PROLES 2.P. 4/20/01 QA



Roll No. 105107690

ROLL	IDENTIFICA?	TION	RE	SIN INFORMATION	
Roll Number	105107690		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/29/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSI	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominai)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,940 1,787	pounds kilograms			

	Test	Test	Custome	er Mü	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	İ	Metric	;	English	1	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	166	(290)
- MD		every roll	130	(228)	186	(326)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	153	(269)
- MD		every roll	90	(158)	157	(275)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				431		
- MD	(51 mm)	every roll		150				331		
Tear Resistance, lb. (N)	ASTM D 1004							ŧ		
- TD		every roll	42	(187)	52	(231)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	136	(605)
Puncture Resistance, lb. (N)	FTMS 101C/2065						00	,	444	,
		every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505			0.040				0.945		
		every 5th		0.940				0.945		
Carbon Black Content, %	ASTM D 1603*	Fil		2.0				2.3		
		every 5th		2.0				2.0		
Carbon Black Dispersion	ASTM D 3015	over, 5th		A2				A2		
	AOTH D 5500	every 5th		74						
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	CDLCM 42	evory our		-						
Asperity Height	GRI GM 12	every roll		10			•	20		
Average (mils)		2131,131								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Lining Technology, Inc.

Roll No. 105107692

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107692		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/29/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,952 1,793	pounds kilograms			

	Test	Test	Customer Minimum				Test Results				
Physical Property	Method	Frequency	English Metric			;	English	Ì	Metric		
Thickness, mil (mm)	ASTM D 5994										
Average		every roll	60	('	1.5)	62	(1.6)	
Minimum		every roll	54	(1.4)	56	(1.4)	
Tensile Properties:	ASTM D 638, Type IV										
Yield Strength, ppi (N/cm) - TD	•	every roll	130	(228)	180	(314)	
- MD		every roll	130	(228)	176	(309)	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	167	(293)	
- MD		every roll	90	(158)	180	(314)	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17			
- MD	(33 mm)	every roll	13				16				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				447				
- MD	(51 mm)	every roll	150				462				
Tear Resistance, lb. (N)	ASTM D 1004							ž.			
- TD		every roll	42	(187)	67	(298)	
- MD		every roll	42	(187)	62	(276)	
Puncture Resistance, lb. (N)	ASTM D 4833										
		every roll	108	(478)	152	(676)	
Puncture Resistance, lb. (N)	FTMS 101C/2065			,	250	,	06	,	427)	
		every 5th	80	(356)	96	(421	,	
Density, g/cc	ASTM D 1505	Fil		0.940				0.946			
		every 5th		0.940				0.540			
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0			2.3				
		every our		2.0							
Carbon Black Dispersion	ASTM D 3015	every 5th	•	A2			A1				
<u>.</u>	ASTM D 5596	over, car									
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 3390	every 5th		9				10			
	GRI GM 12										
Asperity Height Average (mils)	O(4, O(1, 12	every roll		10				19			
,											

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Lining Technology, Inc.

Roll No. 105107695

									
ROLL IDENTIFICATION			RESIN INFORMATION						
Roll Number	105107695		Lot Number MT21020421						
Product Name	HDT060A000		Type	XL3812					
Production Date 3/29/01		Supplier	Equistar						
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA						
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12				
Weight	3,906 1,772	pounds kilograms							

	Test	Test	Customer Minimum				Test Results				
Physical Property	Method	Frequency	English Metric			:	English	I	Metric		
Thickness, mil (mm)	ASTM D 5994										
Average		every roll	60	(1.5)	61	(1.6)	
Minimum		every roll	54	(1.4)	54	(1.4)	
Tensile Properties:	ASTM D 638, Type IV										
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(296)	
- MD		every roll	130	(228)	166	(291)	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	153	(269)	
- MD		every roll	90	(158)	141	(247)	
Yield Elongation, % - TD	gauge length = 1.3"	every roil		13				16			
- MD	(33 mm)	every roll		13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				438				
- MD	(51 mm)	every roll	150				448				
Tear Resistance, lb. (N)	ASTM D 1004							ŧ			
- TD	•	every roll	42	(187)	62	(276)	
- MD		every roll	42	(187)	61	(271)	
Puncture Resistance, lb. (N)	ASTM D 4833										
		every roll	108	(478)	155	(690)	
Puncture Resistance, lb. (N)	FTMS 101C/2065							,	407	,	
		every 5th	80	(356)	96	(427)	
Density, g/cc	ASTM D 1505			0.040				0.046			
		every 5th		0.940	•			0.946			
Carbon Black Content, %	ASTM D 1603*	544		2.0 2.3							
		every 5th	2.0								
Carbon Black Dispersion	ASTM D 3015	every 5th	A2 A1								
		every 5th		712							
Carbon Black Dispersion	ASTM D 5596	every 5th	every 5th		9			10			
Views in Cat1 - Cat2	001.014.40	every our		-							
Asperity Height	GRI GM 12	every roll		10				22			
Average (mils)		2.2.7									

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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7.7 3/30/01 QA



ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107696		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/29/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,918 1,777	pounds kilograms			

	Test	Test	Custome	er Mi	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	i	Metric	;	English	İ	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD		every roll	130	(228)	168	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	162	(283)
- MD		every roll	90	(158)	142	(248)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				481		
- MD	(51 mm)	every roll		150				449		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	58	(258)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	139	(619)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	<i>2</i>	every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			1	0.944		
Carbon Black Content, %	ASTM D 1603*	-		0.0				2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				\sim 1		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2		every 5th		5						
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		6461 Y 1011		. •						

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RESIN INFORMATION Lot Number MT21020421 Type XL3812				
Roll Number	105107697	-	Lot Number	MT21020421			
Product Name	HDT060A000		Type				
Production Date	3/30/01		Supplier	Equistar			
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA			
Width (Nominal)	22.5	feet	Property	Test Method	Results		
(110////	6.9	meters	Density, g/cc	ASTM D 1505	0.940		
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12		
Weight	3,927 1,781	pounds kilograms					

To 1 1 1 10	Test	Test	Custome	er Mi	nimun	n	Test	Resu	ilts	
Physical Property	Method	Frequency	requency English Metric		English	Ì	Metric	;		
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(286)
- MD		every roll	130	(228)	165	(289)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	156	(274)
- MD		every roll	90	(158)	140	(245)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				480		
- MD	(51 mm)	every roll		150				368		
Tear Resistance, lb. (N)	ASTM D 1004							ř		
- TD		every roll	42	(187)	52	(231)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	136	(605)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			().944		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		A2				Α1		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001 0440	every 5th		3				, 0		
Asperity Height	GRI GM 12	every roll		10				17		
Average (mils)		every ron		.0						

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 105107698

			· 		
ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107698		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(110/11/10)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,920 1,778	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	;
Thickness, mil (mm)	ASTM D 5994							·		
Average		every roll	60	(1.5)	61	(1.6	•)
Minimum		every roll	54	(1.4)	60	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	. 175	(307)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	135	(237)
- MD		every roll	90	(158)	180	(316)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15	٠.	
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				231		
- MD	(51 mm)	every roll		150				504		
Tear Resistance, lb. (N)	ASTM D 1004							ž.		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
anoters (tools and (to)		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.944		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			40				22		
Average (mils)		every roll		10				22		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107699

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107699		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(110///	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,913 1,775	pounds kilograms			

m	Test	Test	Custome	r Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	Ì	Metric	:	English	1	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	. (1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD		every roll	130	(228)	171	(299)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	162	(283)
- MD		every roll	90	(158)	151	(264)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				440		
- MD	(51 mm)	every roll		150				393		
Tear Resistance, lb. (N)	ASTM D 1004							ě.		
- TD		every roll	42	(187)	55	. (245)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			(0.944		
Carbon Black Content, %	ASTM D 1603*	-								
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	. 545		40				A1		
		every 5th		A2				Α1		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001 014 40	every out		5						
Asperity Height	GRI GM 12	every roll		10				22		
Average (mils)		every foli								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



ROLL	IDENTIFICA'	TION	RE	SIN INFORMATION	
Roll Number	105107700		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	- 3,978 1,804	pounds kilograms			

Discourse I Description	Test	Test	Custome	er Mi	nimur	n	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric	;	English	Î	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	175	(307)
- MD		every roll	130	(228)	172	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	154	(270)
- MD		every roll	90	(158)	145	(254)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				491		
- MD	(51 mm)	every roll		150				350		
Tear Resistance, lb. (N)	ASTM D 1004							f		
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
•		every roll	108	(478)	143	(636)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.944		
Carbon Black Content, %	ASTM D 1603*							2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				^'		
Carbon Black Dispersion	ASTM D 5596	over 5th		9				10		
Views in Cat1 - Cat2	0.014.40	every 5th		3						
Asperity Height	GRI GM 12	every roll		10				21		
Average (mils)		Cvery roll		. •						

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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S.P. 4/2/01 QA

GSE
Lining Technology, Inc.

Roll No. 105107701

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107701		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
, ,	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,968 1,800	pounds kilograms			

ni · In	Test	Test	Custome	er Mii	nimun	n		Resu	lts	
Physical Property	Method	Frequency	English	Ì	Metric	:	English	Ì	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	172	(302)
- MD		every roll	130	(228)	176	(307)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	166	(290)
- MD		every roll	90	(158)	168	(294)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				538		
- MD	(51 mm)	every roll		150				474		
Tear Resistance, lb. (N)	ASTM D 1004						•			
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
• • •		every roll	108	(478)	147	(654)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
100		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015			40				A1		
		every 5th		A2				АТ		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	every roll		10				28		
Average (mils)		every roll		10				_0		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA?	TION	RE	SIN INFORMATION	
Roll Number	105107702		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,972 1,802	pounds kilograms			

	Test	Test	Custome	er Mi	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	! .	Metric	;	English	i	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average	4	every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	178	(311)
- MD		every roll	130	(228)	171	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	157	(275)
- MD		every roll	90	(158)	169	(297)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				374		
- MD	(51 mm)	every roll		150				456		
Tear Resistance, lb. (N)	ASTM D 1004							ŕ		
- TD		every roil	42	(187)	56	(249)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	161	(716)
Puncture Resistance, lb. (N)	FTMS 101C/2065									,
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*	511		2.0				2.3		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	even, 5th		A2				A1		
		every 5th		72				731		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	ODI 014 40	every our		J						
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		5.5.y . 5.ii								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



			-				
ROLL	IDENTIFICA:	DT060A000					
Roll Number	105107703		Lot Number	MT21020421			
Product Name	HDT060A000		Type	XL3812			
Production Date	3/30/01		Supplier	Equistar			
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA			
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940		
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12		
Weight	3,932 1,784	pounds kilograms					

n	Test	Test	Customer Minimum				Test	Resu	lts	
Physical Property	Method	Frequency	English	i	Metric	;	English	İ	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	, (1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	184	(322)
- MD		every roll	130	(228)	192	(337)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	155	(271)
- MD		every roll	90	(158)	178	(311)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			15			
- MD	(33 mm)	every roll	13			15				
Break Elongation, % - TD	gauge length = 2.0"	every roll		150			388			
- MD	(51 mm)	every roll		150				471		
Tear Resistance, lb. (N)	ASTM D 1004							ž ·		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015			40				A1		
		every 5th		A2				Α,		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		3				10		
Asperity Height	GRI GM 12	eveny roll		10				17		
Average (mils)		every roll		10				•••		

Order No.

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Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified



ROLL	IDENTIFICA:	TION	RE	ESIN INFORMATION	
Roll Number	105107704		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/30/01		Supplier	Equistar -	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,956 1,794	pounds kilograms			

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric	:	English	1	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(299)
- MD		every roll	130	(228)	175	(306)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(263)
- MD		every roll	90	(158)	178	(312)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			17			
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			437				
- MD	(51 mm)	every roll		150				451		
Tear Resistance, lb. (N)	ASTM D 1004							ž		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505							0 0 4 0		
		every 5th		0.940	•			0.946		
Carbon Black Content, %	ASTM D 1603*			2.0				2.3		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	over / Eth		A2				A1		
		every 5th		72				, , ,		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	CDLCM 42	cvory our		_						
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		
Average (mis)		2.2.7								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107705

ROLL	<i>IDENTIFICAT</i>	TION	R	RESIN INFORMATION								
Roll Number	105107705		Lot Number									
Product Name	HDT060A000	0 <i>Type</i> XL		Type XL3812								
Production Date	3/30/01		Supplier	Equistar								
Length ≈(+/- 1%)	520 158	feet meters	GS	SE RESIN TEST DATA								
Width (Nominal)	22.5	feet	Property	Test Method	Results							
(11011111111)	6.9	meters	Density, g/cc	ASTM D 1505	0.940							
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12							
Weight	3,988 1,809	pounds kilograms										

n	Test	Test	Custome	er Mi	nimur	n	Test	Resu					
Physical Property	Method	Frequency	English	: 1	Metrio	;	English	į	Metric	:			
Thickness, mil (mm)	ASTM D 5994												
Average		every roll	60	(1.5)	62	(1.6)			
Minimum		every roll	54	(1.4)	57	(1.4)			
Tensile Properties:	ASTM D 638, Type IV												
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	185	(324)			
- MD		every roll	130	(228)	182	(318)			
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	165	(288)			
- MD		every roll	90	(158)	158	(276)			
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16					
- MD	(33 mm)	every roll		13				16					
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				465					
- MD	(51 mm)	every roll		150				385					
Tear Resistance, lb. (N)	ASTM D 1004							•					
- TD		every roll	42	(187)	59	(263)			
- MD		every roll	42	(187)	58	(258)			
Puncture Resistance, lb. (N)	ASTM D 4833												
		every roll	108	(478)	156	(694)			
Puncture Resistance, lb. (N)	FTMS 101C/2065												
	·	every 5th	80	(356)	100	(445)			
Density, g/cc	ASTM D 1505												
		every 5th		0.940			(0.946					
Carbon Black Content, %	ASTM D 1603*												
		every 5th		2.0				2.3					
Carbon Black Dispersion	ASTM D 3015			4.2				A1					
		every 5th		A2				ΑI					
Carbon Black Dispersion	ASTM D 5596	ovon, Eth		9				10					
Views in Cat1 - Cat2	001.014.40	every 5th		9				, 0					
Asperity Height	GRI GM 12	every roll		10				23					
Average (mils)		6 VOI y 1011											

Order No.

20979

Customer Name Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107708

ROLL	IDENTIFICA:	TION	RE	RESIN INFORMATION							
Roll Number	105107708		Lot Number	MT21020421							
Product Name	HDT060A000		Type	XL3812							
Production Date	3/30/01		Supplier	Equistar							
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results						
(6.2	6.9	meters	Density, g/cc	ASTM D 1505	0.940						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12						
Weight	3,891 1,765	pounds kilograms									

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English		lts Aetric	•
Thickness, mil (mm)	ASTM D 5994			-						
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	185	(324)
- MD		every roll	130	(228)	176	(309)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	139	(244)
- MD		every roll	90	(158)	175	(305)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll	13			. 16				
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				420		
- MD	(51 mm)	every roll		150				46ॄ7		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD	,	every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	63	(280)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	154	(685)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	.•	every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	5 .1		4.0				A1		
		every 5th		A2				Ai		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		J						
Asperity Height	GRI GM 12	every roll		10				20		
Average (mils)		every ron		10						

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107709

ROLL	IDENTIFICA:	TION	RESIN INFORMATION							
Roll Number	105107709		Lot Number	MT21020421						
Product Name	HDT060A000		Type	XL3812						
Production Date	3/30/01		Supplier	Equistar						
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA						
Width (Nominal)	22.5	feet	Property	Test Method	Results					
(,	6.9	meters	Density, g/cc	ASTM D 1505	0.940					
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12					
Weight	3,910 1,774	pounds kilograms								

	Test	Test	Custome	er Mi	nimun	n	Test	Resu	ılts	
Physical Property	Method	Frequency	English	ı	Metric	2	English	i	Metric	
Thickness, mil (mm)	ASTM D 5994							-		
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	177	(310)
- MD		every roll	130	(228)	184	(321)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	176	(308)
- MD		every roll	90	(158)	179	(312)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				508		
- MD	(51 mm)	every roll		150				487		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	60	(267)
- MD	*	every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	147	(654)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			4.0						
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th	•	9				10		
Asperity Height	GRI GM 12	overy roll		10				14		
Average (mils)		every roll		10				• •		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107710

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	105107710		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,890 1,765	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English		lts Metric	;
Thickness, mil (mm)	ASTM D 5994					,				
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	178	(311)
- MD		every roll	130	(228)	172	(302)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	144	(251)
- MD		every roll	90	(158)	179	.(314)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				16			
- MD	(33 mm)	every roll		13			16			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				281		
- MD	(51 mm)	every roll		150				47,7		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	52	(231)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*							•		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	a.,		10				20		
Average (mils)		every roll		10				20		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

8 P R O L R O A 1/2/01

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ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number	105107711		Lot Number	MT21020421	···
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,868 1,755	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metri		Test English	Resi	ilts Metric	;
Thickness, mil (mm)	ASTM D 5994					•				
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(300)
- MD		every roll	130	(228)	178	(311)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	167	(292)
- MD		every roll	90	(158)	186	(326)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				493		
- MD	(51 mm)	every roll		150				523		
Tear Resistance, lb. (N)	ASTM D 1004							;		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	151	(672)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			O	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	aven. FAb		A •				۸.4		
Corbon Dinal Diamenian	ACTU D FFOG	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height	CDI CM 12	every our		3				10		
Average (mils)	GRI GM 12	every roll		10				21		
		5.5., .5.								

Order No.

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Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	RESIN INFORMATION							
Roll Number	105107712		Lot Number	MT21020421							
Product Name	HDT060A000		Type	XL3812							
Production Date	3/31/01		Supplier	Equistar							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5	feet	Property	Test Method	Results						
(,	6.9	meters	Density, g/cc	ASTM D 1505	0.940						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12						
Weight	3,894 1,766	pounds kilograms									

Physical Property	Test	Test	Custom				Test			
Thysical Property	Method	Frequency	English	ı	Metric	;	English	I	Metric	;
Thickness, mil (mm)	ASTM D 5994		•							
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	175	(306	,
- MD		every roll	130	(228)	172	(302	,
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(262	,
- MD		every roll	90	(158)	177	(309)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				399		
- MD	(51 mm)	every roll		150				471		
Tear Resistance, lb. (N)	ASTM D 1004							ž.		
- TD		every roll	42	(187	·)	55	(245	
- MD		every roll	42	(187)	55	(245	,
Puncture Resistance, lb. (N)	ASTM D 4833									
·		every roll	108	(478)	160	(712	
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458	
Density, g/cc	ASTM D 1505						_			
		every 5th		0.940			().946		
Carbon Black Content, %	ASTM D 1603*	514		2.0				2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	sugar Eth		A2				A1		
		every 5th		74				Λ,		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	CDI CM 42	every our		J						
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		CVOIY IOII								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107713

ROLL	IDENTIFICA:	TION	SIN INFORMATION								
Roll Number	105107713		Lot Number	MT21020421							
Product Name	HDT060A000 3/31/01 520 feet meters 22.5 feet 6.9 meters		Type	Type XL3812							
Production Date	3/31/01		Supplier	Equistar							
Length ≈(+/- 1%)			GSA	E RESIN TEST DATA							
Width (Nominal)			Property	Test Method	Results						
(5.2)		meters	Density, g/cc	ASTM D 1505	0.940						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12						
Weight	3,946 1,790	pounds kilograms									

DI 1 1 D	Test	Test	Custome	er Mi	nimun	n	Test.	Resu	lts	
Physical Property	Method	Frequency	English		Metric	7	English		Metric	
Thickness, mil (mm)	ASTM D 5994						·			
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	176	(308)
- MD		every roll	130	(228)	185	(324)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	168	(294)
- MD		every roli	90	(158)	170	(298)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				14		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				453		
- MD	(51 mm)	every roll		150				47,4		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			C).946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			•				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	u-1		10				19		
Average (mils)		every roll		10				13		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



ROLL	IDENTIFICAT	TION	RESIN INFORMATION						
Roll Number	105107714		Lot Number	MT21020421					
Product Name	HDT060A000 3/31/01 520 feet 158 meters		Type	XL3812					
Production Date	3/31/01		Supplier	Equistar					
Length ≈(+/- 1%)			GSZ	E RESIN TEST DATA					
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results				
(• • • • • • • • • • • • • • • • • • •	6.9	meters	Density, g/cc	ASTM D 1505	0.940				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12				
Weight	3,950 1,792	pounds kilograms							

71 · 1 m	Test	Test	Custom	er Mii	nimun	n	Test	Resi	ılts	
Physical Property	Method	Frequency	English	ı i	Metric	;	English		Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum	'	every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(290)
- MD		every roll	130	(228)	169	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(263)
- MD		every roll	90	(158)	192	(335)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				477		
- MD	(51 mm)	every roll		150				549		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187	·)	59	(263)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	157	(699)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	103	(458)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*			0.0				2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	avan, Eth		A2				A1		
	40TM D 5500	every 5th		742				/ \ '		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	0.0.7 0		-	•					
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				19		
, trolago (iiiio)		,								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 105107717

ROLL	### HDT060A000 ### 3/31/01 ### 3/31/01 ### 520	RE	RESIN INFORMATION							
Roll Number	105107717		Lot Number	MT21020421						
Product Name	HDT060A000		Type	XL3812						
Production Date	3/31/01		Supplier	Equistar						
Length ≈(+/- 1%)			GSA	E RESIN TEST DATA						
Width (Nominal)			<u>Property</u>	Test Method	Results					
(2.2,			Density, g/cc	ASTM D 1505	0.940					
Sheet Area		•	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12					
Weight	3,924 1,780	pounds kilograms								

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	ilts Metric	:
Thickness, mil (mm)	ASTM D 5994					-				
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	174	(304)
- MD		every roll	130	(228)	170	(298)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	209	(365)
- MD		every roll	90	(158)	214	(375)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				590		
- M D	(51 mm)	every roll		150				550		
Tear Resistance, lb. (N)	ASTM D 1004							7		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			4.5				10		
Average (mils)		every roll		10				16		

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	ΓΙΟΝ	RE	SIN INFORMATION	
Roll Number	105107715		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,910 1,774	pounds kilograms			

Method ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3"	every roll every roll every roll every roll every roll every roll every roll	60 54 130 130 90	((1.5 1.4 228 228))	English 61 58	((1.6 1.5 319)
ASTM D 638, Type IV	every roll every roll every roll	54 130 130	(1.4 228)	58	(1.5	
	every roll every roll every roll	54 130 130	(1.4 228)	58	(1.5	
	every roll every roll every roll	130 130	(228	•		()
	every roll every roll	130	•)	182	(319	
gauge length = 1.3"	every roll every roll	130	•)	182	(319	
gauge length = 1.3"	every roll		(228			•)
gauge length = 1.3"	•	90)	178	(312)
gauge length = 1.3"	every roll		(158)	159	(278)
gauge length = 1.3"	,	90	(158)	178	(312)
	every roll		13				16		
(33 mm)	every roll		13				16		
gauge length = 2.0"	every roll		150				359		
(51 mm)	every roll		150						
ASTM D 1004							?		
	every roll	42	(187)	56	(249)
	every roll	42	(187)	57	(254)
ASTM D 4833									
	every roll	108	(478)	162	(721)
FTMS 101C/2065									
e.	every 5th	80	(356)	103	(458)
ASTM D 1505									
	every 5th		0.940			().946		
ASTM D 1603*	 .		0.0				2.2		
	every 5th		2.0				2.2		
ASTM D 3015	54 b		٨٥				۸1		
	every 5th		A2				^1		
ASTM D 5596	eveny 5th		9				10		
001 014 40	every Juli		J						
GRI GM 12	every roll		10				27		
	0,013,1011		. •						
	(33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	(33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll ASTM D 1004 every roll every roll ASTM D 4833 every roll FTMS 101C/2065 every 5th ASTM D 1505 every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th	gauge length = 1.3" every roll (33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll ASTM D 1004 every roll 42 every roll 42 every roll 108 FTMS 101C/2065 every 5th 80 ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th GRI GM 12	gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (every roll 42 (every roll 108 (FTMS 101C/2065 every 5th 80 (ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9	gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187 every roll 42 (187 every roll 108 (478 FTMS 101C/2065 every 5th 80 (356 ASTM D 1505 every 5th 0.940 ASTM D 3015 every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) every roll 42 (187) every roll 108 (478) FTMS 101C/2065 every 5th 80 (356) ASTM D 1505 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) 56 every roll 42 (187) 57 ASTM D 4833 every roll 108 (478) 162 FTMS 101C/2065 every 5th 80 (356) 103 ASTM D 1505 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	gauge length = 1.3" every roll 13 16 (33 mm) every roll 13 16 gauge length = 2.0" every roll 150 359 (51 mm) every roll 150 429 ASTM D 1004 every roll 42 (187) 56 (every roll 42 (187) 57 (gauge length = 1.3" every roll 13 16 (33 mm) every roll 13 16 gauge length = 2.0" every roll 150 359 (51 mm) every roll 150 429 ASTM D 1004 every roll 42 (187) 56 (249 every roll 42 (187) 57 (254 ASTM D 4833 every roll 108 (478) 162 (721 FTMS 101C/2065 every 5th 80 (356) 103 (458 ASTM D 1505 every 5th 0.940 0.946 ASTM D 1603* every 5th 2.0 2.2 ASTM D 3015 every 5th A2 A1 ASTM D 5596 every 5th 9 10 GRI GM 12

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

ROLL IDENTIFICATION

Roll No. 105107716

RESIN INFORMATION

KULL	IDENTIFICA.	HON		KESIN INI	OKMAI	IUI	V			
Roll Number	105107716		Lot Number		MT210	204	21			_
Product Name	HDT060A000		Type		XL381	2				
Production Date	3/31/01		Supplier		Equist	ar				
Length ≈(+/- 1%)	520 158	feet		GSE RESIN	TEST L)AT	A		<u></u>	
Width (Nominal)	158 22.5	meters	Property		Test M	etho	<u>od</u>	<u>_R</u>	esults	_
	6.9	meters	Density, g/cc		ASTM I	D 15	05		0.940	
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	AST	M D 1238	8 (1	90/2.16)		0.12	•
Weight	3,894 1,766	pounds kilograms			_			,		
Physical Pi	roperty	Test Method	Test Frequency	Customer L English	Minimun Metric		Test English	Resu	ılts Metric	
Thickness, mil (mm)		ASTM D 5994								
Average			every roll	60	(1.5)	61	1(1.5)
Minimum			every roll	54	(1.4)	56	(1.4)
Tensile Properties:		ASTM D 638, Type IV	1							
Yield Strength, p	ppi (N/cm) - TD		every roll	130	(228)	175	(306)
	- MD		every roll	130	(228)	178	(312)
Break Strength,	ppi (N/cm) - TD		every roll	90	(158)	158	(276)
	- MD		every roll	90	(158)	150	(262	.)
Yield Elongation	, % - TD	gauge length = 1.3"	every roll	1	3			15		
	- MD	(33 mm)	every rol!	1	3			15		
Break Elongation	n, % - TD	gauge length = 2.0"	every roll	15	50			408		
-	- MD	(51 mm)	every roll	15	50			387		
Tear Resistance, lb. (N		ASTM D 1004	•							
	-, - TD	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	every roll	42	(187)	54	(240)
	- MD		every roll	42	(187)	55	(245)
Puncture Resistance,	lb. (N)	ASTM D 4833	every roll	108	(478)	146	(650)
Puncture Resistance,	lb (N)	FTMS 101C/2065	,		`	,		,		
··	(, ,,	1010/2000	every 5th	80	(356)	106	(472)
Density, g/cc		ASTM D 1505	-							
, -			every 5th	0.9	40		(0.946		
Carbon Black Content	, %	ASTM D 1603*								
			every 5th	2.	.0			2.4		
Carbon Black Dispersi	ion	ASTM D 3015								
			every 5th	Α	.2			A1		

every 5th

every roll

10

Order No.

Asperity Height

20979

Customer Name Location

Carbon Black Dispersion

Average (mils)

Views in Cat1 - Cat2

PASCO COUNTY LANDFILL

ASTM D 5596

GRI GM 12

DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00



10

18

Lining Technology, Inc.

Roll No. 105107718

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107718		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(,	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,892 1,765	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Tes English	t Resu	lts Metric	<u> </u>
Thickness, mil (mm)	ASTM D 5994							,		
Average		every roll	60	(1.5)	60	. (1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(300)
- MD		every roll	130	(228)	168	(294)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	198	(346)
- MD		every roll	90	(158)	224	(392)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				580		
- MD	(51 mm)	every roll		150				61:0		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	142	(632)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
**		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	511		4.0				A1		
		every 5th		A2				AT		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	every roll		10				24		
Average (mils)		every ton		, 0				-		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



GSE

Lining Technology, Inc.

Roll No. 105107719

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	105107719		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,860 1,751	pounds kilograms			

Physical Property	Test Method	Test Frequency	Customer English		nimun Metric		Te. Englis	st Resu h	ilts Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(302)
- MD		every roll	130	(228)	169	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	222	(389)
- MD		every roll	90	(158)	203	(356)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				610		
- MD	(51 mm)	every roll		150				500		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	. (254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505		_							
		every 5th	0.	.940				0.947		
Carbon Black Content, %	ASTM D 1603*	F4L	,	20				2.3		
		every 5th	•	2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A 1		
a la Bi la Bi sanciar	ACTM D 5500	every 5th		~ z				Α1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12			-						
Asperity Height Average (mils)	GINI GIVI 12	every roll		10				20		
,		- 4								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 105107720

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107720		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(140minai)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,804 1,725	pounds kilograms			

Method	Frequency	English							
	2.04	Diegusii		Metric	:	English	1	Metric	
ASTM D 5994									
	every roll	60	(1.5)	60	(1.5)
	every roll	54	(1.4)	55	(1.4)
ASTM D 638, Type IV									
	every roll	130	(228)	166	()
	every roll	130	(228)	170	(298)
	every roll	90	(158)	206	(361)
	every roll	90	(158)	208	(364)
gauge length = 1.3"	every roll		13				17		
(33 mm)	every roll		13				17		
gauge length = 2.0"	every roll		150				570		
(51 mm)	every roll		150						
ASTM D 1004							2		
	every roll	42	(187)	60	(267)
	every roll	42	(187)	54	(240)
ASTM D 4833									•
	. every roll	108	(478)	150	(668)
FTMS 101C/2065									
	every 5th	80	(356)	99	(441)
ASTM D 1505									
	every 5th		0.940			().947		
ASTM D 1603*									
	every 5th		2.0				2.3		
ASTM D 3015	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		4.0				۸ 1		
	every 5th		AZ				AI		
ASTM D 5596	ayan, Eth		۵				10		
	every 501		3				,,,		
GRI GM 12	even/ roll		10				16		
	every foll		, ,						
	gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll gauge length = 1.3" every roll gauge length = 2.0" every roll (51 mm) every roll ASTM D 1004 every roll every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 3015 every 5th ASTM D 5596	every roll 60 every roll 54 ASTM D 638, Type IV every roll 130 every roll 90 every roll 90 every roll 90 gauge length = 1.3" every roll (33 mm) every roll (51 mm) every roll (51 mm) every roll ASTM D 1004 every roll 42 every roll 42 every roll 42 every roll 45 every roll 46 every roll 47 every roll 48 every roll 48 every roll 48 every roll 49 every roll 40 every roll 40 every roll 40 every roll 40 every roll 40 every roll 50 every 5th 80 ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596	every roll 60 (every roll 54 (ASTM D 638, Type IV Every roll 130 (every roll 130 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (squage length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 Every roll 42 (every roll 42 (every roll 42 (every roll 108 (FTMS 101C/2065 Every 5th 80 (ASTM D 1505 Every 5th 0.940 ASTM D 3015 Every 5th 2.0 ASTM D 3015 Every 5th A2 ASTM D 5596 Every 5th 9	every roll 60 (1.5 every roll 54 (1.4 ASTM D 638, Type IV every roll 130 (228 every roll 130 (228 every roll 90 (158 every roll 90 (158 every roll 90 (158 every roll 90 (158 every roll 90 (158 every roll 13 (33 mm) every roll 13 (33 mm) every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187 every roll 42 (187 every roll 42 (187 every roll 108 (478 every roll 108 (478 every 5th 80 (356 ASTM D 1505 every 5th 80 (356 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	every roll 60 (1.5) every roll 54 (1.4) ASTM D 638, Type IV every roll 130 (228) every roll 130 (228) every roll 90 (158) every roll 90 (158) every roll 90 (158) gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) every roll 42 (187) every roll 42 (187) every roll 42 (187) ASTM D 4833 every roll 108 (478) FTMS 101C/2065 every 5th 80 (356) ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9	every roll 60 (1.5) 60 every roll 54 (1.4) 55 ASTM D 638, Type IV every roll	every roll 60 (1.5) 60 (every roll 54 (1.4) 55 (every roll 54 (1.4) 55 (ASTM D 638, Type IV every roll 130 (228) 166 (every roll 130 (228) 170 (every roll 90 (158) 206 (every roll 90 (158) 208 (every roll 90 (158) 208 (every roll 13 17 (33 mm) every roll 13 17 (33 mm) every roll 150 570 (51 mm) every roll 150 530 (every roll 42 (187) 60 (every roll 42 (187) 54 (ASTM D 1004 (every roll 42 (187) 54 (ASTM D 1505 (Every 5th 80 (356) 99 (ASTM D 1603* every 5th 2.0 2.3 ASTM D 3015 (every 5th A2 A1 ASTM D 5596 (every 5th 9 10 GRI GM 12	every roll 60 (1.5) 60 (1.5) 60 (1.5 every roll 54 (1.4) 55 (1.4 every roll 54 (1.4) 55 (1.4 every roll 54 (1.4) 55 (1.4 every roll 130 (228) 166 (291 every roll 130 (228) 170 (298 every roll 90 (158) 206 (361 every roll 90 (158) 208 (364 every roll 13

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Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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Roll No. 105107721

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107721		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSZ	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(2.0)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,826 1,735	pounds kilograms			

Discoinal Duran auto	Test	Test	Custome	er Mii	nimun	n	Test	Resu	ılts	
Physical Property	Method	Frequency	English	: 1	Metric	2	English		Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	159	(279)
- MD		every roll	130	(228)	157	(274)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	199	(349)
- MD		every roll	90	(158)	191	(335)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				580		
- MD	(51 mm)	every roll		150				540		
Tear Resistance, lb. (N)	ASTM D 1004							i.		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	143	(636)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	. 80	(356)	99	(441)
Density, g/cc	ASTM D 1505						_			
		every 5th		0.940			(.947		
Carbon Black Content, %	ASTM D 1603*	, est		2.0				2 2		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	aven, Eth		A2				A1		
		every 5th		72				Λ1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	CDI CM 42	every our		Ū				. •		
Asperity Height Average (mils)	GRI GM 12	every roll		10				19		
Average (mis)		37317 1011		. •				٠		

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107722		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	3/31/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(2.2)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,842 1,743	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English	nimun Metric	Test Results English Metr			;		
Thickness, mil (mm)	ASTM D 5994								•	
Average	, (G), (i)	every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(297)
- MD		every roll	130	(228)	163	(286)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	214	(375)
- MD		every roll	90	(158)	206	(360)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				570		
- MD	(51 mm)	every roll		150				510		
Tear Resistance, lb. (N)	ASTM D 1004							;		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505									
		every 5th	C).940			C).947		
Carbon Black Content, %	ASTM D 1603*							0.0		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015			40				A1		
		every 5th		A2				Ai		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.044.40	every our		3				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				23		
Average (mins)		CVSIYIOII								

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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and the second	Lining	Technology	, Inc.

Roll No. 105107723

ROLL	IDENTIFICA	TION		ESIN INFORMATION	
Roll Number	105107723		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,842 1,743	pounds kilograms			

Physical Property	Test Method	Test Frequency	Customer Minimum English Metric				Test Results English Metric			с С
Thickness, mil (mm)	ASTM D 5994	· · ·		•						
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	183	(320)
- MD		every roll	130	(228)	174	(305)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	164	(287)
- MD		every roll	90	(158)	161	(281)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			15			
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				376		
- MD	(51 mm)	every roll		150				460		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	52	(231)
- MD		every roll	42	(187)	50	(223)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	•	every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505									
		every 5th	C	0.940			0	.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			_						
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			10				10		
Average (mils)		every roll		10				19		

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<u>Lining Technology, Inc.</u>

Roll No. 105107724

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	105107724		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,874 1,757	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English	inimu Metri						
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(·	1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	157	(274)
- MD		every roll	130	(228)	155	(271)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	191	(335)
- MD		every roll	90	(158)	197	(345)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				16			
- MD	(33 mm)	every roll	13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				572		
- MD	(51 mm)	every roli		150				558		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	51	(227)
- MD		every roll	42	(187)	48	(214)
Puncture Resistance, lb. (N)	ASTM D 4833									
•		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	•	every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th	0	.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596			^				40		
		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				19		

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<u>GSE</u>
<u>Lining Technology, Inc.</u>

Roll No. 105107725

ROLL	IDENTIFICA:	TION		RESIN INFORMATION							
Roll Number	105107725		Lot Number	MT21020421							
Product Name	HDT060A000		Type	XL3812							
Production Date	4/1/01		Supplier	Equistar							
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA							
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.940						
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12						
Weight	3,894 1,766	pounds kilograms									

Physical Property	Test Method							Test Results glish Metric		
Thickness, mil (mm)	ASTM D 5994		·							
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	176	(309)
- MD		every roll	130	(228)	180	(316)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	156	(273)
- MD		every roll	90	(158)	150	(262)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			15				
- MD	(33 mm)	every roll	13			16				
Break Elongation, % - TD	gauge length = 2.0"	every roll	150							
- MD	(51 mm)	every roll		150				428		
Tear Resistance, lb. (N)	ASTM D 1004							?		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596					10				
Views in Cat1 - Cat2		every 5th 9			10					
Asperity Height	GRI GM 12	every roll		10				22		
Average (mils)		every roll		10						

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Roll No. 105107726

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107726		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSZ	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(•••••••	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,900 1,769	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metric		Test English		ilts Metric	;
Thickness, mil (mm)	ASTM D 5994									_
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	184	(322)
- MD		every roll	130	(228)	181	(317)
Break Strength, ppi (N/cm) - TD		every roli	90	(158)	161	(282)
- MD		every roll	90	(158)	166	(291)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13				16			
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			341				
- MD	(51 mm)	every roll		150				425		
Tear Resistance, lb. (N)	ASTM D 1004							ř		
- TD		every roll	42	(187)	57	(254)
- - MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	142	(632)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505		٠				_			
		every 5th		0.940			C	.946		
Carbon Black Content, %	ASTM D 1603*							0.0		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	susan e EAh		A2				A1		
		every 5th		AZ				Α'		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th	•	9				10		
	OPLOM 12	every our		J						
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		
0 - (•	-								

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Roll No. 105107727

ROLL	IDENTIFICA	TION	RI	ESIN INFORMATION	
Roll Number Product Name Production Date	105107727 HDT060A000 4/1/01		Lot Number Type Supplier	MT21020421 XL3812 Equistar	
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,900 1,769	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom Englisi		inimu Metri		Tes Englist	t Res	ults Metri	c
Thickness, mil (mm)	ASTM D 5994		- <u></u>			-	8			_
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					,		,		,
Yield Strength, ppi (N/cm) - TD		every roli	130	(228)	172	(302)
- MD		every roll	130	(228)	178	(311)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	147	. (257)
- MD		every roll	90	(158)	156	(274)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,		15	_, ,	,
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				333		
- MD	(51 mm)	every roll		150				435		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	52	(231)
- MD		every roli	42	(187)	53		236)
Puncture Resistance, lb. (N)	ASTM D 4833					ŕ		`		,
		every roll	108	(478)	169	(752)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th	f	0.940			. (0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	•								
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				18		

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Roll No. 105107728

DOLL	TD TD WILLIAM		- ·	11000 1100	10310//2		
ROLL IDENTIFICATION			RESIN INFORMATION				
Roll Number Product Name Production Date	105107728 HDT060A000 4/1/01		Lot Number Type	MT21020421 XL3812			
			Supplier	Equistar			
Length ≈(+/- 1%)	520 158	feet meters	GSE RESIN TEST DATA				
Width (Nominal)	22.5	feet	Property	Test Method	Results		
	6.9	meters	Density, g/cc	ASTM D 1505	0.940		
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12		
Weight	3,864 1,753	pounds kilograms					

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Test English		ults Metri	
Thickness, mil (mm)	ASTM D 5994	1			1,1007		Linguish		Meiri	<u></u>
Average	,	every roll	60	(1.5)	61	(1.5	١
Minimum		every roll	54	(1.4)	57	()
Tensile Properties:	ASTM D 638, Type IV	,		`		,	37	,	1.4)
Yield Strength, ppi (N/cm) - TD	• •	every roll	130	(228	}	177	1	309)
- MD		every roll	130	(228)	177	(310	}
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	142	(249)
- MD		every roll	90	(158)	133	(233)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,	, 55	15	200	,
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			296				
- MD	(51 mm)	every roll		150				310		
Tear Resistance, lb. (N)	ASTM D 1004	•						1		
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	56	·	249)
Puncture Resistance, lb. (N)	ASTM D 4833					•		`		,
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065							·		•
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505									
		every 5th	(0.940			0.	946		
Carbon Black Content, %	ASTM D 1603*									
Onther Plant Bire		every 5th		2.0			2	2.3		
Carbon Black Dispersion	ASTM D 3015									
Carbon Black Dispersion	ACTN D 5500	every 5th		A2			,	41		
Views in Cat1 - Cat2	ASTM D 5596	ayan, Eth								
Asperity Height	GRI GM 12	every 5th		9			•	10		
Average (mils)	OIN GWI 12	every roll		10			,	22		
		- · - · , · - · ·					4			

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 16, 2001

PSN# 4086-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210165

P.O. Number: Date Shipped:

02/16/01

Package:

PSPX 6547

Quantity:

179550 LBS.

Melt Index, ASTM D1238:

.070 G/10 MIN

HLMI Flow Rate, ASTM D1238: 10.1 G/10 MIN

Density, ASTM D1505: HLMI/MI Ratio:

.937 G/CC

144.

Production Date:

02/13/01

ESCR, F/50, Cond. B:

1500 HOURS **

Brittleness Temperature:

<-70 C **

Color:

120.667

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630 11

3/30/01 9:55: PAGE 001/1 RightFAX



Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501 February 26, 2001

PSN# 4859-01

FAX: 281-230-2510

1 1

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210141

P.O. Number: Date Shipped:

02/23/01

Package:

PSPX 7123

Quantity:

180100 LBS. .080 G/10 MIN

Melt Index, ASTM D1238: HLMI Flow Rate, ASTM D1238: 11.8 G/10 MIN

Density, ASTM D1505: .937 G/CC

HLMI/MI Ratio:

.08

Production Date:

Production Date: 02/09/01 ESCR, F/50, Cond. B: 1500 HOURS ** Brittleness Temperature: <-70 C **

Color:

114.800

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

muzities makes in ...

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630 Equistar Chemicals, LP Matagorda Plant 13 Miles S. of Bay City-Hwy 60 Bay City TX 77414

Certificate Of Analysis

Custamer Order Na. : 18319-000-OP

Customer Number :

: 7731

Date Shipped Equistar Order No.

: March 08, 2001 : 387750 000010

Delivery Item No.

: 80490820 000010

Ship-To:

GSE LINING TECHNOLOGY INC

1340 E RICHEY RD WESTFIELD TX 77073 UNITED STATES

Equistar Material

: 7674 ALATHON XL3812

Batch Number

DON BOHAC

GSE LINING TECHNOLOGIES

WESTFIELD TX 77060 FAX No.: 281-230-8630

: MT21020421

Estimated Quantity

: 192,900 LBS

Test Description	Test Result	Unit of Measure	Inspection Method	
Vehicle ID	EQUX631068			
Vehicle Type	HOPPER CAR		1	-
Density @ 23C	0.940	g/cc		•
Melt Flow, 2160g @ 190C	0.115	g/10 min.	. •	

Approved by:

Issue Date: March 14, 2001

Question ? Call Customer Service: 888-777-0232

This Certificate of Analysis contains the most current information available as of the issue date. This document shall not be reproduced except in full, without the written approval of the issuer.

TRANSMITTAL SHEET

West Shore Center, Suite 875, 1715 N. West Shore Center Blvd. Tampa, FL 33607

1 - Construction File

consulting, engineering, construction, operations

Date: <u>12/5/01</u>



т	Handay of Florida Inc		Job:	06104-28936-
To:	Handex of Florida, Inc. 2306 Gravel Drive			W. Pasco County Landfill Expansion
				Cells A-3 and SW-2
	Ft. Worth, TX 76118-			
Attn:	Gary Conaway, V. P.			
	5 print(s) each of the following Su	ubmittal: extured L	D-02776-015-A iner (Set 4 of 4))	(QA/QC Roll Certificates: 60 mil HDPE
	which are:	1.	APPROVED	~
	Willoff die.	2.		AS NOTED
		3.	APPROVED	AS NOTED/CONFIRM
		4.	APPROVED.	AS NOTED/RESUBMIT
		5.	NOT APPRO	VED
		6.	COMMENTS	ATTACHED
		7.	FOR YOUR I	NFORMATION
		8.	FOR YOUR F	REVIEW
Com	ments:			
	monto.			
CC:	1 - Jack McHugh/CDM			

By Aboul Mulla-Saleh

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Project:	WEST PASCO COUNTY LANI	DFILL EXPANS	SION - CELLS A-3	AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Powell
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.P.
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
COMPLETED B	Y CONTRACTOR:			·	
Certification States		alog numbers and	similar data and I ha	ed all field measuremen ve checked and coord	nts, field construction criteria inated each item with othe
	Signature:	1 (1/00		Date:	11-15-01
Submittal Identifie	r: D-02776-015-A	Original Su	bmittal	Supplemen	t
Submitted:	November 15, 2001			-	
No. of Copies:	8	Resubmittal		Information	Only
Submittal Descripti	ion: QA/QC Roll Certificates:	60 mil HDPE Te	xtured Liner (Set 4 of 4)	(51 rolls)	
Specification Identi	olisier: 01300, 02776 Section 1.03.			<u></u>	
Manufacturer:	GSE Lining Technologies, I	nc.			
Installer:	COMANCO Environmenta				
No. of Copies Rece Status:	Code 1 - Approved		No. of Cop	code 4 - Approve	rd As Noted, Resubmit
January,	Code 1 Tipprovod			Code 4 - Approve	d As Noted, Resubilit
	Code 2 - Approved As No	oted		Code 5 - Not App	roved
	Code 3 - Approved As No	oted, Confirm	7	Code 6 - Commer	nts Attached
Engineer Stamp o	· hard and the same of the sam				
A	ENGWEER'S REVIEW	AWING REVI		, #	
		<u></u>	SE REQUIRED OF NTRACTOR		
9	Approved/ad Noted C Comments Attached] F	Confirm 🗆		
	The Engineer's roview of this a dimensional oquipment and motor specifications and for dodge contractor from errors or omission dor's responsibility of addressing ents. The Contractor is responsibility of addressing ents. The Contractor is responsibility of addressing ents. The Contractor is responsibility to the contractor and manufacture, the machine of the contractor and performance of the contractor and per				
ž		The state of the s			

ROLL	IDENTIFICAT	TION		RE	ESIN INFORMATION				
Roll Number Product Name Production Date	105107729 HDT060A000 4/1/01		Lot Number Type Supplier		MT21020421 XL3812 Equistar				
Length ≈(+/- 1%)	520	feet		GS	E RESIN TEST DATA				
Width (Nominal)	158 22.5 6.9	meters feet meters	Property Density, g/cc		<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g	/10 min.	ASTM D 1238 (190/2.16)	0.12			
Weight	3,884 1,762	pounds kilograms							
					Sustamer Minimum Test	Results			

	Test	Test	Custome	er Mir	imum	ı	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric		English	I	1etric	
Thickness, mil (mm)	ASTM D 5994		-						4.5	,
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV	,			000	,	474	,	305)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	174	(305)
- MD		every roll	130	(228)	174	(
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	198	(347)
- MD		every roll	90	(158)	146	(256)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				15		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				450		
- MD	(51 mm)	every roll		150				400		
Tear Resistance, lb. (N)	ASTM D 1004							,	040	,
- TD		every roll	42	(187	•	56	(249)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	145	(645)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	97	(432)
Density, g/cc	ASTM D 1505	every 5th	•	0.940)			0.947		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0	,			2.3		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				22		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

S.P. 4/2/01 QA

Roll No. 105107730

-	** <u>*</u>		The second secon		
	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number Product Name Production Date	105107730 HDT060A000 4/1/01		Lot Number Type Supplier	MT21020421 XL3812 Equistar	
Length ≈(+/- 1%)	520	feet		E RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,864 1, 7 53	pounds kilograms			•

	Test	Test	Custome	r Mir	imun	2	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric		English	Λ	1etric	
Thickness, mil (mm)	ASTM D 5994							,		,
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV		400	,	000		100	,	315)
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	180	(305)
- MD		every roll	130	(228)	174	(
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	158	(276)
- MD		every roll	90	(158)	150	(263)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				340		
- MD	(51 mm)	every roll		150				350		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD	-	every roll	42	(187)	55	(245	.)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									,
		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065						07	,	432	١
		every 5th	80	(356)	97	(432)
Density, g/cc	ASTM D 1505			0.040				0.947		
		every 5th		0.940)			U.5 -1 1		
Carbon Black Content, %	ASTM D 1603*	FAL		2.0				2.3		
		every 5th		2.0						
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
		every 5th		,						
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	ODI 014 42	every our								
Asperity Height	GRI GM 12	every roll		10				23		
Average (mils)		5.5.,								

Order No.

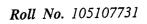
20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

5.P. 4/2/01 QA



UDE			
1000	Lining	Technology,	Inc.

Litti)	1 ecitione y, 1				
ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number Product Name Production Date	105107731 HDT060A000 4/1/01		Lot Number Type Supplier	MT21020421 XL3812 Equistar	
Length ≈(+/- 1%)	520	feet	GS	E RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,864 1,753	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		imum Aetric	!	Test English	Resul M	lts 1etric	
Thickness, mil (mm) Average Minimum	ASTM D 5994	every roll	60 54	(1.5 1.4)	60 55	(1.5 1.4)
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130 130	(228 228)	181 178	(316 312)
- MD Break Strength, ppi (N/cm) - TD		every roll every roll every roll	90 90	(158 158))	150 156	(262 273)
- MD Yield Elongation, % - TD - MD Break Elongation, % - TD - MD	gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm)	every roll every roll every roll every roll	•	13 13 150 150				15 15 400 380		
Tear Resistance, lb. (N) - TD - MD	ASTM D 1004	every roll every roll	42 42	(187 187		55 55	(245 245)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	141	(627)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	97	(432	.)
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.947	,	
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				16		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 105107732

							
	IDENTIFICAT	TION	RE	SIN INFORMATION			
Roll Number Product Name Production Date	105107732 HDT060A000 4/1/01		Lot Number Type Supplier	MT21020421 XL3812 Equistar			
Length ≈(+/- 1%)	520	feet	GSI	E RESIN TEST DATA			
Width (Nominal)	158 22.5 6.9	meters feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940		
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12		
Weight	3,862 1,752	pounds kilograms			·		

	103.		est Customer M			ļ	Test Results			
Physical Property	1 esi Method	Frequency	English Metric				English	Metri		:
Thickness, mil (mm)	ASTM D 5994			,	4.5		61	(1.5	
Average		every roll	60	(1.5)		•	1.4	
Minimum		every roll	54	(1.4)	55	(1.4	
ensile Properties:	ASTM D 638, Type IV	.,	120	,	228)	172	(301	
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	179	(314	
- MD		every roll	130	(158)	194	(339	
Break Strength, ppi (N/cm) - TD		every roll	90	(•	169	(295	
- MD		every roll	90	(158)	109	16	200	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13						
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				550		
- MD	(51 mm)	every roll		150				470 1		
Tear Resistance, lb. (N)	ASTM D 1004			,	407	,	56	. ,	249	i
- TD		every roll	42	(187)		(249	
- MD		every roll	42	(187)	56	,	245	
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	149	(663	į
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	97	(432	•
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.947		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				27		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

5.P. 4/2/01 QA



Roll No. 105107733

-	· ·		the state of the s		
ROLL	<i>IDENTIFICA</i> :	TION	RE	SIN INFORMATION	
Roll Number	105107733		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520	feet	GSA	E RESIN TEST DATA	
Width (Nominal)	158 22.5	meters feet	Property	Test Method	Results
Width (Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,854 1,748	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu !	lts Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum	•	every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV						404	,	207	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(287)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	158	(276)
- MD		every roll	90	(158)	190	(332)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				420		
- MD	(51 mm)	every roll		150				530 1		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	147	(654)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	97	(432)
Density, g/cc	ASTM D 1505	every 5th		0.940)			0.947		
Carbon Black Content, %	ASTM D 1603*	•		2.0				2.3		
and the state of t	ASTM D 3015	every 5th		2.0				2.5		
Carbon Black Dispersion	701111 0 0010	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				23		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified

GSE-4.10-007 Rev - - 07/00

S.P. 4/2/01 QA

	L. <u>L</u>				
	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107734		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520	feet	GS	E RESIN TEST DATA	
Width (Nominal)	158 22.5	meters feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,856 1,749	pounds kilograms			

	Test	Test	Custome	r Mir	iimun	ı	Test	Resu	lts	
Physical Property	Method	Frequency	English	1	Metric		English	1	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV								000	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(290)
- MD		every roll	130	(228)	174	(305)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	204	(357)
- MD		every roll	90	(158)	202	(354)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				19		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				550		
- MD	(51 mm)	every roll		150				530		
Tear Resistance, lb. (N)	ASTM D 1004							r ·		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833								044	,
		every roll	108	(478)	144	(641)
Puncture Resistance, lb. (N)	FTMS 101C/2065			,			105	,	467)
		every 5th	80	(356)	105	,	407	,
Density, g/cc	ASTM D 1505	515		0.940				0.946		
		every 5th		0.940				0.540		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.3		
		every 5th		2.0						
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
	4 OTH B 5500	every our								
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	GRI GM 12	3.3.7								
Asperity Height	GRI GIVI 12	every roll		10				24		
Average (mils)		•								

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107735		Lot Number	MT21020421	•
Product Name	HDT060A000		Type	XL3812	
Production Date	4/1/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(110///////////////////////////////////	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,884 1,762	pounds kilograms			

	Test	Test	Custome	r Mi	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	i	Metric	:	English	1	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(291)
- MD		every roll	130	(228)	160	(280)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	158	(277)
- MD	•	every roll	90	(158)	192	(336)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	. (33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				320		
- MD	(51 mm)	every roll		150				540		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833									
•		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
v-		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505									
•		every 5th		0.940			4	0.946		
Carbon Black Content, %	ASTM D 1603*	5.1		0.0				2.3		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	even Eth		A2				A1		
		every 5th		72				• • •		
Carbon Black Dispersion	ASTM D 5596	every 5th	•	9				10		
Views in Cat1 - Cat2	001.014.40	every our		Ū						
Asperity Height	GRI GM 12	every roli		10				18		
Average (mils)		2.2.7.0.		-						

Order No.

20979

Customer Name

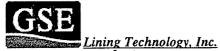
PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107736		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,872 1,756	pounds kilograms			

Test	Test	Custome	r Mii	nimun	n	Test	Resu	lts	
Method	Frequency	English	1	Metric	:	English	Ì	Metric	:
ASTM D 5994				•					
	every roll	60	(1.5)	61	()
	every roll	54	(1.4)	56	(1.4)
ASTM D 638, Type IV									
	every roll	130	()		()
	every roll	130	(228)		()
	every roll	90	(158)	168	()
	every roll	90	(158)	165	(289)
gauge length = 1.3"	every roll		13				16		
(33 mm)	every roll		13				16		
gauge length = 2.0"	every roll		150				423		
	every roll		150				468		
•							7		
	every roll	42	(187)	.58	(258)
	every roll	42	(187)	55	(245)
ASTM D 4833									
	every roll	108	(478)	157	(699)
FTMS 101C/2065									
	every 5th	80	(356)	105	(467)
ASTM D 1505									
	every 5th		0.940			1	0.946		
ASTM D 1603*									
	every 5th		2.0				2.3		
ASTM D 3015									
	every 5th		A2				AT		
ASTM D 5596			•				10		
•	every 5th		9				10		
GRI GM 12	11		10				21		
	every roll		10				٠.		
	ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505 ASTM D 1603* ASTM D 3015	ASTM D 5994 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll (33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596	ASTM D 5994 every roll 60 every roll 54	ASTM D 5994 every roll 60 (every roll 54 (ASTM D 638, Type IV	ASTM D 5994 every roll 60	Method Frequency English Metric ASTM D 5994 every roll 60 (1.5) 1.4 (1.4) every roll 54 (1.4) 1.4 (1.4) ASTM D 638, Type IV every roll 130 (228) every roll 130 (228) 228 (158) every roll 90 (158) 158 (200) every roll 90 (158) 13 gauge length = 1.3" every roll 13 gauge length = 2.0" every roll 150 ASTM D 1004 every roll 42 (187) every roll 42 (187) every roll ASTM D 4833 every roll 108 (478) FTMS 101C/2065 every 5th 80 (356) ASTM D 1505 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 5596 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12 every 5th 9	Method Frequency English Metric English ASTM D 5994 every roll 60 (1.5) 61 every roll 54 (1.4) 56 ASTM D 638, Type IV every roll 130 (228) 178 every roll 130 (228) 179 every roll 90 (158) 168 every roll 90 (158) 165 gauge length = 1.3" every roll 13 13 gauge length = 2.0" every roll 150 150 ASTM D 1004 every roll 150 150 ASTM D 4833 every roll 42 (187) 58 every roll 42 (187) 55 ASTM D 1505 every 5th 80 (356) 105 ASTM D 3015 every 5th 2.0 ASTM D 5596 every 5th 9 GRI GM 12 every 5th 9	Method Frequency English Metric English Inches (a) ASTM D 5994 every roll 60 (1.5) 61 (2000) 60 (1.5) 61 (2000) 60 (1.4) 60 (1.5) 61 (2000) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) <td>Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 61 (1.5) every roll 54 (1.4) 56 (1.4) ASTM D 638, Type IV every roll 130 (228) 179 (311) every roll 130 (228) 179 (312) every roll 90 (158) 168 (293) every roll 90 (158) 165 (289) gauge length = 1.3" every roll 13 16 (289) gauge length = 2.0" every roll 150 423) 423) 423) (51 mm) every roll 150 468) 468) 468) 468) ASTM D 1004 every roll 42 (187) 55 (245) ASTM D 4833 every roll 108 (478) 157 699 FTMS 101C/2065 every 5th 80 (356))</td>	Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 61 (1.5) every roll 54 (1.4) 56 (1.4) ASTM D 638, Type IV every roll 130 (228) 179 (311) every roll 130 (228) 179 (312) every roll 90 (158) 168 (293) every roll 90 (158) 165 (289) gauge length = 1.3" every roll 13 16 (289) gauge length = 2.0" every roll 150 423) 423) 423) (51 mm) every roll 150 468) 468) 468) 468) ASTM D 1004 every roll 42 (187) 55 (245) ASTM D 4833 every roll 108 (478) 157 699 FTMS 101C/2065 every 5th 80 (356))

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
*Modified





Roll No. 105107737

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107737		Lot Number	MT21020421	_
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	·
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)		meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,884 1,762	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Tes English	t Resu	ilts Metric	•
		Trequency	11.6.1311		72007.00		2.05000			
Thickness, mil (mm)	ASTM D 5994	every roll	60	(1.5)	61	(1.6)
Average		every roll	54	ì)	55	, (1.4)
Minimum	ACTM D 620 Tune IV	every ron	0.	`	,	,		,		,
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	174	(304)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	133	(232)
- MD		every roll	90	(158)	155	(271)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				247		
- MD	(51 mm)	every roll		150				452		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065						405	,	467	,
		every 5th	80	(356)	105	(467)
Density, g/cc	ASTM D 1505			0.940				0.946		
		every 5th		0.940				0.540		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.3		
	ASTM D 3015	CVC/y our								
Carbon Black Dispersion	ASTN: D 3013	every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12							6.		
Average (mils)		every roll		10				21		

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107738		Lot Number	MT21020421	
Product Name	HDT060A000	•	Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,906 1,772	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		imun Metric		Test English		lts Metric	;
T .:	ASTM D 5994		_ 8_							
Thickness, mil (mm) Average	AS 1101 D 3994	every roll	60	(1.5)	61	(1.6)
Minimum	•	every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(298)
- MD	•	every roll	130	(228)	169	(296)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	170	(297)
- MD		every roll	90	(158)	132	(231)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				454		
- MD	(51 mm)	every roll		150				209		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	51	(227)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									٠.
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065			,	050		105	(467)
		every 5th	80	(356)	105	(407	,
Density, g/cc	ASTM D 1505			0.940				0.946		
		every 5th	•	0.540				0.0.0		
Carbon Black Content, %	ASTM D 1603*	every 5th	•	2.0				2.3		
	A OTAL D 2015	every our								
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2	, 10	every 5th		9				10		
Asperity Height	GRI GM 12									
Average (mils)		every roll		10				12		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107741		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,848 1,745	pounds kilograms			

	Test	Test	Custome	er Mit	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	: 1	Metric	;	English	Ì	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(303)
- MD		every roll	130	(228)	173	(303)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	150	(263)
- MD		every roll	90	(158)	150	(263)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				356		
- MD	(51 mm)	every roll		150				381		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll.	42	(187)	54	(240)
- MD		every roll	42	(187)	49	(218)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065						400	,	404	,
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505	511		0.940				0.947		
		every 5th		0.940				0.541		
Carbon Black Content, %	ASTM D 1603*	even, Eth		2.0				2.2		
	40TM D 0045	every 5th		2.0			•			
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A2		
and a second	ASTM D 5596	overy ear.								
Carbon Black Dispersion Views in Cat1 - Cat2	W2 LIM D 2290	every 5th		9				10		
	GRI GM 12	- ,								
Asperity Height Average (mils)	ON ON 12	every roll		10				20		
,										

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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	·· <u>·</u>				
ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	105107742	_	Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	_
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(110mmar)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,858 1,750	pounds kilograms			

	Test	Test	Custome	er Mit	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	i	Metric	:	English	İ	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	180	(315)
- MD		every roll	130	(228)	182	(319)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	143	(251)
- MD		every roll	90	(158)	165	(288)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				352		
- MD	(51 mm)	every roll		150				424		
Tear Resistance, lb. (N)	ASTM D 1004							; ,		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	••	every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
	•	every 5th		0.940			(0.947		
Carbon Black Content, %	ASTM D 1603*							2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A2		
		every 5th		72				/\L		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	CDLCM 12	676ry 301		-				=		
Asperity Height	GRI GM 12	every roll		10				13		
Average (mils)		0.01, 70.1								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll Test Data Report

Roll No. 105107743

<u> </u>				
<i>IDENTIFICAT</i>	ION	RE	SIN INFORMATION	
105107743		Lot Number	MT21020421	
HDT060A000		Type	XL3812	
4/2/01		Supplier	Equistar	
520 158	feet	GS	E RESIN TEST DATA	
22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.940
11,700 ··· 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
3,864 1,753	pounds kilograms			
	1DENTIFICAT 105107743 HDT060A000 4/2/01 520 158 22.5 6.9 11,700 1,086 3,864	IDENTIFICATION 105107743 HDT060A000 4/2/01 520 feet 158 meters 22.5 feet 6.9 meters 11,700 sq. feet 1,086 sq. meters 3,864 pounds	IDENTIFICATION RE	IDENTIFICATION

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu 1	lts Metric	<u>:</u>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV						405	,	000	,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(288)
- MD		every roll	130	(228)	158	(277)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	191	(335)
- MD		every roll	90	(158)	181	(316)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				540		
- MD	(51 mm)	every roll		150				500		
Tear Resistance, lb. (N)	ASTM D 1004	٠)		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
, ,		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505							1 -		
		every 5th		0.940				0.947		
Carbon Black Content, %	ASTM D 1603*							2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	F41.		A2				A2		
		every 5th		A2				74		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2		every 5th		3						
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		every ion								

Order No.

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Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107744		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Hominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,874 1,757	pounds kilograms			

Physical Property	Test	Test	Custome					Resu		
1 hysical 1 roperty	Method	Frequency	English		Metric	-	English		Metric	<u> </u>
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(291)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	223	(391)
- MD		every roll	90	(158)	171	(300)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				570		
- MD	(51 mm)	every roll		150				530		
Tear Resistance, lb. (N)	ASTM D 1004							Ž.		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	143	(636)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596									
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			40				22		
Average (mils)		every roll		10				23		

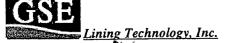
Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





	TION	RE	SIN INFORMATION	
105107745		Lot Number	MT21020421	
HDT060A000		Type	XL3812	
4/2/01		Supplier	Equistar	
520 158	feet	GSA	E RESIN TEST DATA	
		<u>Property</u>	Test Method	Results
6.9	meters	Density, g/cc	ASTM D 1505	0.940
11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
3,914 1,775	pounds kilograms			
	105107745 HDT060A000 4/2/01 520 158 22.5 6.9 11,700 1,086 3,914	10ENTIFICATION 105107745 HDT060A000 4/2/01 520 feet 158 meters 22.5 feet 6.9 meters 11,700 sq. feet 1,086 sq. meters 3,914 pounds	IDENTIFICATION RE 105107745 Lot Number HDT060A000 Type 4/2/01 Supplier 520 feet GSI 158 meters Property 6.9 meters Density, g/cc 11,700 sq. feet Melt index, g/10 min. 1,086 sq. meters 3,914 pounds	IDENTIFICATION RESIN INFORMATION

	Test	Test	Custome	er Mii	nimun	ı	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric		English	Ì	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV		,				•			
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD	·	every roll	90	(158)	205	(358)
- MD		every roll	90	(158)	224	(392)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				550		
- MD	(51 mm)	every roll		150				590		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
, (,)		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
v.		every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			ı	0.947		
Carbon Black Content, %	ASTM D 1603*							2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			4.0				A2		
		every 5th		A2				AZ		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		3						
Asperity Height	GRI GM 12	ovent rell		10				18		
Average (mils)		every roll		10						

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107746		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	. 0.12
Weight	3,970 1,801	pounds kilograms			

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	I	Metric		English	1	Metric	:
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(293)
- MD		every roll	130	(228)	169	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	213	(372)
- MD		every roll	90	. (158)	219	(384)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				580		
- MD	(51 mm)	every roll		150				600		
Tear Resistance, lb. (N)	ASTM D 1004							F		
- TD		every roli	42	(187)	58	(258) .
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	141	(627)
Puncture Resistance, lb. (N)	FTMS 101C/2065								-10	,
		every 5th	80	(356)	115	(512)
Density, g/cc	ASTM D 1505							0.040		
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*			2.0			b	2.5		
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				Α1		
		every 5th		74						
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	CDLCM 12	CVCI y Can								
Asperity Height Average (mils)	GRI GM 12	every roll		10				12		
Average (mile)		_ •								

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107747		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(110///	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,960 1,796	pounds kilograms			

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	: 1	Metric	;	English	i	Metric	:
Thickness, mil (mm)	ASTM D 5994					-				
Average		every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	162	(283)
- MD		every roll	130	(228)	169	(295)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	210	(368)
- MD		every roll	90	(158)	206	(360)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				550		
- MD	(51 mm)	every roll		150				580		
Tear Resistance, lb. (N)	ASTM D 1004							ŧ.		
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833									
, ,		every roll	108	(478)	140	(623)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	115	(512)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			l	0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	mu.		4.0				A1		
	·	every 5th		A2				Α1		
Carbon Black Dispersion	ASTM D 5596	supp. 54b		9				10		
Views in Cat1 - Cat2		every 5th		9				, 0		
Asperity Height	GRI GM 12	every roll		10				17		
Average (mils)		every foll								

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Customer Name

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Location
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GSE-4.10-007 Rev - - 07/00

S.P. 4/4/01

	·				
ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107748		Lot Number	MT21020421	
Product Name	HDT060A000		Type	XL3812	
Production Date	4/2/01		Supplier	Equistar	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.940
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.12
Weight	3,982 1,806	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	
Thickness, mil (mm)	ASTM D 5994	1								
Average	7,01111 5 000 1	every roll	60	(1.5)	60	(1.5)
Minimum		every roll	54	(1.4)	54	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	166	(291)
- MD		every roll	130	(228)	163	(286)
Break Strength, ppi (N/cm) - TD		every roll	90	٠(158)	192	(336)
- MD		every roll	90	(158)	174	(305)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				540		
- MD	(51 mm)	every roll		150				500 !		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187		56	(249)
- MD		every roll	42	(187)	54	(240)
Puncture Resistance, lb. (N)	ASTM D 4833						4.40	,	000	,
		every roll	108	(478)	143	(636)
Puncture Resistance, lb. (N)	FTMS 101C/2065			,	050		445	,	512)
		every 5th	80	(356)	115	(5 į Z	,
Density, g/cc	ASTM D 1505	511		0.040				0.946		
		every 5th		0.940				0.540		
Carbon Black Content, %	ASTM D 1603*	supp. Eth		2.0				2.5		
		every 5th		2.0						
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
	10TH D 5500	every our		, -						
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	5.5.7								
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				28		
Average (mile)		•								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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Roll No. 105107749

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107749		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,962 1,797	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English		lts Metric	2
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	172	(301)
- MD		every roll	130	(228)	164	. (287)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	140	(244)
- MD		every roll	90	(158)	172	(301)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				303		
- MD	(51 mm)	every roll		150				457		
Tear Resistance, lb. (N)	ASTM D 1004								•	
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	115	(512)
Density, g/cc	ASTM D 1505	every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th	9 1		10					
Asperity Height Average (mils)	GRI GM 12	every roll		10				18		

Order No.

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Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location *Modified



Roll Test Data Report

Roll No. 105107750

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107750		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(2.000000)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,940 1,787	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metrio		Test English	t Resu	ilts Metric	:_
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	. (1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	168	(294)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	178	(311)
- MD		every roll	90	(158)	196	(342)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				507		
- MD	(51 mm)	every roll		150				518		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	ovon/ soll		10				18		
Average (mils)		every roll		10				10		

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107754		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(110///	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,978 1,804	pounds kilograms	·		

Physical Property	Test Method	Test Frequency	Customer English	Minimum Metric	Test l English	Results Metric
Thickness, mil (mm)	ASTM D 5994					
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	57	(1.4)
Tensile Properties:	ASTM D 638, Type IV					
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	170	(297)
- MD		every roll	130	(228)	169	(296)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	195	(341)
- MD		every roll	90	(158)	191	(334)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		17
- MD	(33 mm)	every roll.		13		18
Break Elongation, % - TD	gauge length = 2.0"	every roll	•	150	:	531
- MD	(51 mm)	every roll	•	150	;	512
Tear Resistance, lb. (N)	ASTM D 1004					r.
- TD		every roll	42	(187)	62	(276)
- MD		every roll	42	(187)	60	(267)
Puncture Resistance, lb. (N)	ASTM D 4833					
• •		every roll	108	(478)	163	(725)
Puncture Resistance, lb. (N)	FTMS 101C/2065					
		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505					
		every 5th	0.	.940	0	.945
Carbon Black Content, %	ASTM D 1603*					
		every 5th	:	2.0		2.3
Carbon Black Dispersion	ASTM D 3015					
		every 5th		A2		A1
Carbon Black Dispersion	ASTM D 5596			0		10
Views in Cat1 - Cat2		every 5th		9		
Asperity Height	GRI GM 12	over reli		10		12
Average (mils)		every roll		10		

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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	· · · · · · · · · · · · · · · · · · ·				
ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107755		Lot Number	8201758	<u>-</u>
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet . sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	4,062 1,843	pounds kilograms			

Physical Property	Test	Test	Custom					Resu		
Physical Property	Method	Frequency	English	1	Metric	:	English	Ì	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	168	(294)
- MD		every roll	130	(228)	179	(313)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	184	(321)
- MD		every roll	90	(158)	191	(334)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				522		
- MD	(51 mm)	every roll		150				531		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	62	(276)
- MD		every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833									
, ,		every roll	108	(478)	155	(690)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	••	every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			1	0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015							A1		
		every 5th		A2				Ai		
Carbon Black Dispersion	ASTM D 5596			0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	over reli		10				24		
Average (mils)		every roll		10						

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107758		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,884 1,762	pounds kilograms			

	Test	Test	Custome	er Mii	nimun	n	Test	Resu	lts	
Physical Property	Method	Frequency	English	i	Metric	;	English	I	Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	165	(288)
- MD		every roll	130	(228)	162	(284)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	173	(303)
- MD		every roll	90	(158)	196	(344)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				446		
- MD	(51 mm)	every roll		150				540		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	58	(258)
- MD		every roll	42	(187)	58	(258)
Puncture Resistance, lb. (N)	ASTM D 4833									
, .		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
	·	every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*							2.2		
	•	every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				71		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.014.40	every 5th		J						
Asperity Height	GRI GM 12	every roll		10				17		
Average (mils)		every ron								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 105107760

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107760		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/3/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	<i>Results</i> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,916 1,776	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu N	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	165	(288)
- MD		every roll	130	(228)	167	(292)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	181	(316)
- MD		every roll	90	(158)	204	(357)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				469		
- MD	(51 mm)	every roll		150				540		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187	•	62	(276)
- MD		every roll	42	(187)	59	(263)
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505	every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				15		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





Roll No. 105107763

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107763		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	-
Width (Nominal)	22.5	feet	Property	Test Method	Results
(6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,906 1,772	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	162	(283)
- MD		every roll	130	(228)	157	(275)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	174	(304)
- MD		every roll	90	(158)	184	, (323)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				521		
- MD	(51 mm)	every roll		150				495		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	53	(236)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
•		every 5th	80	(356)	98	(436)
Density, g/cc	ASTM D 1505									
•		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*							2.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015			A2				A1		
		every 5th		AZ				Α1		
Carbon Black Dispersion	ASTM D 5596	overy Eth		9				10		
Views in Cat1 - Cat2		every 5th		J				,,		
Asperity Height	GRI GM 12	every roll		10				20		
Average (mils)		every ron		.0						

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	,
Roll Number	105107764		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(• • • • • • • • • • • • • • • • • • •	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.08
Weight	3,906 1,772	pounds kilograms			

DI . · I D . · · · · · · ·	Test	Test	Custome	er Mi	nimur	n	Test	Resi	ılts	
Physical Property	Method	Frequency	English	! .	Metric	c	English		Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average	•	every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(300)
- MD		every roll	130	(228)	163	(285)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	193	(338)
- MD		every roll	90	(158)	186	(326)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				551		
- MD	(51 mm)	every roll		150				526		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	59	(263)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	153	(681)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	98	. (436)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	· .		_				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			10				20		
Average (mils)		every roll		10				20		

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107766		Lot Number	8201758	-
Product Name	HDT060A000		Туре	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	80.0
Weight	3,902 1,770	pounds kilograms			

nt 1 Doggant	Test	Test	Customo					Resu		
Physical Property	Method	Frequency	English		Metric	;	English	<u> </u>	Metric	_
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	, 60	(1.5)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	162	(284)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	178	(312)
- MD		every roll	90	(158)	182	(318)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roli		150				506		
- MD	(51 mm)	every roll		150				513		
Tear Resistance, lb. (N)	ASTM D 1004									
-TD		every roll	42	(187)	60	(267) .
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
, , , ,		every roll	108	(478)	149	(663)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	99	(. 441)
Density, g/cc	ASTM D 1505									
•		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*	-		2.0				2.3		
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015	Eth		A2				A1		
		every 5th		72						
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	05) 011 10	every our		Ū						
Asperity Height	GRI GM 12	every roll		10				18		
Average (mils)		373.7.70								

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Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

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Roll No. 105107769

ROLL	IDENTIFICA:	TION	RE	ESIN INFORMATION	
Roll Number	105107769		Lot Number	8201758	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(2.2)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	·· ASTM D 1238 (190/2.16)	0.08
Weight	3,922 1,779	pounds kilograms			

70 · 770 .	Test	Test	Custome	er Mi	nimur	n	Test	Resi	ilts	
Physical Property	Method	Frequency	English	: 1	Metric	2	English		Metric	:
Thickness, mil (mm)	ASTM D 5994		· · · · · · · · · · · · · · · · · · ·							
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	59	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	161	(282)
- MD		every roll	130	(228)	174	. (305)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	192	(337)
- MD		every roll	90	(158)	161	(282)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				18		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				546		
- MD	(51 mm)	every roll		150				451		
Tear Resistance, lb. (N)	ASTM D 1004							\$		
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	63	(280)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	164	(730)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	. (356)	99	(441)
Density, g/cc	ASTM D 1505									
	•	every 5th		0.940			C).946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	overv reli		10				20		
Average (mils)		every roll		10				20		

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Customer Name Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107772		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	3,884 1,762	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimur Metrio		Test English	Resi	ılts Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	()	164	(286)
- MD		every roll	130	(228)	161	(282)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	192	(336)
- MD		every roll	90	(158)	205	(359)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				520		
- MD	(51 mm)	every roil		150				554		
Tear Resistance, lb. (N)	ASTM D 1004							•		
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	, 61	(271)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	159	(708)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(.	356)	100	(445)
Density, g/cc	ASTM D 1505			0.040			·	0 0 4 7		
		every 5th		0.940				0.947		
Carbon Black Content, %	ASTM D 1603*	Cal.		2.0				2.0		
		every 5th		2.0				2.0		
Carbon Black Dispersion	ASTM D 3015	every 5th		A2				A1		
	AOTNA D 5500	every 5th		7.2				,		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	GRI GM 12	5461 y 5411		-						
Asperity Height Average (mils)	GRI GIVI 12	every roll		10				17		
Avelage (IIIIs)		5.5., . 5								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107773		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/4/01		Supplier	Phillips	
Length ≈(+/- 1%)	520	feet	GSA	E RESIN TEST DATA	
Width (Nominal)	158 22.5	meters feet	Property	Test Method	Results
(Nominai)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	3,868 1,755	pounds kilograms			

	Test	Test	Custome	r Mir	imum	ı	Test	Resu	lts	
Physical Property	Method	Frequency	English		Metric		English	1	Metric	_
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV								20.4	
Yield Strength, ppi (N/cm) - TD		every roll	130	(228		162	(284)
- MD		every roll	130	()	171	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	173	(303)
- MD		every roll	90	(158)	208	(364)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				502		
- MD	(51 mm)	every roll		150				553		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	61	(271)
- MD		every roll	42	(187)	60	(267)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	147	(654)
Puncture Resistance, lb. (N)	FTMS 101C/2065									,
		every 5th	80	(356)	100	(445)
Density, g/cc	ASTM D 1505							0.047		
		every 5th		0.940				0.947		
Carbon Black Content, %	ASTM D 1603*							2.0		
		every 5th		2.0				2.0		
Carbon Black Dispersion	ASTM D 3015	=11		4.2				A1		
		every 5th		A2				~'		
Carbon Black Dispersion	ASTM D 5596	oven, Eth		9				10		
Views in Cat1 - Cat2		every 5th		3				,,,		
Asperity Height	GRI GM 12	every roll		10				17		
Average (mils)		every ron						• •		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

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Roll Test Data Report

Roll No. 105107786

ROLL	IDENTIFICA	TION	RE	SIN INFORMATION	
Roll Number	105107786		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/6/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	4,078 1,850	pounds kilograms			

Dhusiaal Duomantu	Test	Test	Custome	er Mi	nimui	n	Test	Resi	elts	
Physical Property	Method	Frequency	English	ŧ.	Metri	c	English		Metrio	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	63	(1.6)
Minimum		every roll	54	(1.4)	56	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(293)
- MD		every roll	130	(228)	169	(296)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	133	(233)
- MD		every roll	90	(158)	149	(261)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				15		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				423		
- MD	(51 mm)	every roll		150				379		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	166	(739)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	101	(449)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			C	.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2	001.014.40	every 5th		Э				10		
Asperity Height	GRI GM 12	every roll		10				21		
Average (mils)		every roll		10				۱ ـ		

Order No.

20979

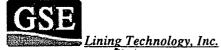
Customer Name

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

Location
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S.P. 4/9/01 QA



ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107787		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/6/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSI	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(Nominal)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	4,110 1,864	pounds kilograms			

Test	Test	Custome	er Mir	nimun	n		Resu	lts	
Method	Frequency	English	1	Metric	:	English	1	Metric	:
ASTM D 5994									
	every roll	60	(1.5)	63	(1.6)
	every roll	54	(1.4)	59	(1.5)
ASTM D 638, Type IV									
	every roll	130	()		()
	every roll	130	()		()
	every roll	90	(158)	163	()
	every roll	90	(158)	189	(331)
gauge length = 1.3"	every roll		13				15		
(33 mm)	every roll		13				16		
gauge length = 2.0"	every roll		150				420		
(51 mm)	every roll		150				521		
ASTM D 1004									
•	every roll	42	(187)	63	(280)
	every roll	42	(187)	57	(253)
ASTM D 4833									
	every roll	108	(478)	168	(745)
FTMS 101C/2065							,	440	,
	every 5th	80	(356)	101	(449)
ASTM D 1505			0.040				0 047		
	every 5th		0.940			,	0.947		
ASTM D 1603*	Eth		2.0				22		
	every 5th		2.0				2.2		
ASTM D 3015	over 5th		Δ2				Α1		
	every 501								
AS1M D 5596	every 5th		9				10		
CDI CM 12	5.5., 5					,			
GRI GIVI 12	every roll		10				20		
	•								
	Method ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	ASTM D 5994 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll for mm) ASTM D 1004 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596	Method Frequency English	ASTM D 5994 every roll 60 (every roll 54 (ASTM D 638, Type IV every roll 130 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 13 (every roll 13 (every roll 13 (every roll 150 (every roll 150 (every roll 150 (every roll 42 (every roll 42 (every roll 42 (every roll 42 (every foll 42 (ev	ASTM D 5994 every roll 60 1.5 every roll 54 1.4	Method Frequency English Metric ASTM D 5994 every roll 60 (1.5) 1.4 (1.4) ASTM D 638, Type IV every roll 54 (1.4) 1.4 (1.4) ASTM D 638, Type IV every roll 130 (228) 228 (228) every roll 130 (228) 228 (228) 228 (228) every roll 90 (158) 158 (228) 228 (228) every roll 90 (158) 13 228 (228) 228 (228) 228 (228) gauge length = 1.3" every roll 13 228 (228)	Method Frequency English Metric English ASTM D 5994 every roll 60 (1.5) 63 every roll 54 (1.4) 59 ASTM D 638, Type IV every roll 130 (228) 164 every roll 164 every roll every roll 90 (158) 163 every roll 163 every roll 90 (158) 189 gauge length = 1.3" every roll 13 every roll 13 every roll 13 every roll gauge length = 2.0" every roll 150 every roll 150 every roll 150 every roll ASTM D 1004 every roll 42 (187) 57 63 every roll 63 every roll ASTM D 4833 every roll 108 (478) 168 168 FTMS 101C/2065 every 5th 80 (356) 101 ASTM D 1505 every 5th 0.940 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12 every 5th 9	Method Frequency English Metric English I ASTM D 5994 every roll 60 (1.5) 63 (every roll 54 (1.4) 59 (a) ASTM D 638, Type IV every roll 130 (228) 164 (c) (c)	Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 63 (1.6 every roll 54 (1.4) 59 (1.5) ASTM D 638, Type IV every roll 54 (1.4) 59 (1.5) 63 (1.6 every roll 54 (1.4) 59 (1.5) 63 (1.6 every roll 54 (1.4) 59 (1.5) 63 (1.6 every roll 54 (1.4) 59 (1.5) (1.5) (1.6) (287 every roll 64 (287 every roll 79 (1.5) (1.6) (280 every roll 79 (1.5) (1.6) (1.5) (1.6) (

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified





ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107789		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/6/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
(1.00)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	4,030 1,828	pounds kilograms			

Test	Test	Custome	er Mi	nimur	n	Test	Resu	ilts	
Method	Frequency	English	٠	Metric	0	English		Metric	;
ASTM D 5994									
	every roll	60	(1.5)	62	(1.6)
	every roll	54	(1.4)	56	(1.4)
ASTM D 638, Type IV									
	every roll	130	(228)	174	(304)
	every roll	130	(228)	179	(314)
	every roll	90	(158)	170	(297)
	every roll	90	(158)	178	(312)
gauge length = 1.3"	every roll		13				16		
(33 mm)	every roli		13				20		
gauge length = 2.0"	every roll		150				455		
(51 mm)	every roll		150						
ASTM D 1004									
	every roll	42	(187)	53	(236)
	every roll	42	(187)	51	(227)
ASTM D 4833									
	every roll	108	(478)	153	(681)
FTMS 101C/2065									
	every 5th	80	(356)	101	(449)
ASTM D 1505						_			
	every 5th		0.940			C	1.947		
ASTM D 1603*									
	every 5th		2.0				2.2		
ASTM D 3015	5.1		4.0				۸.4		
	every 5th		AZ				AI		
ASTM D 5596	ough, Eth		۵				10		
	every 5th		9				10		
GRI GM 12	even roll		10				18		
	every roll								
	Method ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	ASTM D 5994 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll gauge length = 1.3" (33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th	ASTM D 5994 every roll 60 every roll 54	Method Frequency English ASTM D 5994 every roll 60 (every roll 130 (every roll 130 (every roll 130 (every roll 130 (every roll 142 (every roll 60 (every roll <td>Method Frequency English Metric ASTM D 5994 every roll 60 (1.5 every roll) 54 (1.4 every roll) 1.4 ASTM D 638, Type IV every roll 130 (228 every roll) 130 (228 every roll) 190 (158 every roll) 190 (158 every roll) 190 (158 every roll) 13 13 13 13 13 13 13 150 every roll 150<</td> <td>Method Frequency English Metric ASTM D 5994 every roll 60 (1.5) 1.4 (1.4) ASTM D 638, Type IV every roll 54 (1.4) 1.4 (1.4) ASTM D 638, Type IV every roll 130 (228) 228 (228) every roll 130 (228) 228 (228) 228 (228) every roll 90 (158) 228 (228) 228 (228) gauge length = 1.3" every roll 13 32 (228)</td> <td> Method Frequency English Metric English </td> <td>Method Frequency English Metric English I ASTM D 5994 every roll 60 (1.5) 62 (every roll 60 (1.5) 62 (every roll (1.4) 56 (every roll 60 (1.4) 56 (every roll 60 (1.5) 62 (1.5) 62 (every roll 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 60 60 60 60 60 60 60 60 60 60 60 <t< td=""><td>Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 62 (1.6 every roll overy roll</td></t<></td>	Method Frequency English Metric ASTM D 5994 every roll 60 (1.5 every roll) 54 (1.4 every roll) 1.4 ASTM D 638, Type IV every roll 130 (228 every roll) 130 (228 every roll) 190 (158 every roll) 190 (158 every roll) 190 (158 every roll) 13 13 13 13 13 13 13 150 every roll 150<	Method Frequency English Metric ASTM D 5994 every roll 60 (1.5) 1.4 (1.4) ASTM D 638, Type IV every roll 54 (1.4) 1.4 (1.4) ASTM D 638, Type IV every roll 130 (228) 228 (228) every roll 130 (228) 228 (228) 228 (228) every roll 90 (158) 228 (228) 228 (228) gauge length = 1.3" every roll 13 32 (228)	Method Frequency English Metric English	Method Frequency English Metric English I ASTM D 5994 every roll 60 (1.5) 62 (every roll 60 (1.5) 62 (every roll (1.4) 56 (every roll 60 (1.4) 56 (every roll 60 (1.5) 62 (1.5) 62 (every roll 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 (1.5) 60 60 60 60 60 60 60 60 60 60 60 60 <t< td=""><td>Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 62 (1.6 every roll overy roll</td></t<>	Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 62 (1.6 every roll overy roll

Order No.
Customer Nas

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



ROLL	<i>IDENTIFICAT</i>	TION	RE	SIN INFORMATION	
Roll Number	105107798		Lot Number	8210160	, <u>.</u>
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/7/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Homman)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	4,004 1,816	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Tes English	t Resu	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	64	į (1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(295)
- MD		every roll	130	(228)	169	(296)
Break Strength, ppi (N/cm) - TD		every roll	90	. (158)	156	(272)
- MD		every roll	90	(158)	208	(364)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				449		•
- MD	(51 mm)	every roll		150				541		
Tear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	60	(267)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	164	(730)
Puncture Resistance, lb. (N)	FTMS 101C/2065	•								
•	•	every 5th	80	(356)	102	(454)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.945		
Carbon Black Content, %	ASTM D 1603*	F1)		0.0				2.2		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015	even, Eth		A2				A 2		
		every 5th		72				74		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10		
	GRI GM 12	Overy our		J						
Asperity Height Average (mils)	GRI GW 12	every roll		10				24		
Average (IIIIIs)		212.7.12								

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll Test Data Report

Lining Technology, Inc.

Roll No. 105107803

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107803		Lot Number	8210160	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/7/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(Monthson)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.10
Weight	3,950 1,792	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Tes Englisi	t Resu h - I	lts Metric	;
Thickness, mil (mm)	ASTM D 5994									•
Average		every roll	60	(1.5)	62	, (1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	173	(303)
- MD		every roll	130	(228)	166	(291)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	190	(333)
- MD		every roll	90	(158)	187	(327)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				526		
- MD	(51 mm)	every roll		150				523		
Tear Resistance, lb. (N)	ASTM D 1004							f.		
- TD		every roll	42	(187)	57	(254)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	160	(712)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	104	(463)
Density, g/cc	ASTM D 1505									
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*							0.0		
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015			A2				A2		
		every 5th		AZ				AZ		
Carbon Black Dispersion	ASTM D 5596	every 5th		9				10		
Views in Cat1 - Cat2	001.014.40	every 501		J				, 0		
Asperity Height	GRI GM 12	every roll		10				16		
Average (mils)		every foll		. •						

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 105107805

· · · · · · · · · · · · · · · · · · ·				
IDENTIFICAT	TION	RE	SIN INFORMATION	
105107805		Lot Number	8210135	
HDT060A000		Туре		
4/7/01		Supplier	Phillips	
520 158	feet	GS	E RESIN TEST DATA	
		<u>Property</u>	Test Method	Results
6.9	meters	Density, g/cc	ASTM D 1505	0.937
11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
3,996 1,813	pounds kilograms			
	10ENTIFICA 105107805 HDT060A000 4/7/01 520 158 22.5 6.9 11,700 1,086 3,996	IDENTIFICATION 105107805 HDT060A000 4/7/01 520 feet 158 meters 22.5 feet 6.9 meters 11,700 sq. feet 1,086 sq. meters 3,996 pounds	IDENTIFICATION RE	IDENTIFICATION RESIN INFORMATION

Physical Property	Test Method ASTM D 5994	Test Frequency	Customer Minimum English Metric				Test Resu English		ılts Metric		
Thickness, mil (mm)			-					,	4.0		
Average		every roll	60	(1.5)	63	(1.6)	
Minimum		every roll	54	(1.4)	57	(1.4)	
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	169	(295)	
- MD		every roll	130	(228)	171	(299)	
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	211	(369)	
- MD		every roll	90	(158)	185	(324)	
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			17					
- MD	(33 mm)	every roll	13			17					
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			554					
- MD	(51 mm)	every roll	150			507 1					
Tear Resistance, lb. (N)	ASTM D 1004							4			
- TD		every roll	42	(187	•	63	. (280		
- MD		every roll	42	(187)	63	(280		
Puncture Resistance, lb. (N)	ASTM D 4833	every roll	108	(478)	156	(694		
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	104	(463		
Density, g/cc	ASTM D 1505	every 5th		0.940				0.946			
Carbon Black Content, %	ASTM D 1603*	every 5th		2.0				2.2			
Carbon Black Dispersion	ASTM D 3015	every 5th	A2				A2				
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	every 5th		9				10			
Asperity Height Average (mils)	GRI GM 12	every roll	10					16			

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

S.P. 4/9/01 QA



Lining Technology, Inc.

Roll No. 105107808

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number	105107808		Lot Number	8210135	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/7/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(•	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,940 1,787	pounds kilograms			

							Resu		
Method	Frequency	English		Metric	:	English	l	Metric	
ASTM D 5994						-			
	every roll	60	(1.5)	62	(1.6)
	every roll	54	(1.4)	55	(1.4)
ASTM D 638, Type IV									
	every roll	130	()		()
	every roll	130	(228)	176	()
	every roll	90	(158)	204	(358)
	every roll	90	(158)	213	(372)
gauge length = 1.3"	every roll		13				17		
(33 mm)	every roll	13			16				
gauge length = 2.0"	every roll	150					518		
(51 mm)	every roll		150				535		
ASTM D 1004									
	every roll	42	(187	·)	64	(285)
	every roll	42	(187)	65	(289)
ASTM D 4833								•	
	every roll	108	(478)	165	(734)
FTMS 101C/2065									
	every 5th	80	(356)	99	(441)
ASTM D 1505									
	every 5th		0.940			().946		
ASTM D 1603*	•		0.0				2.4		
	every 5th		2.0				2.4		
ASTM D 3015			۸2				Δ2		
	every 5th		72				7.4		
ASTM D 5596	even, 5th		9				10		
ODI 014.40	every Jui		·						
GRI GM 12	every roll		10				26		
	37377511								
	ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065 ASTM D 1505	ASTM D 5994 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll (33 mm) every roll (31 mm) every roll (51 mm) every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596	ASTM D 5994 every roll 60 every roll 54 ASTM D 638, Type IV every roll 130 every roll 90 every roll 90 every roll 90 gauge length = 1.3" every roll (33 mm) every roll gauge length = 2.0" every roll (51 mm) every roll ASTM D 1004 every roll 42 every roll 42 every roll 108 FTMS 101C/2065 every 5th 80 ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th GRI GM 12	ASTM D 5994 every roll 60 (every roll 54 (ASTM D 5994 every roll 60 (1.5 every roll 54 (1.4 ASTM D 638, Type IV every roll 130 (228 every roll 130 (228 every roll 90 (158 every roll 90 (158 every roll 90 (158 every roll 90 (158 every roll 13 (33 mm) every roll 13 (33 mm) every roll 13 (33 mm) every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187 every roll 42 (187 every roll 42 (187 every roll 42 (187 every roll 108 (478 Every 5th 80 (356 ASTM D 1505 every 5th 80 (356 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9 GRI GM 12	ASTM D 5994 every roll 60 (1.5) every roll 54 (1.4) ASTM D 638, Type IV every roll 130 (228) every roll 130 (228) every roll 90 (158) every roll 90 (158) every roll 90 (158) every roll 13 gauge length = 1.3" every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) every roll 42 (187) every roll 42 (187) every roll 108 (478) FTMS 101C/2065 every 5th 80 (356) ASTM D 1505 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th A2 ASTM D 5596 every 5th 9	ASTM D 5994 every roll 60 (1.5) 62 every roll 54 (1.4) 55 ASTM D 638, Type IV every roll 130 (228) 175 every roll 90 (158) 204 every roll 90 (158) 213 gauge length = 1.3" every roll 13 (33 mm) every roll 13 gauge length = 2.0" every roll 150 (51 mm) every roll 150 ASTM D 1004 every roll 42 (187) 64 every roll 42 (187) 65 ASTM D 4833 every roll 108 (478) 165 FTMS 101C/2065 every 5th 0.940 ASTM D 1603* every 5th 2.0 ASTM D 3015 every 5th 9 GRI GM 12	ASTM D 5994 every roll 60	ASTM D 5994 every roll 60 (1.5) 62 (1.6 every roll 54 (1.4) 55 (1.4 every roll 130 (228) 175 (306 every roll 130 (228) 176 (309 every roll 90 (158) 204 (358 every roll 90 (158) 213 (372 every roll 13

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 105107809

ROLL	IDENTIFICA:	TION	RE	SIN INFORMATION	
Roll Number	105107809		Lot Number	8210135	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/7/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(1.0,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,958 1,795	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4	,
Tensile Properties: Yield Strength, ppi (N/cm) - TD	ASTM D 638, Type IV	every roll	130	(228)	169	(296)
- MD		every roll	130	(228)	174	(304)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	197	(345)
- MD		every roll	90	(158)	195	(342)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				18		
- MD	(33 mm)	every roll	13				16			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				523		
- MD	(51 mm)	every roll		150				503		
Tear Resistance, lb. (N)	ASTM D 1004							ć.		
- TD		every roll	42	(187	·) ·	58	(258	
- MD	•	every roll	42	(187)	66	(294	
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	158	(703	
Puncture Resistance, lb. (N)	FTMS 101C/2065	every 5th	80	(356)	99	(441	
Density, g/cc	ASTM D 1505									
Jeneral, Breez		every 5th		0.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015							4.0		
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			9				10		
Views in Cat1 - Cat2		every 5th		J				10		
Asperity Height	GRI GM 12	every roll		10				16		
Average (mils)		every roll		.0			•	. •		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 105107810

ROLL	IDENTIFICAT	TION	RE	SIN INFORMATION	
Roll Number Product Name Production Date	105107810 HDT060A000 4/7/01		Lot Number Type Supplier	8210135 TR400GS Phillips	
Length ≈(+/- 1%)	520	feet	GS	E RESIN TEST DATA	
Width (Nominal)	158 22.5 6.9	meters feet meters	Property Density, g/cc	<u>Test Method</u> ASTM D 1505	<u>Results</u> 0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,942 1,788	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		imun Metric		Test English	Resu I	lts Metric	
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV		100		000	,	474	,	200	,
Yield Strength, ppi (N/cm) - TD		every roll	130	()	171	(299	,
- MD		every roll	130	(228)	175	(307)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	201	(352)
- MD		every roll	90	(158)	210	(368)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				523		
- MD	(51 mm)	every roll		150				532		
Fear Resistance, lb. (N)	ASTM D 1004									
- TD		every roll	42	(187)	63	(280)
- MD		every roll	42	(187)	63	(280	,
Puncture Resistance, lb. (N)	ASTM D 4833									
• •		every roll	108	(478)	165	(734)
Puncture Resistance, lb. (N)	FTMS 101C/2065							,		,
		every 5th	80	(356)	99	(441)
Density, g/cc	ASTM D 1505							0.040		
		every 5th		0.940				0.946		
Carbon Black Content, %	ASTM D 1603*							2.4		
		every 5th		2.0				2.4		
Carbon Black Dispersion	ASTM D 3015	F41-		A2				A2		
		every 5th		AZ				74		
Carbon Black Dispersion	ASTM D 5596	avon, Eth		9				10		
Views in Cat1 - Cat2		every 5th		3				. 0		
Asperity Height	GRI GM 12	every roll		10				15		
Average (mils)		every roll		10						

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified





Roll No. 105107885

ROLL	IDENTIFICA	TION		SIN INFORMATION	
Roll Number	105107885		Lot Number	8210165	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSZ	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	Property	Test Method	Results
(1.0)	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,926 1,781	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		nimur Metric		Test English	Resu	ilts Metric	:
Thickness, mil (mm)	ASTM D 5994						,			
Average	1	every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	171	(299)
- MD		every roll	130	(228)	166	(290)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	102	(179)
- MD		every roll	90	(158)	167	(292)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13			16			
- MD	(33 mm)	every roll		13			18			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150				312			
- MD	(51 mm)	every roll		150				483		
Tear Resistance, lb. (N)	ASTM D 1004							î.		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	55	(245)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	146	(650)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
•		every 5th	80	(356)	106	(472)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.945		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.6		
Carbon Black Dispersion	ASTM D 3015			40						
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	aven. Eth		0				10		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	every roll		10				19		
Average (mils)		every roll		10				10		

Order No.

20979

Customer Name
Location

PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Roll No. 105107889

ROLL	IDENTIFICA	TION		SIN INFORMATION	
Roll Number	105107889		Lot Number	8210165	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GSA	E RESIN TEST DATA	
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results
,	6.9	meters	Density, g/cc	ASTM D 1505	0.937
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,930 1,783	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custome English		inimui Met r i		Test English	Resi	ılts Metri	с
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	169	(296)
- MD		every roll	130	(228)	175	(306)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	191	(335)
- MD		every roll	90	(158)	198	(346)
Yield Elongation, % - TD	gauge length = 1.3"	every roll	13			16				
- MD	(33 mm)	every roll	13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				518		
- MD	(51 mm)	every roll		150				543		
Tear Resistance, lb. (N)	ASTM D 1004							Ę		
- TD		every roll	42	. (187)	57	(254)
- MD		every roll	42	(187)	56	(249)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	. 80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th	0	.940			().947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596			^				10		
Views in Cat1 - Cat2	001.011.10	every 5th		9				10		
Asperity Height	GRI GM 12	even rell		10				22		
Average (mils)		every roll		10				44		

Order No.

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Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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RP. 4/16/01

QA

Roll No. 105107890

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION	
Roll Number	105107890		Lot Number	8210165	
Product Name	HDT060A000		Type	TR400GS	
Production Date	4/14/01		Supplier	Phillips	
Length ≈(+/- 1%)	520 158	feet meters	GS	E RESIN TEST DATA	
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07
Weight	3,904 1,771	pounds kilograms			

Physical Property	Test Method	Test Frequency	Custom English		inimu Metri		Test English	Resi	ults Metri	<u></u>
Thickness, mil (mm)	ASTM D 5994									
Average	•	every roll	60	(1.5)	61	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV						•	,		,
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	167	(292)
- MD		every roll	130	(228)	170	(298)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	186	(325)
- MD		every roll	90	(158)	179	(314)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		•
- MD	(33 mm)	every roll	13				17			
Break Elongation, % - TD	gauge length = 2.0"	every roll	150			505				
- MD	(51 mm)	every roll		150				490		
Tear Resistance, lb. (N)	ASTM D 1004							į		
- TD		every roll	42	(187)	57	. (254)
- MD		every roll	42	(187)	61	(271	}
Puncture Resistance, lb. (N)	ASTM D 4833					·		,		,
		every roll	108	(478)	156	(694)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th	C).940			0	.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0			:	2.2		
Carbon Black Dispersion	ASTM D 3015									
0.1. 81.1.81		every 5th		A2			•	A2		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	Sale		•						
· · · · · · · · · · · · · · · · · · ·	001 014 40	every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	ever cell		10				•		
· · · - · · · · · · · · · · · · · · · ·		every roll		10			•	21		

Order No.

20979

Customer Name Location

*Modified

PASCO COUNTY LANDFILL DADE CITY, FLORIDA



GSE			
SE VOICE CONTRACTOR	Lining	Technology.	Inc

Roll No. 105107891

ROLL	IDENTIFICAT	TION	RESIN INFORMATION						
Roll Number	105107891	<u>-</u>	Lot Number	8210165					
Product Name	HDT060A000		Туре	Type TR400GS					
Production Date	4/14/01		Supplier	Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GS	SE RESIN TEST DATA					
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results				
. (110//////////	6.9	meters	Density, g/cc	ASTM D 1505	0.937				
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07				
Weight	3,896 1,767	pounds kilograms							

Physical Property	Test	Test	Custome					Resu		
Thysical Troperty	Method	Frequency	English		Metric	2	English	Ì	Metric	
Thickness, mil (mm)	ASTM D 5994									
Average .	1	every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	58	(1.5)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	159	(278)
- MD		every roll	130	(228)	172	(300)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	202	(354)
- MD		every roll	90	(158)	205	(359)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				555		
- MD	(51 mm)	every roll		150				550		
Tear Resistance, lb. (N)	ASTM D 1004							ξ		
- TD		every roll	42	(187)	56	(249)
- MD		every roll	42	(187)	61	(271)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	164	(730)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	·		•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12			10				19		
Average (mils)		every roll		10				10		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Roll No. 105107892

	er de							
ROLL	IDENTIFICA:	TION	1	RESIN INFORMATION				
Roll Number	105107892	· · · · · · · · · · · · · · · · · · ·	Lot Number	8210165				
Product Name	HDT060A000		Type TR400GS					
Production Date	4/14/01		Supplier	Phillips				
Length ≈(+/- 1%)	520 158	feet meters	_ ·	SSE RESIN TEST DATA				
Width (Nominal)	22.5	feet	<u>Property</u>	Test Method	Results			
(2.2)	6.9	meters	Density, g/cc	ASTM D 1505	0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07			
Weight	3,894 1,766	pounds kilograms						
Physical Pi	on artu	Test	Test	Customer Minimum Test	Results			
1 nysicai Fi	operty	Method	Frequency	English Metric English	Metric			

Physical Property	Test Method	Test Frequency	Custome English		nimur Metrio		Test English	Resu	lts Metric	;
Thickness, mil (mm)	ASTM D 5994									_
Average		every roll	60	(1.5)	62	(1.6)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	177	(310)
- MD		every roll	130	(228)	167	(293)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	166	(291)
- MD		every roll	90	(158)	168	(293)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				17		
- MD	(33 mm)	every roll		13				17		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				445		
- MD	(51 mm)	every roll		150				487		
Tear Resistance, lb. (N)	ASTM D 1004							1		
- TD		every roll	42	(187)	55	(245)
- MD		every roll	42	(187)	57	(254)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	148	(659)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			(0.947		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.2		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A2		
Carbon Black Dispersion	ASTM D 5596	ous - : Eth		9				10		
Views in Cat1 - Cat2	05/ 01/ 40	every 5th		9				10		
Asperity Height	GRI GM 12	every roll		10				21		
Average (mils)		every ron		10				_ 1		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

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R. P. 4/16/01

QA

Roll No. 105107894

ROLL	IDENTIFICA	TION	RE	ESIN INFORMATION				
Roll Number	105107894		Lot Number	8210165				
Product Name	HDT060A000		Type TR400GS					
Production Date	4/14/01		Supplier Phillips					
Length ≈(+/- 1%)	520 158	feet meters	GS.	E RESIN TEST DATA				
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results 0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238 (190/2.16)	0.07			
Weight	3,876 1,758	pounds kilograms						

Physical Property	Test	Test	Custome	er Mi	nimu	m	Test	Rest	ılts	
Thysical Property	Method	Frequency	English	3 .	Metri	с	English		Metric	;
Thickness, mil (mm)	ASTM D 5994									
Average		every roll	60	(1.5)	61	(1.5)
Minimum		every roll	54	(1.4)	55	(1.4)
Tensile Properties:	ASTM D 638, Type IV									
Yield Strength, ppi (N/cm) - TD		every roll	130	(228)	164	(288)
- MD		every roll	130	(228)	142	(248)
Break Strength, ppi (N/cm) - TD		every roll	90	(158)	159	(278)
- MD		every roll	90	. (158)	162	(283)
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13				16		
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				414		
- MD	(51 mm)	every roll		150				481		
Tear Resistance, lb. (N)	ASTM D 1004							1,		
- TD		every roll	42	(187)	54	(240)
- MD		every roll	42	(187)	52	(231)
Puncture Resistance, lb. (N)	ASTM D 4833									
		every roll	108	(478)	150	(668)
Puncture Resistance, lb. (N)	FTMS 101C/2065									
		every 5th	80	(356)	108	(481)
Density, g/cc	ASTM D 1505									
		every 5th		0.940			0	.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.3		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion	ASTM D 5596	Eu.		•				40		
Views in Cat1 - Cat2		every 5th		9				10		
Asperity Height	GRI GM 12	augus (50")		10				19		
Average (mils)		every roll		10				18		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



3 10	
	7 5.0
7.12	4-4

Lining Technology, Inc.

Roll No. 105107895

port	IDENTIFICA:	TION		DECIMI	NEO	DAAA	rio				
		110/9		RESIN I	VF U.			V			
Roll Number	105107895		Lot Number			82101					
Product Name	HDT060A000		Type			TR400					
Production Date	4/14/01		Supplier	· · · · · · · · · · · · · · · · · · ·		Phillip	s 				
Length ≈(+/- 1%)	520 158	feet meters	· · · · · · · · · · · · · · · · · · ·	GSE RES	IN T	EST I	OAT	'A			
Width (Nominal)	22.5	feet	<u>Property</u>		2	Test M	ethe	<u>od</u>	<u>R</u>	esults	_
, ,	6.9	meters	Density, g/cc		\boldsymbol{A}	STM I	D 15	505		0.937	
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	. AS	STM I	D 123	8 (1	90/2.16)		0.07	
Weight	3,872 1,756	pounds kilograms									
Physical Pi	roperty	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu l	ılts Metric	•
Thickness, mil (mm)		ASTM D 5994									
Average			every roll	60	(1.5)	61	(1.6)
Minimum			every roll	54	(1.4)	55	(1.4)
Tensile Properties:		ASTM D 638, Type I\									
Yield Strength, p			every roll	130	(228)	166	(291)
	- MD		every roll	130	()	167	(292)
Break Strength,	ppi (N/cm) - TD		every roll	90	(158)	141	(246)
	- MD		every roll	90	(158)	158	(277)
Yield Elongation	ı, % - TD	gauge length = 1.3"	every roll		13				15		
	- MD	(33 mm)	every roll		13				16		
Break Elongatio	n, % - TD	gauge length = 2.0"	every roll		150				435		
	- MD	(51 mm)	every roil		150				403		
Tear Resistance, lb. (f	•	ASTM D 1004									,
	- TD		every roll	42	(187	•	50	(223)
	- MD		every roll	42	(187)	48	(214)
Puncture Resistance,	lb. (N)	ASTM D 4833		108	,	478	,	155	,	690	١
		ETNO 4040/0005	every roll	100	'	410)	133	,	030	,
Puncture Resistance,	lb. (N)	FTMS 101C/2065	every 5th	80	,	356	١	108	1	481)
Danaih, ataa		ASTM D 1505	_ every our	00	'		,	,,,,	`	,	,
Density, g/cc		ASTM D 1505	every 5th		0.940			C	0.946		
Carbon Black Content	+ %	ASTM D 1603*									
Carbon black Content	., 70	7,01111.5	every 5th		2.0				2.3		
Carbon Black Dispers	ion	ASTM D 3015									
/ 			every 5th		A2				A1		
Carbon Black Dispers Views in Cat1 -		ASTM D 5596	every 5th		9				10		
Asperity Height		GRI GM 12	•								
, openty neight		- · · · · · · · · · · · · · · · · · · ·							40		

every roll

10

Order No.

20979

Customer Name

Average (mils)

PASCO COUNTY LANDFILL

Location *Modified

GSE-4.10-007 Rev - - 07/00

DADE CITY, FLORIDA

R.P. 4/16/01 QA

18

GSE		
	Lining	Tec

Lining Technology, Inc.

Roll No. 105107896

ROLL	IDENTIFICA:	TION		RESIN I	NFO.	RMA I	TIO!	V			
Roll Number	105107896		Lot Number			82101	65				
Product Name	HDT060A000		Type			TR400	GS				
Production Date	4/14/01		Supplier			Phillip	S				
Length ≈(+/- 1%)	520 158	feet meters	(GSE RES	IN T	EST L	DAT.	A			
Width (Nominal)	22.5	feet	Property		1	est M	etho	o <u>d</u>	<u>_R</u>	esults	<u> </u>
(Prominal)	6.9	meters	Density, g/cc		\boldsymbol{A}	STM I	D 15	05		0.937	
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	AS	TM I	D 123	8 (1	90/2.16)		0.07	
Weight	3,888 1,764	pounds kilograms									
Physical Pr	roperty	Test Method	Test Frequency	Custome English		nimun Metric		Test English	Resu	ilts Metric	 с
Thickness, mil (mm)		ASTM D 5994					-	<u> </u>			
Average		7.5 (m 5 0004	every roll	60	(1.5)	60	(1.5)
Minimum			every roll	54	(1.4)	55	(1.4)
Tensile Properties:		ASTM D 638, Type I	V								
Yield Strength, p	ppi (N/cm) - TD		every roll	130	(228)	165	(289)
	- MD		every roll	130	(228)	163	(285)
Break Strength,	ppi (N/cm) - TD		every roll	90	(158)	147	(257)
	- MD		every roll	90	(158)	174	(305)
Yield Elongation	, % - TD	gauge length = 1.3"	every roll		13				15		
	- MD	(33 mm)	every roll		13				16		
Break Elongation	n, % - TD	gauge length = 2.0"	every roll		150				431		
	- MD	(51 mm)	every roll		150				486 1		
Tear Resistance, lb. (N	N)	ASTM D 1004									
	- TD		every roll	42	()	56	(249)
	- MD		every roll	42	(187)	53	(236)
Puncture Resistance,	lb. (N)	ASTM D 4833	every roll	108	(478)	167	(743)
Puncture Resistance,	lb. (N)	FTMS 101C/2065	Falls	90	,	256	,	400	,	404	,
Density, g/cc		ASTM D 1505	every 5th	80	0.040	356)	108	0.046	481)
Carbon Black Content	. %	ASTM D 1603*	every 5th		0.940				0.946		
			every 5th		2.0				2.3		
Carbon Black Dispersi	ion	ASTM D 3015	every 5th		A2				A1		
Carbon Black Dispersi		ASTM D 5596	ouen. Eib		9				10		
Views in Cat1 - 0	Cat2	001.014.40	every 5th		3				10		
Asperity Height		GRI GM 12							24		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified



Lining Technology, Inc.

Roll No. 105107897

"	· +								
ROLL	IDENTIFICAT	TION	RESIN INFORMATION						
Roll Number	105107897		Lot Number	8210165	8210165				
Product Name	HDT060A000		Type TR400GS						
Production Date	4/14/01		Supplier Phillips						
Length ≈(+/- 1%)	520 158	feet meters		GSE RESIN TEST DA	ATA				
Width (Nominal)	22.5	feet	Property	Test Me	<u>thod</u>	Results			
(1.0000000)	6.9	meters	Density, g/cc	ASTM D	1505	0.937			
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	ASTM D 1238	(190/2.16)	0.07			
Weight	3,898 1,768	pounds kilograms			·				
Physical Pi	ronerty	Test	Test	Customer Minimum		Results			
1 Hysical I I	operty	Method	Frequency	English Metric	English	Metric			
hiekaasa mil (mm)		ASTM D 5094							

Test	Test	Customer Minimum				Test Results			
Method	Frequency	English		Metric	;	English	Ì	Metric	:
ASTM D 5994									
	every roll	60	(1.5)	61	(1.6)
	every roll	54	(1.4)	55	(1.4)
ASTM D 638, Type IV									
	every roll	130	(228)	171	()
	every roll	130	(228)	160	(280)
	every roll	90	(158)	162	(284)
	every roll	90	(158)	158	(277)
gauge length = 1.3"	every roll		13				15		
(33 mm)	every roll		13				16		
gauge length = 2.0"	every roll		150				478		
(51 mm)	every roll		150						
ASTM D 1004									
	every roll	42	(187)	51	(227)
	every roll	42	(187)	46	(205)
ASTM D 4833									
	every roll	108	(478)	147	(654)
FTMS 101C/2065			,			400	,	404	١
	every 5th	80	(356)	108	(481)
ASTM D 1505	eu.		0.040				046		
	every 5th		0.940			,	J. 34 0		
ASTM D 1603*	aven. Eth		2.0				23		
	every 5th		2.0				2.5		
ASTM D 3015	eveny 5th		A2				A1		
A OTAL D. SEOC	every our		,						
AS I M D 2290	every 5th		9				10		
GR! GM 12	2.0., 2								
GRI GIVI 12	every roll		10				26		
	•								
	Method ASTM D 5994 ASTM D 638, Type IV gauge length = 1.3" (33 mm) gauge length = 2.0" (51 mm) ASTM D 1004 ASTM D 4833 FTMS 101C/2065	ASTM D 5994 every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll every roll gauge length = 1.3" every roll (33 mm) every roll (51 mm) every roll ASTM D 1004 every roll every roll every roll every roll every roll every roll every roll every roll every roll every sth ASTM D 1505 every 5th ASTM D 1603* every 5th ASTM D 3015 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th ASTM D 5596 every 5th	ASTM D 5994 every roll 60 every roll 54 ASTM D 638, Type IV every roll 130 every roll 90 every roll 90 every roll 90 every roll 42 every roll 42 every roll 42 every roll 45 ASTM D 1004 FTMS 101C/2065 ASTM D 1505 ASTM D 1603* Every 5th ASTM D 3015 Every 5th ASTM D 5596 Every 5th TM D 5994 every roll 60 (every roll 54 (ASTM D 638, Type IV every roll 130 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 90 (every roll 13 (every roll 13 (every roll 13 (every roll 150 (every roll 150 (every roll 150 (every roll 42 (every roll 42 (every roll 42 (every roll 108 (every foll 108 (Method Frequency English Metric ASTM D 5994 every roll 60 (1.5 every roll 54 (1.4 every roll in 1.4 every roll in 1.4 every roll in 1.5 every 5th in 1.5 every 5t	Method Frequency English Metric ASTM D 5994 every roll 60 (1.5) 1.4 (1.4) ASTM D 638, Type IV every roll 54 (1.4) 1.4 (1.4) ASTM D 638, Type IV every roll 130 (228) 228 (228) every roll 130 (228) 228 (228) 228 (228) every roll 90 (158) 228 (228) 228 (228) every roll 90 (158) 13 228 (228)<	Method Frequency English Metric English	Method Frequency English Metric English I ASTM D 5994 every roll 60 (1.5) 61 (every roll) 61 (every roll) 61 (every roll) 60 (228) 171 (every roll) 60 (every roll) 130 (every roll) 160 (every roll) 60 (every roll) 150 158 (every roll) 150 478 150 478 (every roll) 160 478 (every roll) 150 478 478 (every roll) 42 (every roll) 6 6 (every roll) 6 42 (every roll) 6 6 (every roll)	Method Frequency English Metric English Metric ASTM D 5994 every roll 60 (1.5) 61 (1.6 every roll overy roll	

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RP. 4/16/01

QA

Lining Technology, Inc.

ROLL IDENTIFICATION

Roll No. 105107898

RESIN INFORMATION

Roll Number Product Name Production Date	105107898 HDT060A000 4/14/01		Lot Number Type Supplier			821016 TR400 Phillips	GS				
Length ≈(+/- 1%) Width (Nominal)	520 158 22.5 6.9	feet meters —	<u>Property</u>	GSE RES	1	est M	etho	o <u>d</u>		<i>esults</i> 0.937	
Sheet Area	11,700 1,086	meters sq. feet sq. meters	Density, g/cc Melt index, g/10 min.	AS		STM I D 1238		90/2.16)		0.07	
Weight	3,892 1,765	pounds kilograms									
Physical Pr	operty	Test Method	Test Frequency	Custome English		imun Metric		Tesi English	Resu	ilts Metric	<u> </u>
Thickness, mil (mm)		ASTM D 5994				4 =	,			4.5	
Average		• -	every roll	60	()	60	(1.5)
Minimum			every roll	54	(1.4)	55	(1.4)
Tensile Properties: Yield Strength, p	ni (N/cm) - TD	ASTM D 638, Type I\	/ every roll	130	(228)	181	(317)
rield Strength, p	- MD		every roll	130	()	178	(311)
Break Strength, p			every roll	90	()	131	(229)
Break Strength, p	- MD		every roll	90	()	188	(328)
Yield Elongation,		gauge length = 1.3"	every roll		13		,		16		,
field Elongation,	, % - 1D - MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD		gauge length = 2.0"	every roll		150				305		
Break Elongation		(51 mm)	every roll		150				505		
T D istance 15 /A	- MD	ASTM D 1004	every foll		100				ŧ.		
Tear Resistance, lb. (N	i) - TD	A31W D 1004	every roll	42	(187)	55	(245)
	- MD		every roll	42	(187)	58	(258)
Puncture Resistance, I		ASTM D 4833	every roll	108	(478)	157	(699)
Puncture Resistance, I	b. (N)	FTMS 101C/2065	every 5th	80	(356)	108	(481)
Density, g/cc		ASTM D 1505	every 5th	ı	0.940				0.946		
Carbon Black Content,	, %	ASTM D 1603*	every 5th		2.0				2.3		
Carbon Black Dispersi	on	ASTM D 3015	every 5th		A2				A 1		
Carbon Black Dispersi Views in Cat1 - 0		ASTM D 5596	every 5th		9				10		
Asperity Height Average (mils)		GRI GM 12	every roll		10				16		

Order No.

20979

Customer Name Location PASCO COUNTY LANDFILL DADE CITY, FLORIDA

*Modified

GSE-4.10-007 Rev - - 07/00

RPROVE RP. 4/16/01

Lining Technology, Inc.

Roll No. 105107899

ROLL	IDENTIFICA:	TION		RESIN I	NFO.	RMA?	TIO	V			
Roll Number	105107899		Lot Number			82101	65				
Product Name	HDT060A000		Туре			TR400	GS				
Production Date	4/14/01		Supplier	Phillips							
Length ≈(+/- 1%)	520 158	feet	(GSE RES	SIN T	EST I	DAT	Α			
Width (Nominal)	22.5	meters	Property Test Method				F	Results	5		
(Nominal)	6.9	meters	Density, g/cc			STM I	•		_	0.937	_
Sheet Area	11,700 1,086	sq. feet sq. meters	Melt index, g/10 min.	AS				90/2.16)		0.07	
Weight	3,906 1,772	pounds kilograms									
Physical Pr	operty	Test Method	Test Frequency	Custome English		nimun Metric		Tes Englisi	t Resi	ılts Metrio	c
Thickness, mil (mm)		ASTM D 5994	-								
Average			every roll	60	(1.5)	61	(1.5)
Minimum			every roll	54	(1.4)	55	(1.4)
Tensile Properties:		ASTM D 638, Type IV	/								
Yield Strength, p	pi (N/cm) - TD		every roll	130	(228)	175	(306)
	- MD		every roll	130	(228)	170	(297)
Break Strength,	ppi (N/cm) - TD		every roll	90	(158)	164	(288)
	- MD		every roll	90	(158)	179	(313)
Yield Elongation	, % <i>-</i> TD	gauge length = 1.3"	every roll		13				16		
	- MD	(33 mm)	every roll		13				18		
Break Elongation	n, % - TD	gauge length = 2.0"	every roll		150				473		
	- MD	(51 mm)	every roll		150				480		
Tear Resistance, lb. (N	1)	ASTM D 1004							ř		
	- TD		every roll	42	(187)	57	(254)
	- MD		every roll	42	(187)	56	(249)
Puncture Resistance, I	b. (N)	ASTM D 4833									
			every roll	108	(478)	160	(712)
Puncture Resistance, I	b. (N)	FTMS 101C/2065			,	050	,	440	,		
			every 5th	80	(356)	113	(503)
Density, g/cc		ASTM D 1505			0 040				0.946		
		. OTH D . 1000	every 5th		0.940				0.946		
Carbon Black Content,	%	ASTM D 1603*	every 5th		2.0				2.5		
Carban Black Dianarsi		ASTM D 3015	every our		2.0				2.0		
Carbon Black Dispersi	on	A3 1 W D 30 15	every 5th		A2				A1		
Carbon Black Dispersi	nn	ASTM D 5596									
Views in Cat1 - 0		, 5 5556	every 5th		9				10		
Asperity Height		GRI GM 12									
·			every roll		10				19		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



GSE Lining To

Lining Technology, Inc.

Roll No. 105107900

DOLL	I Day I was a second			Kon No.	105107900				
ROLL	IDENTIFICA	TION		RESIN INFORMATION					
Roll Number Product Name Production Date	105107900 HDT060A000 4/14/01		Lot Number Type Supplier	8210165 TR400GS Phillips					
Length ≈(+/- 1%)	520 158	feet meters		E RESIN TEST DATA					
Width (Nominal)	22.5 6.9	feet meters	<u>Property</u> Density, g/cc	<u>Test Method</u> ASTM D 1505	Results				
Sheet Area	11,700 1,086	sq. feet sq _: meters	Melt index, g/10 min.	ASTM D 1303 ASTM D 1238 (190/2.16)	0.937 0.07				
Weight	3,934 1,784	pounds kilograms							

Physical Property	Test Method	Test Frequency	Custom Englis)		inimu Metr		Tes Englisi	st Res	ults Metri	
Thickness, mil (mm)	ASTM D 5994						Zitgits!		Men	
Average		every roll	60	Ċ	1.5)	61	(1.6)
Minimum		every roll	54	(1.4	•	55	()
Tensile Properties:	ASTM D 638, Type IV			•		,		,	1	,
Yield Strength, ppi (N/cm) - TD		every roli	130	(228)	184	(322)
- MD		every roll	130	(228)	182	(319)
Break Strength, ppi (N/cm) - TD		every roli	90	(158)	138	(242)
- MD		every roll	90	(158	•	161	,	281	
Yield Elongation, % - TD	gauge length = 1.3"	every roll		13		,	101	16	201)
- MD	(33 mm)	every roll		13				16		
Break Elongation, % - TD	gauge length = 2.0"	every roll		150				480		
- MD	(51 mm)	every roll		150				400		
Tear Resistance, lb. (N)	ASTM D 1004	•						400 !		
- TD		every roll	42	(187)	54	: (240)
- MD		every roll	42	()	53	,	236	,
Puncture Resistance, lb. (N)	ASTM D 4833	·		`		,		,	230	,
		every roll	108	(478)	158	(703	١
Puncture Resistance, lb. (N)	FTMS 101C/2065					•		. `		,
tr.		every 5th	80	(356)	113	(503)
Density, g/cc	ASTM D 1505					•		`		,
		every 5th	C	.940			(0.946		
Carbon Black Content, %	ASTM D 1603*									
		every 5th		2.0				2.5		
Carbon Black Dispersion	ASTM D 3015									
		every 5th		A2				A1		
Carbon Black Dispersion Views in Cat1 - Cat2	ASTM D 5596	•								
		every 5th		9				10		
Asperity Height Average (mils)	GRI GM 12	every roll		10				16		
								. •		

Order No.

20979

Customer Name

PASCO COUNTY LANDFILL

Location

DADE CITY, FLORIDA

*Modified



Equistar Chemicals, LP Malagorda Plant 13 Miles S. of Bay City-Hwy 60 Bay City TX 77414

Certificate Of Analysis

Customer Order No. : 18319-000-OP

Customer Number

: 7731

Date Shipped

: March 08, 2001

Equistar Order No.

: 387750 000010

Delivery Item No.

: 80490820 000010

Ship-To:

Inspection

Method

GSE LINING TECHNOLOGY INC

1340 E RICHEY RD WESTFIELD TX 77073 UNITED STATES

Equistar Material

: 7674 ALATHON XL3812

Batch Number

DON BOHAC

GSE LINING TECHNOLOGIES

WESTFIELD TX 77060 FAX No.: 281-230-8630

: MT21020421

Estimated Quantity

: 192,900 LBS

Test Test Unit of Description Result Measure Vehicle ID EQUX631068 Vehicle Type HOPPER CAR Density @ 23C 0.940 g/cc Meit Flow, 2160g @ 190C 0.115 g/10 min.

Approved by:

Issue Date: March 14, 2001

Question ? Call Customer Service: 888-777-0232

This Certificate of Analysis contains the most current information available as of the issue date. This document shall not be reproduced except in full, without the written approval of the issuer. **BEST AVAILABLE COPY**

1/26/01 4:03: PAGE 001/1 RightFAX



. LECTOTERIN

January 26, 2001

Houston Chemical Complex P.O. Box 792, Pasadena, TX 77501

PSN# 2226-01

FAX: 281-230-8630

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8201758

P.O. Number: Date Shipped:

01/26/01

Package:

PSPX 6680

Quantity:

187050 LBS.

Melt Index, ASTM D1238: .080 G/10 MIN

HLMI Flow Rate, ASTM D1238: 11.5 G/10 MIN

Density, ASTM D1505:

.937 G/CC

HLMI/MI Ratio:

144.

Production Date:

12/02/00

ESCR, F/50, Cond. B:

1500 HOURS **

Brittleness Temperature:

<-70 C **

Color:

118.333

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC



Houston Chemical Complex

P.O. Box 792, Pasadena, TX 77501

February 21, 2001

PSN# 4507-01

FAX: 281-230-2510

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type: HHM TR-400GS

Lot Number: 8210135

P.O. Number: Date Shipped:

02/16/01 PSPX 6470 Package: Quantity: 186500 LBS.
Melt Index, ASTM D1238: .07 G/10 MIN

HLMI Flow Rate, ASTM D1238: 10.0 G/10 MIN

Density, ASTM D1505: .937 G/CC HLMI/MI Ratio: 10.0 G/10 10.0 G/10 MIN

Production Date: 02/08/01 ESCR, F/50, Cond. B: 1500 HOURS **

Brittleness Temperature: <-70 C ** Color: 145.250

Paul S. Newbold

Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630 **BEST AVAILABLE COPY**

8:38: PAGE 001/1 RightFAX

Houston Chemical Complex

P.O. Box 792, Pasadena, TX 77501

February 16, 2001

PSN# 4086-01

FAX: 281-230-2510

11

GSE Lining Technology, Inc. 19103 Gundle Road Houston, TX 77073

2/16/01

Don Bohac

This letter will certify that the Marlex* resin shown below, as supplied by Chevron Phillips Chemical Company, conforms to our manufacturing specification.

Type:

HHM TR-400GS

Lot Number:

8210165

P.O. Number: Date Shipped:

02/16/01

Package:

PSPX 6547

Quantity:

179550 LBS.

Melt Index, ASTM D1238:

.070 G/10 MIN

HLMI Flow Rate, ASTM D1238: 10.1 G/10 MIN Density, ASTM D1505:

.937 G/CC

HLMI/MI Ratio:

144.

Production Date:

02/13/01

ESCR, F/50, Cond. B: 1500 HOURS ** Brittleness Temperature: <-70 C **

Color:

120.667

Paul S. Newbold Sr. Certification Systems Specialist

For COA questions call Carol Meza, 713-475-3625

* Reg. U.S. Pat. Off.

** Nominal Value (not tested on each lot)

cc: QA-File-RC

Milissa Mulkey FAX: 281-230-8630



COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Owner: Pasce County B.O.C.C. Project No. 01-063 Project Manager: John Power Engineer: Camp Dresser & McKee Project No. 6104-28936 Project Manager: Office Manager: Contractor: COMANCO Environmental Corp. Project No. 123477 Project Manager: Pablo J-Rivera Subcontractor: COMANCO Environmental Corp. Project No. 010-348 Project Manager: Pablo J-Rivera COMPLETED BY CONTRACTOR: Certification Statement: Statement: Signature: Power of the project Manager of the Construction of materials, dimensions, catalog numbers and similar data and 1 have checked and coordinated each item with applicable approved shop drawings and all Contract repairments. Submittal Identifier: D-02274-007-A Original Submittal Submittal Submittal Submittal Submittal Personal Project No. of Copies: Reaubmittal Personal Project No. 010-0488 Project Manager Date: 02-13-02 Submittal Description: Specification Identifier: D-02274-007-A Original Submittal Description: Personal Project No. 010-049 Project No. 010	Engineer: Contractor:	Camp Dresser &	McKee				——————————————————————————————————————
Contractor. Handex of Florida, Inc. Project No. 123477 Project Manager Gary L. Conavay, P. Subcontractor COMANCO Environmental Corp. Project No. 010-848 Project Manager Gary L. Conavay, P. Subcontractor COMANCO Environmental Corp. Project No. 010-848 Project Manager Pablo J. Rivera COMPLETED BY CONTRACTOR: Certification Statemen: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction or materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with applicable approved shop drawings and all Contract requirements. Signature: Date: 02-13-02. Submittal Identifier: D-02274-007-A Original Submittal Supplement Submittal Description: Geocomposite QA/QC Roll Certificates: Lot 1 Specification Identifier: 01300, 02274 Section 1.03 (A.9) and Section 2.03 (A) Manufacturer Tenax Corporation Installer: Code 1 - Approved As Noted. Code 1 - Approved As Noted. Code 2 - Approved As Noted. Code 2 - Approved As Noted. Code 3 - Approved As Noted. Code 3 - Approved As Noted. Code 6 - Comments Attached Engineer Stamp or Remarks Area: SHOP DRAWING REVIEW REPONSE REQUIRED OF Confirm Code 6 - Comments Attached Figure Stamp or Remarks Area: SHOP DRAWING REVIEW REPONSE REQUIRED OF Comments Attached Figure Stamp or Remarks Area: SHOP DRAWING REVIEW REPONSE REQUIRED OF Comments Attached The Regiment of the Stamp of Comments and Station and St	Contractor:			Project No.	6104-28936	D ' > -	
Contractor: Handex of Florida, Inc. Subcontractor: COMANCO Environmental Corp. Project No. 010-848 Project Manager: Pablo J. Rivera COMPLETED BY CONTRACTOR: Certification Statement: By this submittal, thereby represent that I have determined and verified all field measurements, field construction or materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with applicable approved shop drawings and all Contract requirements. Signature: Decreased Project Name of Contract		Handex of Florid			010120750	Project Manager:	Daniel Strobridge, Q.E.
COMPLETED BY CONTRACTOR: Certification Statement: By this submittal, I-hereby represent that I have determined and verified all field measurements, field construction or materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with applicable approved shop drawings and all Consract requirements. Submittal Identifier: Doctory 13, 2002 Submittal Identifier: Doctory 13, 2002 Resubmittal Submittal Supplement Submittal Supplement Submittal Supplement Supplement Submittal Supplement Supplement Submittal Supplement Submittal Supplement Supplement Cooccomposite QA/QC Roll Certificates: Lot 1 01300, 02274-8ection 1.03 (A) 9) and Section 2.03 (A) Manufacturer: Tenax Cooperation COMPLETED BY ENGINEER: No. of Copies Received: No. of Copies Received: No. of Copies Received: No. of Copies Received: Code 1 - Approved As Noted, Confirm Code 5 - Not Approved Code 5 - Not Approved Engineer Stamp or Remarks Area: SHOP DRAWING REVIEW ENGINEER'S REVIEW RESPONSE REQUIRED OF Contract plans, and for dealing concepts, Tables and for Supplement to the province of supplement to the province of the contract plans, and for dealing concepts, Tables and for Supplement to the province of the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and for dealing concepts, Tables and for Supplement to the contract plans, and the Supplement to the contract plans, and the Supplement to the contract of the Contract plans, and the Supplement to the contract of the Contract plans, and the Su	Subcontractor:		da, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Certification Statement: By this submittal, I hereby 'represent that I have determined and verified all field measurements, field construction or materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with applicable approved shop drawings and all Contract requirements. Signature: Date: 02-13-02 Date: 02-13-02 Date: 02-13-02 Date: 02-13-02 Submittal Identifier: D-0274-007-A Submittal Identifier: D-0274-007-A Submittal Description: Specification Identifier: 01300, 02274 Section 1,03 (A.9) and Section 2,03 (A) Tenax Corporation Installer: COMPLETED BY ENGINEER: No. of Copies Received: No. of Copies Rec		COMANCO En	vironmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with applicable approved shop drawings and all Contract requirements. Signature:	COMPLETED BY	Y CONTRACTO	R:				
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QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: December 17, 2001 Lot #1

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637 (813) 988-8829

Table of Contents

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Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE:

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 1

December 17, 2001

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101039, 0101040, 0101041, 0101042, 0101043, 0101044, 0101045, 0101046, 0101047, 0101048, 0101049, 0101050, 0101051, 0101052, 0101053, 0101054, 0101055, 0101056, 0101057, 0101058, 0101059, 0101060, 0101061, 0101062, 0101063, 0101064, 0101065, 0101066, 0101067, 0101068, 0101069, 0101070, 0101071, 0101072, 0101073, 0101074, 0101075, 0101076, 0101077, 0101078, 0101079, 0101080, 0101081, 0101082, 0101083, 0101084, 0101085, 0101086, 0101087, 0101088, 0101089, 0101090, 0101091, 0101092, 0101093, 0101094, of Tendrain 7 70-2, consisting of lot # 1 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 1, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D.

Quality Control Manager



TENDRAIN 770-2

IBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

rainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

PROPERTIES	TEST METHOD	<u>UNIT</u>	VALUE	QUALIFIER
GEONET CORE				
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
Compressive Behavior (% Retained thickness)	ACTIVID4000	ib/it (KIV/III)	1000 (14.0)	c, 140tc 1, 4
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)		%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c, Note 4
Melt Flow Index	ASTM D1238	g/10 min.	1.0	d, note 4
Carbon Black Content	ASTM D4218	%	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	$oz/yd^2 (g/m^2)$	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
G 5 Elongation	ASTM D4632	%	50	b, Note 4
↑ a Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
L esistance @500 Hours	ASTM D4355	%	70	b, Note 4
GEOCOMPOSITE				
Roll Width		ft (m)	6.7 (2.0)	a, Note 5
Roll Length		ft (m)	200 (61)	a, Note 5
Ply Adhesion	ASTM F904	lb/in (N/m)	1.0 (175)	c, Note 6
	(modified)			
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE				
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				c, Notes 7
Gradient/Load:			15,000 psf (720 kPa)	
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

c = Minimum Value d = Maximum Value

NOTES:

- 1. Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- 2. Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- 3. Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- 4. Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- 5. Roll dimensions are measured at the time of manufacture.
- 6. Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- 7. Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.

Office: (410) 522-7000 Orc Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot#

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet Rol	l Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Unit Weight ASTM D3776-96 (g/m2)	Tensile Strength ASTM D4595-94 (lb/ft)
0100325	11/28/2001	315	0.952	2.40	0.400	1625	1600
0100326	11/29/2001	305	0.952	2.37	0.350	1650	1656
0100328	11/30/2001	312	0.950	2.54	0.380	1803	1800
0100330	12/01/2001	320	0.955	2.44	0.510	1952	1820
0100333	12/01/2001	305	0.955	2.46	0.580	1850	
0100337	12/02/2001	315	0.955	2.36	0.560	1780	1725
0100341	12/03/2001	312	0.950	2.50	0.400	1764	-

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MF1 ASTM D1238-00 (g/10min)	Unit Weight ASTM D3776-96 (g/m2)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			312	0.953	2.44	0.454	1775	
Standard Dev.			5	0.002	0.07	0.093	113	
Specifications			300	0.940	2.00	< 1	1600	1000

•	
(am	pression
C.O.III	71 (331011

Load (psf)	Roll #	Thickness Retained (%)	Specification (%)
50000			50
	0100325	63.00	50
	0100326	65.00	50
	0100328	60.00	50
	0100330	59.00	50
	0100333	60.60	50
	0100337	59.10	50
	0100341	62.00	50
A	verage (Specs)	61.24	50

Tested by

Checked by

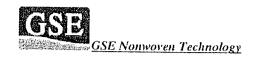
Tim Bauters Ph.D.

Date

12/16/2001

Date

12/16/2001



Product : NW	6	It	em Code:	FBR060810	0	Roll Wid	<i>lth:</i> 15.0	feet		,		Test D	ale: 11/25/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM D 4632		ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111036	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111037	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/25/2

7.000 TO 1440	·	nem Code: FBR0608100 Roll Width: 15.0 feet											
Roll No.	Mass per Unit Area	Thickness	Grab S	itrength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability	
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	(D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111039	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111040	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111041	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111042	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111043	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	
130111044	7.7	108	227	252	95	120	170	137	139	398	0.212		0.5
130111045	7.7	108	227	252	9 5	120	170	137	139	398	0.212	2.0	0.5
130111046	7.7	108	227	252	95	120	170	137	139	398		2.0	0.5
130111047	7.7	108	236	274	106	116	134	155	145 '	388	0.212	2.0	0.5
130111048	7.7	108	236	274	106	116	134	155	145	388	0.212	2.0	0.5
130111049	7.7	108	236	274	106	116	134	155	145	388	0.212	2.0	0.5
130111050	7.7	108	236	274	106	116	134	155	145	386	0.212	2.0	0.5
130111051	7.7	108	236	274	106	116	134	155	145		0.212	2.0	0.5
130111052	7.7	108	236	274	106	116	134	155		388	0.212	2.0	0.5
130111053	7.7	108	236	274	106	₹116	134		145	388	0.212	2.0	0.5
130111054	7.7	108	236	274	106	116		155	145	388	0.212	2.0	0.5
				L17	100	110	134	155	145	388	0.212	2.0	0.5



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/26/2

	···		///	Kon Wa	in: 15.0	reet				Test Date: 11/26/2			
Roll No.	Mass per Unit Area	Thickness		Strength		ongation	•	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit	y Permeability
		ASTM D 5199		D 4632		D 4632		D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111057	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111058	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111059	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111060	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111061	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111062	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111063	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111064	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111065	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111066	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111067	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111068	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111069	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111070	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111071	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	
130111072	6.3	95	202	237	97	117	90	141	119	350	0.212		0.5
130111073	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0 2.0	0.5
130111074	6.3	95	202	237	97	117	90	141	119	350	0.212		0.5
130111075	6.3	95	202	237	97	117	90	141	119	350		2.0	0.5
130111076	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111077	6.7	92	214	228	92	124	134	152	125		0.212	2.0	0.5
130111078	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111079	6.7	92	214	228	92	124	134	152		356	0.212	2.0	0.5
130111080	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111081	6.7	92	214	228	92	124	134		125	356	0.212	2.0	0.5
					52	124	134	152	125	356	0.212	2.0	0.5



Product : NW6	Item Code: FBR0608100 Roll Width: 15.0 feet												
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	longation	Trap Teal	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM D 4632		ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111082	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111083	6.7	92	214	228	92	124	134	152	125	356	. 0.212	2.0	0.5



Product: NW6

Item Code: FBR0608100

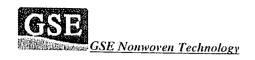
Roll Width: 15.0 feet

Test Date: 11/26/2

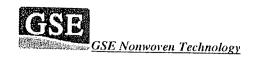
												i est D	are: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab Strength		Grab Elongation		Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		
	ASTM D 5261	ASTM D 5199	ASTM	ASTM D 4632		ASTM D 4632		D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751		
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111198 .	6.7	92	197	220	94	123	125	114	124			· · · · · · · · · · · · · · · · · · ·	
130111199	6.5	87	204	208	107	121				355	0.212	2.0	0.5
130111200	6.5	87					114	150	121	349	0.212	2.0	0.5
			204	208	107	121	114	150	121	349	0.212	2.0	0.5
130111201	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5



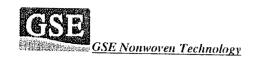
Product: NW6	Item Code: FBR0608100 Roll Width: 15.0 feet													
Roll No.	Mass per Unit Area	Thickness		Strength	Grab E	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	0	v Permeability	
	ASTM D 5261 (oz/yd2)	ASTM D 5199 (mils)	ASTM D 4632 MD (lbs) CD (lbs)		ASTM D 4632 MD (%) CD (%)		ASTM MD (lbs)	D 4533 CD (lbs)	ASTM D 4833 (lbs)	ASTM D 3786 (psi)	ASTM D 4751	ASTM D 4491		
130111281	6.9	89	246	230	95	125	444			(73.)	(mm)	(sec-1)	(cm/sec)	
130111282	6.9	89	246	230			141	162	115	358	0.212	1.8	0.4	
			2.0	230	95	125	141	162	115	358	0.212	1.8	0.4	



Product: NW6		It	em Code:	FBR060810	0	Roll Wid	lth: 15.0	feet	•			Test Date: 11/27/2	
Roll No.	Mass per Unit Area	Thickness	Grab S	Grab Strength		ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	-	y Permeability
	ASTM D 5261	ASTM I) 5199	ASTM	D 4632	ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	(D) 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111293	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NV	Product: NW6		Rem Code: FBR0608100 Roll Width: 15.0 feet										
Roll No.	Mass per Unit Area	Thickness				ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
	ASTM D 5261			D 4632		D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	(D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111295	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6		It	em Code:	FBR060810	0	Roll Wid	<i>lth:</i> 15.0	feet				Test Date: 11/27/2		
Roll No.	Mass per Unit Area ASTM D 5261	Thickness		trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability	
					ASTM	D 4632	ASTM D 4533		ASTM D 4833	ASTM D 3786		ASTM	D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130111313	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4	

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT : JOB: Tendrain 770-2 Pasco Landfill

LOT #: DATE:

12/14/2001

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101039	0100326	130111201	130111078	200
0101040	0100326	130111201	130111078	200
0101041	0100326	130111201	130111078	200
0101042	0100326	130111201	130111078	200
0101043	0100326	130111201	130111078	200
0101044	0100326	130111064	130111075	200
0101045	0100326	130111064	130111075	200
0101046	0100326	130111064	130111075	188
0101047	0100326	130111064	130111075	200
0101048	0100327	130111064	130111075	200
0101049	0100327	130111081	130111076	200
0101050	0100327	130111081	130111076	200
0101051	0100327	130111081	130111076	200
0101052	0100327	130111081	130111076	200
0101053	0100327	130111081	130111076	200
0101054	0100327	130111080	130111200	200
0101055	0100328	130111080	130111200	200
0101056	0100328	130111080	130111200	200
0101057	0100328	130111080	130111200	200
0101058	0100328	130111080	130111200	200
0101059	0100328	130111074	130111057	200
0101060	0100328	130111074	130111057	200
0101061	0100328	130111074	130111057	200
0101062	0100328	130111074	130111057	200
0101063	0100331	130111069	130111071	200
0101064	0100331	130111069	130111071	200
0101065	0100331	130111069	130111071	200
0101066	0100331	130111069	130111071	200
0101067	0100331	130111069	130111071	200
0101068	0100331	130111199	130111079	200
0101069	0100332	130111199	130111079	200
0101070	0100332	130111199	130111079	200
0101071	0100332	130111199	130111079	200
0101072	0100332	130111199	130111079	200
0101073	0100332	130111198	130111083	200
0101074	0100335	130111198	130111083	200
0101075	0100335	130111198	130111083	190
0101076	0100335	130111198	130111083	200
0101077	0100335	130111198	130111083	200
0101078	0100335	130111082	130111068	200
0101079	0100335	130111082	130111068	200
0101080	0100335	130111082	130111068	200
0101081	0100335	130111082	130111068	200
0101082	0100335	130111082	130111068	200
0101083	0100334	130111067	130111073	200
0101084	0100334	130111067	130111073	200
0101085	0100334	130111067	130111073	200
0101086	0100334	130111067	130111073	200
0101087	0100334	130111067	130111073	111
0101088	0100334	130111065	130111062	200
0101089	0100334	130111065	130111062	200
0101090	0100334	130111065	130111062	200
0101091	0100334	130111065	130111062	200
0101092	0100338	130111065	130111062	200
0101093	0100338	130111003	130111046	200
0101094	0100338	130111072	130111046	200
0.0.00	0.0000	100711072	100111040	200



Office: (410) 522-7000 Order Line: (800) 356-8495 Fax: (410) 522-7015 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report ASTM F904*

Product

Tendrain 770-2

Lot:

1

Roll Size

6.7' x 200'

Project Testing Lab Pasco Landfill Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101039	12/16/2001		· · · · · · · · · · · · · · · · · · ·	
		1.10	1.04	
		1.28	1.33	
		1.18	1.09	
		1.45	1.11	
		1.37	1.25	
		1.28	1.16	Average
		0.14	0.12	Std. Deviation
		1.00	1.00	Specification (minimum)

e note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

*Ply adhesion is tested by the manufacturer every 100,000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.

Tested by

David Mitchell

Tim Bauters

Ph.D.

Date 12/16/2001

Checked by

Date 12/16/2001



Precision Geosynthetic Laboratories

150 9002







Mr. David Mitchell TENAX CORPORATION 4800 E Monument Street Baltimore, MD 21205

Dear Mr. Mitchell:

RE: PASCO LANDFILL

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence and disclosed to other parties only with the authorization of Client or Precision Geosynthetic Laboratories.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. Failed seam samples are kept for 7 years; good seam samples are disposed after 2 weeks and conformance samples are disposed after 1 month. Should you need us to keep them longer, please advise us in writing.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Edith Pintor Quality Assurance

Cora B. Queja Vice President

Enclosure: (Job No. 011246)



Precision Geosynthetic Laboratories

180 9002





CLIENT: TENAX CORPORATION PROJECT: PASCO LANDFILL

VERIFICATION OF MATERIAL PROPERTIES (PGL Job No. 011246)

MATERIAL DESCRIPTION: Geocomposite, TENDRAIN 770-2

DATE RECEIVED: December 1, 2001

DATE REPORTED: December 5, 2001

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

Lot No. 1

73695

TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D4716

Transmissivity

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}$ C (71.6 \pm 3.6°F) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on the table.

PRECISION GEOSYNTHETIC LABORATORIES



Edith Pintor Quality Assurance

Cora B. Queja Vice President

TABLE 1.

MATERIAL PROPERTIES

CLIENT: TENAX CORPORATION

PROJECT: PASCO LANDFILL

Date Received: 12/1/01

Date Final Reported: 12/5/01

QC'd By: _ PGL Job No.:

011246

Client Sample ID: Lot No. 1

Material Description: Geocomposite, TENDRAIN 770-2

PGL Control No.: 73695

							SPECIME	NS					1	Proj.
AFTHA 2		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Spec
METHOD	DESC	CRIPTION	1								 	4.9 1.57		
<u>Geocomposi</u>	ite:													
STM D4716	** Tra	nsmissivity	(x10 ⁻³	m²/sec)	(Normal Press	sure	15 000 pef	Gradient	A 1 · Section	Timo: d	l Anni			
	MD	3.04			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>5</i> 4, 0.	10,000 psi,	Gradient.	U.1, Seating	inne. i	(ne)	1		
	** Tra	nsmissivity	(x10 ⁻³	m²/sec)	(Normal Press	sure:	15 000 psf	Gradient:	0.1 · Spating	Timo: 7	ld from 1	3.04	N/A	·
	MD	2.99			,		, ογουο ρ οι ,	Oradioni.	U. F. Gealing	inne. z	. 4 IIIS)	200		
	** Trai	nsmissivity	$(x10^{-3})$	m²/sec)	(Normal Press	sure:	15.000 nsf	Gradient:	0.1 · Seating	Tima: 1	19 brol	2.99	N/A	
	MD	2.79		•			rotoca por,	Orabicit.	U.T. Sealing	1 II II G. 4	o ms)	2.79		
•	** Trai	nsmissivity	(x10 ⁻³	m²/sec)	(Normal Press	sure:	15.000 psf	Gradient:	0.1 · Seating	Time: 7	2 hre	2.79	N/A	
	MD	2.74					, , ,	G, G(3, O), //.	o.r, coaming	inne, i	z ms,	2.74	N/A	
	** Trai	nsmissivity	(x10 ⁻³	m²/sec)	(Normal Press	sure:	15,000 psf:	Gradient:	0.1 Seating	Time: 9	6 hrs)	2.74	IV/A	
	MD	2.70							orr, country		011137	2.70	N/A	
		nsmissivity	$(x10^{-3})$	m²/sec)	(Normal Press	sure:	15,000 psf;	Gradient:	0.1: Seating	Time: 1	OO bre)	2.70	IV/A	
	MD	2.69		•								2.69	N/A	
	** Geo	synthetics	arrange	d as follov	vs:		Thickness	s, avg. = 4	20 mils			2.03	11/2	
			Plate					s, avg. = 3					[]	
				+++++				.,						
				XXXXXXX										ý roku
		60 mil HDF	PE Liner	++++++								1	i }	
			Plate											



ISO 9002



COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

	SUBI	MITTA	AL CO)NTR(OL FOI	RM		
Project:	WEST PASCO COUNTY LA	ANDFILL	EXPANS	ION - C	ELLS A-3 A	AND S	W-2	
Owner:	Pasco County B.O.C.C.	Pro	oject No.	01-063		Proj	ect Manager:	John Power
Engineer:	Camp Dresser & McKee	_	ject No.	6104-28	936	_	ect Manager:	Daniel Strobridge, Q.E.P
Contractor:	Handex of Florida, Inc.		Project No. 123477 Project Manag				-	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Pro	oject No.	010-848		-	ect Manager:	Pablo J. Rivera
COMPLETED BY	CONTRACTOR:							
Certification Statem	By this submittal, I here materials, dimensions, applicable approved sho	catalog nur	mbers and	similar dat	ta and I hav	d all fie e check	old measuremen sed and coordi Date:	its, field construction criteri inated each item with oth
Submittal Identifier:	D-02274-008-A		Original Sub				Supplement	
Submitted:	February 13, 2002		Mighidi Dai				зирріспен	
No. of Copies:	8	R	Resubmittal				Information	Only
Manufacturer: Installer: COMPLETED BY No. of Copies Receiv	ved:	ntal Corpora	ation		No. of Copi			
Status:	Code 1 - Approved]		Co	de 4 - Approve	d As Noted, Resubmit
[Code 2 - Approved As	Noted] [Со	de 5 - Not Appr	roved
[Code 3 - Approved As	Noted, Con	firm] [Со	de 6 - Commen	ts Attached
Engineer Stamp or	/	OP DRAV	ains: R	E\/(Z\&/				
	ENGINEER'S RE	VIEW			QUIRED OF			
	Approved as Noted Co	sproved comments stacked fithis shop and materials section conce contoctons	drawing is as present	CONTRA Confirm Reguami is Heritod in the review done	CTOR	of ans,		
	ctor's reaponsibility of edents. The Contractor is fabrication and manufactur procedures of construction as CAMP DRESSER & MICKEE IN	reeponsible re, the mear nd performing C.	devisions for the d	s from the	Contract Doc	rite.		1

QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: December 17, 2001 Lot # 2

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637 (813) 988-8829

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Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE:

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 2

December 17, 2001

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101114, 0101115, 0101116, 0101117, 0101118, 0101119, 0101120, 0101121, 0101122, 0101123, 0101124, 0101125, 0101126, 0101127, 0101128, 0101129, 0101130, 0101131, 0101132, 0101133, 0101134, 0101135, 0101136, 0101137, 0101138, 0101139, 0101140, 0101141, 0101142, 0101143, 0101144, 0101145, 0101146, 0101147, 0101148, 0101149, 0101150, 0101151, 0101152, 0101153, 0101154, 0101155, 0101156, 0101157, 0101158, 0101159, 0101160, 0101161, 0101162, 0101163, 0101164, 0101165, 0101166, 0101167, 0101168, 0101169, of Tendrain 7 70-2, consisting of lot # 2 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 2, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D.

Quality Control Manager



TENDRAIN 770-2

UBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

rainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

PROPERTIES	TEST METHOD	<u>UNIT</u>	VALUE	QUALIFIER
GEONET CORE				
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
Compressive Behavior (% Retained thickness)		,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)		%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c, Note 4
Melt Flow Index	ASTM D1238	g/10 min.	1.0	d, note 4
Carbon Black Content	ASTM D4218	%	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	oz/yd² (g/m²)	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	` 1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
Grab Elongation	ASTM D4632	%	50	b, Note 4
i n Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
esistance @500 Hours	ASTM D4355	%	70 .	b, Note 4
GEOCOMPOSITE		1	,	
Roll Width		ft (m)	6.7 (2.0)	a, Note 5
Roll Length		ft (m)	200 (61)	a, Note 5
Ply Adhesion	ASTM F904	Ib/in (N/m)	1.0 (175)	c, Note 6
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE	(modified)			
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				c, Notes 7
Gradient/Load:			15,000 psf (720 kPa)	C, NOIES /
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV) c = Minimum Value d = Maximum Value

NOTES:

- Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- 5. Roll dimensions are measured at the time of manufacture.
- Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of ne "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot .nargin from both edges of the roll.
- Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.

Office: (410) 522-7000 Orc Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot #

2

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet R	oll Date Tested		Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Unit Weight ASTM D3776-96 (g/m2)	Tensile Strength ASTM D4595-94 (lb/ft)
0100337	7 12/02/2001	315	0.955	2.36	0.560	1780	1725
0100341	12/03/2001	312	0.950	2.50	0.400	1764	~
0100353	3 12/05/2001	320	0.952	2.44	0.550	1650	1688
0000356	12/06/2001	323	0.950	2.63	0.300	1765	1795
0100359	12/07/2001	303	0.952	2.57	0.340	1691	1397
0100363	12/08/2001	335	0.955	2.44	0.420	-	1650

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Unit Weight ASTM D3776-96 (g/m2)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			318	0.952	2.49	0.428		-
Standard Dev.			11	0.002	0.10	0.107	-	_
Specifications			300	0.940	2.00	< 1	1600	1000

('0		:
Com	Dres	sion

Load (psf)	RoII#	Thickness Retained (%)	Specification (%)
50000			50
	0100337	59.10	50
	0100341	62.00	50
	0100353	58.00	50
	0100356	60.00	50
	0100359	61.00	50
•	0100363	58.00	50
Α	verage (Specs)	59.68	50

, bv

David Mitchell

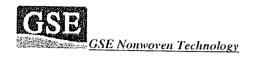
Tim Bauters Ph.D.

Date

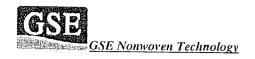
12/17/2001

Date

12/17/2001

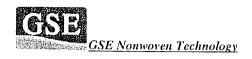


Product: NW6		Ita	em Code:	FBR060810	00	Roll Wid	<i>th:</i> 15.0	feet				Test D	ate: 11/25/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111036	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5
130111037	7.7	108	227	252	95	120	170	137	139	398	0.212	2.0	0.5

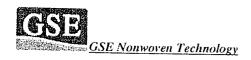


Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/25/

Fest Date: 11					feet	lth: 15.0	Roll Wia	0 .	FBR060810	m Coae:	116	· · · · · · · · · · · · · · · · · · ·	- 14440
n		Apparent Opening Size	Mullen Burst Strength	Puncture Strength	r Strength	Trap Tear	ongation	Grab El	trength	Grab S	Thickness	Mass per Unit Area	Roll No.
ASTM D 4491			ASTM D 3786	ASTM D 4833	D 4533	ASTM.	D 4632	ASTM	D 4632	ASTM	ASTM D 5199	ASTM D 5261	
v-I) (cm/s		(mm)	(psi)	(lbs)	CD (lbs)	MD (lbs)	CD (%)	MD (%)	CD (lbs)	MD (lbs)	(mils)	(oz/yd2)	
2.0 0.5		0.212	398	139	137	170	120	95	252	227	108	7.7	130111039
		0.212	398	139	137	170	120	95	252	227	108	7.7	130111040
2.0 0.5			398	139	137	170	120	95	252	227	108	7.7	130111041
2.0 0.5		0.212	398	139	137	170	120	95	252	227	108	7.7	130111042
2.0 0.5		0.212			137	170	120	95	252	227	108	7.7	130111043
2.0 0.5		0.212	398	139		170	120	95	252	227	108	7.7	130111044
.0 0.5		0.212	398	139	137	170	120	95	252	227	108	7.7	130111045
.0 0.5		0.212	398	139	137	_	120	95	252	227	108	7.7	130111046
.0 0.5		0.212	398	139	137	170		106	274	236	108	7.7	130111047
.0 0.5		0.212	388	145 '	155	134	116		274	236	108	7.7	130111048
.0 0.5		0.212	388	145	155	134	116	106	274	236	108	7.7	130111049
.0 0.5		0.212	388	145	155	134	116	106			108	7.7	130111050
.0 0.5		0.212	388	145	155	134	116	106	274	236		7.7	130111051
.0 0.5		0.212	388	145	155	134	116	106	274	236	108		130111052
.0 0.5		0.212	388	145	155	134	116	106	274				
.0 0.5		0.212	388	145	155	134	116	106	274	236	108		
.0 0.5			388	145	155	134	116	106	274	236	108	7.7	130111054
		0.212 0.212 0.212		145	155	134	116	106			108 108 108	7.7 7.7 7.7	130111052 130111053 130111054



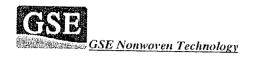
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786		ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111057	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111058	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111059	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5 0.5
130111060	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111061	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111062	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111063	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111064	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5
130111065	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	
130111066	6.6	91	203	207	89	121	101	110	116	350	0.212	2.0	0.5 0.5
130111067	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111068	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	
130111069	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111070	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111071	6.3	95	202	237	97	117	90	141	119	350	0.212		0.5
130111072	6.3	95	202	237	97	117	90	141	119	350	0.212	2.0	0.5
130111073	6.3	95	202	237	97	117	90	141	440	350		2.0	0.5
130111074	6.3	95	202	237	97	117	90	141	119 ,		0.212	2.0	0.5
130111075	6.3	95	202	237	97	117	90	141		350	0.212	2.0	0.5
130111076	6.3	95	202	237	97	117	90		119	350	0.212	2.0	0.5
130111077	6.7	92	214	228	92	124		141	119	350	0.212	2.0	0.5
130111078	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111079	6.7	92	214	228	92		134	152	125	356	0.212	2.0	0.5
130111080	6.7	92	214	228		124	134	152	125	356	0.212	2.0	0.5
130111081	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
	· · ·	52	£14	228	92	124	134	152	125	356	0.212	2.0	0.5



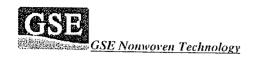
Product: NW	6	Ita	em Code.	FBR060810)()	Roll Wia	lth: 15.0	feet				Test D	ate: 11/25/2
Roll No.	Mass per Unit Area	Thickness		Strength	Grab El	longation	Trap Teal	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
	ASTM D 5261 (oz/yd2)	_		1 D 4632 CD (lbs)		D 4632 CD (%)	ASTM		ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111082	6.7		-			(1) (10)	MD (lbs)	CD (ths)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111083	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
100111063	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	. 0.5



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/26/2 Roll No. Mass per Thickness Grab Strength Puncture Mullen Burst Grab Elongation Apparent Unit Area Trap Tear Strength Permittivity Permeability Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 ASTM D 3786 ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130111198 6.7 92 197 220 94 123 125 114 124 355 0.212 2.0 0.5 130111199 6.5 87 204 208 107 121 114 150 121 349 0.212 2.0 0.5 130111200 6.5 87 204 208 107 121 114 150 121 349 0.212 2.0 0.5 130111201 6.5 87 204 208 107 121 114 150 121 349 0.212 2.0 0.5



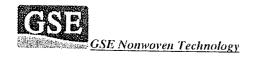
Product: NW6		It	em Code:	FBR060810	00 -	Roll Wia	lth: 15.0	feet				Test D	Pale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
		ASTM D 5199		D 4632		D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786		ASTM	f D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111281	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111282	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



Product: NW6		It	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet	•			Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
	ASTM D 5261			D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111293	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6		It	em Code:	FBR060810	00	Roll Wid	th: 15.0	feet				Tout D	
Roll No.	Mass per Unit Area	Thickness		trength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		ate: 11/27/2 Permeability
	ASTM D 5261 (oz/yd2)	ASTM D 5199 (mils)	ASTM MD (lbs)	D 4632 CD (lbs)		D 4632	ASTM MD (lbs)	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751		D 4491
130111295	6.6				(70)	0.15 (70)	111.7 (11/5)	CD (tbs)	(lbs)	(psi)	', (mm)	(sec-1)	(cm/sec)
100111200	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6		It	em Code:	FBR060810	00	Roll Wid	th: 15.0	feet				Test Di	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
		ASTM D 5199				D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111313	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT : JOB: LOT #:

DATE:

Tendrain 770-2 Pasco Landfill 2 12/14/01

57112.	7277701			
COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101114	0100339	130111048	130111063	200
0101115	0100339	130111048	130111063	200
0101116	0100339	130111048	130111063	200
0101117	0100339	130111048	130111063	200
0101118	0100339	130111049	130111047	200
0101119	0100339	130111049	130111047	200
0101120	0100340	130111049	130111047	200
0101121	0100340	130111049	130111047	200
0101122	0100340	130111042	130111050	200
0101123	0100340	130111042	130111050	200
0101124	0100340	130111042	130111050	200
0101125	0100341	130111042	130111050	200
0101126	0100341	130111042	130111050	200
0101127	0100341	130111040	130111052	200
0101128	0100341	130111040	130111052	200
0101129	0100341	130111040	130111052	200
0101130	0100341	130111040	130111052	200
0101131	0100341	130111040	130111052	200
0101132	0100341	130111040	130111052	200
0101133	0100341	130111045	130111053	191
0101134	0100353	130111053	130111045	200
0101135	0100353	130111053	130111045	150
0101136	0100353	130111053	130111045	200
0101137	0100353	130111053	130111045	200
0101138	0100353	130111041	130111295	200
0101139	0100353	130111041	130111295	200
0101140	0100354	130111041	130111295	200
0101141	0100354	130111041	130111295	200
0101142	0100354	130111041	130111295	200
0101143	0100354	130111036	130111293	200
0101144	0100354	130111036	130111293	200
0101145	0100354	130111036	130111293	200
0101146	0100354	130111036	130111293	200
0101147	0100354	130111036	130111293	200
0101148	0100355	130111039	130111044	200
0101149	0100355	130111039	130111044	200
0101150	0100355	130111039	130111044	200
0101151	0100355	130111039	130111044	200
0101152	0100355	130111039	130111044	200
0101153	0100356	130111313	130111370	200
0101154	0100356	130111313	130111370	200
0101155	0100356	130111313	130111370	200
0101156	0100356	130111313	130111370	200
0101157	0100356	130111037	130111281	132
0101158	0100357	130111037	130111281	200
0101159	0100357	130111037	130111281	200
0101160	0100357	130111037	130111281	200
0101161	0100357	130111037	130111281	200
0101162	0100357	130111037	130111281	200
0101163	0100357	130111043	130111051	200
0101164	0100357	130111043	130111051	200
0101165	0100357	130111043	130111051	200
0101166	0100357	130111043	130111051	200
0101167	0100361	130111043	130111051	200
0101168	0100361	130111054	130111282	200
0101169	0100361	130111054	130111282	200



Office: (410) 522-7000 Fax: (410) 522-7015

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report ASTM F904*

Product

Tendrain 770-2

Lot:

a

Roll Size

6.7' x 200'

Project
Testing Lab

Pasco Landfill Tenax Corp.

	Geocomposite Roll # 1	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
· · · · · · · · · · · · · · · · · · ·	0101114	12/05/2001	(13.11.41./		, , , , , , , , , , , , , , , , , , ,
			1.33	1.12	
			1.25	1.17	
			1.41	1.30	
			1.58	1.23	
			1.10	1.50	
			1.33	1.26	Average
			0.18	0.15	Std. Deviation
			1.00	1.00	Specification (minimum)

e note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

*Ply adhesion is tested by the manufacturer every 100.000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.

Tested by

Date 12/16/2001

Checked by

Date 12/16/2001

Tim Banters, Ph.D.





GEOCOMPOSITE TEST RESULTS

Hydraulic Transmissivity (ASTM D 4716) Client: Tenax Corporation

Project: Pasco Landfill

TRI Log No.: E2160-80-07

Material: double sided geocomposite

Test Date: 12/06-11/01 Report Date: 12/11/01

Fluid Media: Water 15,000

Confining Pressure (asf):

Direction Tested: Machine Dir.

Sample ID: Lot #2

	Normal Load		Flow		•
Trial Number	Time (hours)	Hydraulic Gradient	Rate (ml/sec)	Flow Rate/Unit Width (gpm/ft width)	Transmissivity (m2/s)
1	1	0.10	78.2	1.24	2.6E-03
2	1	0.10	76.9	1.22	2.5 E- 03
	1	0.10	77.5	1.23	2.5E-03
Avg.			77.6	1.23	2.5E-03
Std. Dev.			0.65	0.01	2.1E-05

Transmissivity Box Configuration:

Steel Plate

(top to bottom)

Sand

Sample 60 mil HDPE geomembrane

Steel Plate

5 RA 12.11.01

Quality Review / Date

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without approval of TRI.

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TRI/ENVIRONMENTAL, INC.

A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Hydraulic Transmissivity (ASTM 0 4716)

Client: Tenax Corporation Project: Pasco Landfill

TRI Log No + 62160-80-07

Materia I double sided geocomposim

Test Date (2/05-11/0)

Flord Madia (Water)

Report Oate: 12/11/01

Confinero Praesture (asf). 15 000

Direction Tested Machine Da

Sample ID: Lot #2

	Normai Loas		How		
Trai	Time .	Hydraulic	Rate	Flow Rate/Unit Width	Transmissivity
Number	(Fours)	Gracent	(m)(53(5)	(gomit width)	(m2/5)
•	24	D 10	55 A	1 06	2 2 7 -03
2		0.10	88.2	1.58	2.28.93
3	24	9.10	5 5.9	' () Al-	2/28/03
Avo	eg a come gaga gaga a selle ME E Propaga galan menerahkan serenah ana asah asah	and the same and the state of the state of the same and the same and the state of the state of the same and t	67.0	108	2.26-03
Sid Dev		new and the second of the seco	1 1/3	And the state of t	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Transmissivity Box Configuration

(top to bottom)

Sheet Prate

Sand

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- Fiz 12 - (2 · (1 · C) Quality Review Date

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TRI/ENVIRONMENTAL, INC. A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Hydraulic Transmissivity (ASTM D 4716)

Client: Tenax Corporation Project: Pasco Landfill

TRI LOG No.: E2160-80-07

Material: double sided geocomposite

Test Date: 12/06-11/01 Report Date: 12/11/01

Fluid Media: Water

Contining Pressure (psf): 15,000

Direction Tested: Machine Dir

Sample ID: Lot #2

	Normal Load		Flow		
Trial Number	Time (hours)	Hydraulic Gradient	Rate (ml/sec)	Flow Rate/Unit Width (gpm/ft width)	Transmissivity (m2/s)
					2.2E-03
1	78	0.10	65 9	1 04	
2	78	0.10	€5.5	1.04	2.1E-03
3	78	0.10	64.3	1 02	2.1E-03
Avg.			65.2	1.03	2.1E-03
Std. Dev.			0.83	0.01	2 7E-05

Transmissivity Box Configuration:

Steel Plate

(top to bottom)

Sand

Sample

60 mil HDPE geomembrane

Steel Plate

Quality Review / Date

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TRI/ENVIRONMENTAL, INC. A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Hydraulic Transmissivity (ASTM D 4716)

Client: Tenax Corporation Project: Pasco Landfill

TRI Log No.: E2160-80-07

Material: double sided geocomposite

Test Date: 12/06-11/01 Report Date: 12/11/01 Fluid Media: Water Confining Pressure (psf): 15,000

Direction Tested: Machine Dir.

Sample ID: Lot #2

	Normal Load		Flow		
Trial	Time	Hydraulic	Rate	Flow Rate/Unit Width	Transmissivity
Number	(hours)	Gradient	(ml/sec)	(gpm/ft width)	(m2/s)
1	96	0.10	55.8	0.88	1.8E-03
2	96	0.10	56.9	0.90	1.9E-03
3	96	0.10	56.4	0.89	1.9E-03
Ava.			56.4	0.89	1.8E-03
Std. Dev.			0.55	0.01	1.8E-05

Transmissivity Box Configuration:

Steel Plate

(top to bottom)

Sand

Sample

60 mil HDPE geomembrane

Steel Plate

SRA 12.11.01

Quality Review / Date

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Hydraulic Transmissivity (ASTM D 4716)

Client: Tenax Corporation Project: Pasco Landfill

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Material: double sided geocomposite

Test Date: 12/06-11/01

Fluid Media: Water

Report Date: 12/11/01

Confining Pressure (psf): 15,000

Direction Tested: Machine Dir.

Sample ID: Lot #2

	Normal Load		Flow		- Litarii iki
Trial Number	Time (hours)	Hydraulic Gradient	Rate (ml/sec)	Flow Rate/Unit Width (gpm/ft width)	Transmissivity (m2/s)
1	100	0.10	54.9	0.87	1.8E-03 1.8E-03
2 3	100 100	0.10 0.10	55.5 55.6	0. 8 8 0.88	1.8E-03
			55.3	0.88	1.8E-03
Avg. Std Dev.			0.38	0.01	1.2E-05

Transmissivity Box Configuration:

Steel Plate

(top to bottom)

Sand

Sample

60 mil HDPE geomembrane

Steel Plate

SEA 12.11.01

Quality Review / Date

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COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL CONTROL FORM

Project:	WEST	Γ PASCO COUNTY LAN	DFILL EXPANS	SION - CELLS A-3	AN	D SW-2			
Owner:	Pasco (County B.O.C.C.	Project No.	01-063		Project Manager:	John Power		
Engineer:	Camp I	Dresser & McKee	Project No.	6104-28936		Project Manager:	Daniel Strobridge, Q.E.I		
Contractor:	Handex	of Florida, Inc.	Project No.	123477		Project Manager:	Gary L. Conaway, P.E.		
Subcontractor:	СОМА	NCO Environmental Corp.	Project No.	010-848		Project Manager:	Pablo J. Rivera		
	····		- 						
COMPLETED B	BY CONTI	RACTOR:							
Certification State	ement:	By this submittal, I hereb materials, dimensions, ca applicable approved shop Signature:	atalog numbers and	l similar data and I hav	ed al	Il field measuremen hecked and coordi Date:	ts, field construction criter nated each item with oth		
		, and the second			_	Date.			
Submittal Identifie	er:	D-02274-009-A	Original Su	ıbmittal		Supplement			
Submitted:		February 13, 2002			_				
No. of Copies:		8	Resubmitta	1	Ĺ	Information	Only		
Submittal Descript	tion:	Geocomposite QA/QC Ro	Il Certificates:	Lot 3					
Specification Ident		01300, 02274 Section 1.03			_				
Manufacturer:		Tenax Corporation	(A.) and Section 2	2.03 (A)		· · · · · · · · · · · · · · · · · · ·			
Installer:		COMANCO Environment	-1.0						
No. of Copies Rece	eived:			No. of Cop	ies I	Returned:			
Status:		Code 1 - Approved				Code 4 - Approve	d As Noted, Resubmit		
		Code 2 - Approved As N	loted		1	0.1.5.21			
		Code 2 - Approved As I				Code 5 - Not Appi	oved		
		Code 3 - Approved As N	loted, Confirm		I	Code 6 - Commen	ts Attached		
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QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation
Date: December 20, 2001
Lot # 3

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637

(813) 988-8829

Table of Contents

Certification Letter and Product Sp	pecification	
MQC of Geonet	•••••••••••••••••••••••••••••••••••••••	2
MQC of Geotextile	······································	3
MOC of Geocomposite		4



Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE:

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 3

December 20, 2001

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101189, 0101190, 0101191, 0101192, 0101193, 0101194, 0101195, 0101196, 0101197, 0101198, 0101199, 0101200, 0101201, 0101202, 0101203, 0101204, 0101205, 0101206, 0101207, 0101208, 0101209, 0101210, 0101211, 0101212, 0101213, 0101214, 0101215, 0101216, 0101217, 0101218, 0101219, 0101220, 0101221, 0101222, 0101223, 0101224, 0101225, 0101226, 0101227, 0101228, 0101229, 0101230, 0101231, 0101232, 0101233, 0101234, 0101235, 0101236, 0101237, 0101238, 0101239, 0101240, 0101241, 0101242, 0101243, 0101244, 0101245, 0101246, 0101247, 0101248, 0101249, 0101250, 0101251, 0101252, 0101253, 0101254, 0101255, 0101256, 0101257, 0101258, 0101259, 0101260, 0101261, 0101262, of Tendrain 7 70-2, consisting of lot # 3 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 3, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D.

Ouality Control Manager



TENDRAIN 770-2

UBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil anvironment under high normal loads and will have properties conforming with the values and test methods listed below: PROPERTIES TEST METHOD UNIT VALUE QUALIFIER GEONET CORE	The drainage geocomposite is comprised of a tri-				
## PROPERTIES PROPERTIES TEST METHOD UNIT VALUE QUALIFIER	and bottom ribs and with a thermally bonded, nor	n-woven geotextile	on both sides. The pro	oduct is capable of providing	ng high Transmissivity
GEONET CORE ASTM D4595 Ib/ft (kN/m) 1000 (14.6) c, Note 1, 4 Tensile Strength - MD ASTM D4595 Ib/ft (kN/m) 1000 (14.6) c, Note 1, 4 Compressive Behavior (% Retained thickness) @50,000 psf (short term) ASTM D1621 % 50 a, Note 2, 4 @25,000 psf (10,000 hours) ASTM D1505 g/cm³ 0.94 c, Note 4 Melt Flow Index ASTM D1238 g/10 min. 1.0 d, note 4 Carbon Black Content ASTM D4218 % 2.0 c, Note 3, 4 Thickness ASTM D4751 US Sieve (mm) 70 (0.21) b, Note 4 ASTM D4751 US Sieve (mm) 70 (0.21) b, Note 4 Weight ASTM D3776 c2/yd² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 sec² 1.3 b, Note 4 Permittivity ASTM D4333 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4833 lbs (N)	in a soil environment under high normal loads an	d will have propertion	es conforming with the	e values and test methods	listed below:
Tensile Strength - MD	PROPERTIES	TEST METHOD	UNIT	<u>VALUE</u>	QUALIFIER
Tensile Strength - MD	050457 0055				
Compressive Behavior (% Retained thickness)		AOTH DAGOS	15 /61 /(A1/ \	1000 (110)	. 11.1. 4
## STM D1621		ASTM D4595	ib/π (KN/m)	1000 (14.6)	c, Note 1, 4
©25,000 psf (10,000 hours) % 65 a, Note 4 Density ASTM D1505 g/cm³ 0.94 c, Note 4 Melt Flow Index ASTM D1238 g/10 min. 1.0 d, note 4 Carbon Black Content ASTM D4218 % 2.0 c, Note 4 Thickness ASTM D5199 mills (mm) 300 (7.6) c, Note 3, 4 GEOTEXTILE Apparent Opening Size (AOS) ASTM D4751 US Sieve (mm) 70 (0.21) b, Note 4 Weight ASTM D3776 cz/q² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 sec¹ 1.3 b, Note 4 Permittivity ASTM D4491 sec¹ 1.3 b, Note 4 Permittivity ASTM D4533 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4632 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 psi (kPa) 325 (2241)	·	ACTM DAGOA	0/	50	- Note 0 4
Density		ASTNI DIOZI			
Melt Flow Index ASTM D1238 g/10 min. 1.0 d, note 4 Carbon Black Content ASTM D4218 % 2.0 c, Note 4 Thickness ASTM D4751 William 300 (7.6) c, Note 3, 4 GEOTEXTILE Apparent Opening Size (AOS) ASTM D4751 US Sieve (mm) 70 (0.21) b, Note 4 Weight ASTM D3776 oz/yd² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 gal/min/fi² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 sec⁻¹ 1.3 b, Note 4 Permetitivity ASTM D4833 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Trapezoid Tear ASTM D4632 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 bs (N) 160 (712) b, Note 4 Cr-b Elongation ASTM D4786 psi (kPa) 325 (2241) b, Note 4 Uv Resistance @500 Hours ASTM D47		4 OTM D4505			•
Carbon Black Content Thickness	•				•
### D5199 mils (mm) 300 (7.6) c, Note 3, 4 ### D5199 mils (mm) 300 (7.6) c, Note 3, 4 ### D5199 mils (mm) 300 (7.6) c, Note 3, 4 ### D5199 mils (mm) 70 (0.21) b, Note 4 ### D5176 oz/yd² (g/m²) 6 (203) b, Note 4 ### Water Flow Rate ASTM D3776 oz/yd² (g/m²) 6 (203) b, Note 4 ### Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 ### Permeability ASTM D4491 cm/sec 0.2 b, Note 4 ### Permeability ASTM D4491 sec¹ 1.3 b, Note 4 ### Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 ### Puncture Strength ASTM D4833 lbs (N) 65 (290) b, Note 4 ### Pransile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 ### Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 ### Purst ASTM D3786 psi (kPa) 325 (2241) b, Note 4 ### Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 ### Burst ASTM D4355 % 70 b, Note 4 ### GEOCOMPOSITE ### Roll Width ft (m) 6.7 (2.0) a, Note 5 ### Roll Width ASTM D4716-99 (m²/sec) (modified) ### M7PRAULIC BEHAVIOR OF GEOCOMPOSITE ### Transmissivity - MD, ASTM D 4716-99 (m²/sec) Gradient/Load: ### D5199 mils (mm) 70 (0.21) b, Note 4 ### D5190 mild (modified) ### D5190 mild (modifi			•		•
GEOTEXTILE Apparent Opening Size (AOS) ASTM D4751 US Sieve (mm) 70 (0.21) b, Note 4 Weight ASTM D3776 oz/yd² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 cm/sec 0.2 b, Note 4 Permittivity ASTM D4491 sec⁻¹ 1.3 b, Note 4 Permettitivity ASTM D4833 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4533 lbs (N) 65 (290) b, Note 4 Trapezoid Tear ASTM D4533 lbs (N) 160 (712) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Elongation ASTM D4632 % 50 b, Note 4 HV Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM D 4716-99 (m²/sec) C, Note 7 <td></td> <td></td> <td></td> <td></td> <td>•</td>					•
Apparent Opening Size (AOS) ASTM D4751 Weight ASTM D3776 Oz/yd² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 Permeability ASTM D4491 Permittivity ASTM D4491 Permittivity ASTM D4833 Bos (N) Functure Strength Trapezoid Tear ASTM D4533 Bos (N) Grab Elongation ASTM D4632 ASTM D464 UV Resistance @500 Hours ASTM D4764 ASTM D4764 ASTM D4765 ASTM D4765 ASTM F904 (modified) HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) Gradient/Load: ASTM D4716-99 (m²/sec) Gradient/Load: ASTM D476-99 (m²/sec) ASTM D4716-99 (m²/sec)	THICKH U SS :	ASTINI DS188	mus (mm)	300 (7.6)	c, Note 3, 4
Weight ASTM D3776 oz/yd² (g/m²) 6 (203) b, Note 4 Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 cm/sec 0.2 b, Note 4 Permittivity ASTM D4491 sec⁻¹ 1.3 b, Note 4 Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4533 lbs (N) 65 (290) b, Note 4 Trapezoid Tear ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Tensile Strength ASTM D4632 % 50 b, Note 4 Grab Tensile Strength ASTM D4632 % 50 b, Note 4 Grab Tensile Strength ASTM D4632 % 50 b, Note 4 Grab Tensile Strength ASTM D4786 psi (kPa) 325 (2241) b, Note 4 Uv Resistance @500 Hours ft (m) 6.7 (2.0) a, Note 5	GEOTEXTILE				
Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 cm/sec 0.2 b, Note 4 Permittivity ASTM D4491 sec⁻¹ 1.3 b, Note 4 Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4533 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Elongation ASTM D4632 % 50 b, Note 4 Uv Resistance @500 Hours ASTM D3786 psi (kPa) 325 (2241) b, Note 4 Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) b/in (N/m) 1.0 (175) c, Note 6	Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Water Flow Rate ASTM D4491 gal/min/ft² (lpm/m²) 110 (4483) b, Note 4 Permeability ASTM D4491 cm/sec 0.2 b, Note 4 Permittivity ASTM D4491 sec⁻¹ 1.3 b, Note 4 Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Puncture Strength ASTM D4533 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Elongation ASTM D4632 % 50 b, Note 4 Uv Resistance @500 Hours ASTM D3786 psi (kPa) 325 (2241) b, Note 4 Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) b/in (N/m) 1.0 (175) c, Note 6	Weight	ASTM D3776	oz/yd² (g/m²)	6 (203)	
Permeability ASTM D4491 cm/sec 0.2 b, Note 4 Permittivity ASTM D4491 sec-1 1.3 b, Note 4 Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Trapezoid Tear ASTM D4533 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Grab Elongation ASTM D4632 % 50 b, Note 4 Puncture Strength ASTM D4632 % 50 b, Note 4 Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) b/in (N/m) 1.0 (175) c, Note 6 HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) C, Notes 7	Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	, ,	
Permittivity	Permeability	ASTM D4491	• ,, ,	` '	•
Puncture Strength ASTM D4833 lbs (N) 90 (400) b, Note 4 Trapezoid Tear ASTM D4533 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Carab Elongation ASTM D4632 % 50 b, Note 4 Burst ASTM D3786 psi (kPa) 325 (2241) b, Note 4 Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) b/in (N/m) 1.0 (175) c, Note 6 HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)		ASTM D4491	sec ⁻¹	1.3	b. Note 4
Trapezoid Tear ASTM D4533 lbs (N) 65 (290) b, Note 4 Grab Tensile Strength ASTM D4632 lbs (N) 160 (712) b, Note 4 Charles Elongation ASTM D4632 % 50 b, Note 4 Burst ASTM D3786 psi (kPa) 325 (2241) b, Note 4 UV Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) lb/in (N/m) 1.0 (175) c, Note 6 HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) C, Notes 7 15,000 psf (720 kPa)	Puncture Strength	ASTM D4833	lbs (N)	90 (400)	•
## Burst	Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
## Burst	Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
Uv Resistance @500 Hours ASTM D4355 % 70 b, Note 4 GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) Ib/in (N/m) 1.0 (175) c, Note 6 HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)	Grab Elongation	ASTM D4632	%	50	b, Note 4
GEOCOMPOSITE Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (modified) lb/in (N/m) 1.0 (175) c, Note 6 HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)	en Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (b/in (N/m) 1.0 (175) c, Note 6 (modified) HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) Gradient/Load: 15,000 psf (720 kPa)	Uv Resistance @500 Hours	ASTM D4355	%	70	b, Note 4
Roll Width ft (m) 6.7 (2.0) a, Note 5 Roll Length ft (m) 200 (61) a, Note 5 Ply Adhesion ASTM F904 (b/in (N/m) 1.0 (175) c, Note 6 (modified) HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) Gradient/Load: 15,000 psf (720 kPa)	GEOCOMPOSITE				
Roll Length			ft (m)	6.7 (2.0)	a Note 5
Ply Adhesion ASTM F904 Ib/in (N/m) 1.0 (175) c, Note 6 (modified) HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)			• •	• •	•
(modified) HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)		ASTM F904	, ,	* *	•
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE Transmissivity - MD, ASTM D 4716-99 (m²/sec) c, Notes 7 Gradient/Load: 15,000 psf (720 kPa)	, , , , , , , , , , , , , , , , , , , ,			(110)	0, 11010 0
<u>Gradient/Load:</u> 15,000 psf (720 kPa)	HYDRAULIC BEHAVIOR OF GEOCOMPOSITE	(/			
<u>Gradient/Load:</u> 15,000 psf (720 kPa)	Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				c. Notes 7
0.1 1.8x10 ⁻³	- · · · · · · · · · · · · · · · · · · ·			15,000 psf (720 kPa)	٠, ٠٠٠ ،
	0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

c = Minimum Value d = Maximum Value

NOTES:

- 1. Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- 2. Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- 3. Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- 4. Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- 5. Roll dimensions are measured at the time of manufacture.
- 6. Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- 7. Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.



Office: (410) 522-7000 Orc Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot #

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
0100363	12/08/2001	335	0.955	2.44	0.420	1650
0100367	12/09/2001	315	0.954	2.40	0.500	1580
0100369	12/10/2001	334	0.951	2.59	0.700	1680
0100372	12/10/2001	324	0.953	3.47	0.400	1800
0100375	12/11/2001	329	0.951	2.70	11 2	1632
0100377	12/12/2001	342	0.951	2.88	"	1704
0100380	12/13/2001	338	0.951	2.75	0.450	1688
0100383	12/13/2001	330	0.952	2.44	0400 9	\sim Ω 1502
0100386	12/13/2001	329	0.952	2.50	W C	1488
						1

Page 1 of 2 Wednesday, December 19, 2001

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
verage .			331	0.952	2.69	0.319	1635
Standard Dev.			8	0.001	0.34		100
Specifications			300	0.940	2.00	< 1	1000

Compression			
Load (psf)	Roll #	Thickness Retained (%)	Specification (%)
50000			50
	0100363	58.00	50
	0100367	56.60	50
	0100369	57.00	50
	0100372	58.00	50
	0100375	51.00	50
	0100377	54.00	50
	0100377	57.00	50
	0100380	55.00	50
	0100383	55.00	50
	0100386	54.00	50
Av	erage (Specs)	55.56	50

Tested by

Antonello Capalozza

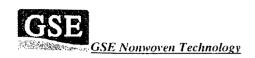
Date

12/19/2001

Checked by

A_M V David Mitchell Date

12/19/2001



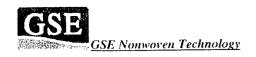
Product: NW6		Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet			Test Date: 9/14/20			
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability	
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130106113	6.7	96	189	224	111	115	84	125	131	336	0.180	1.5		
130106114	6.7	96	189	224	111	115	84	125	131	336	0.180	1.5		
130106115	6.7	96	189	224	111	115	84	125	131	336	0.180	1.5		



Product: NW6		Ite	em Code:	FBR060810	00	Rell Wid	lth: 15.0	feet				Test D	ate: 9/14/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	o nga tion	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106119	6.7	96	189	224	111	115	84	125	131	336	0.180	1.5	



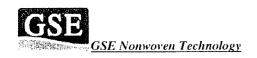
Product: NW	/6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test De	ale: 9/14/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106125	6.6	87	189	221	109	119	99	118	122	335	0.180	1.5	



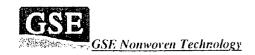
Product: NW	6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 9/14/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	r St rength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106129	6.6	87	189	221	109	119	99	118	122	335	0.180	1.5	



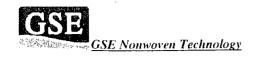
Product : NV	V6	Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test De	ale: 9/14/20
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106131	6.6	87	189	221	109	119	99	118	122	335	0.180	1.5	



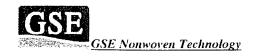
Product: NV	V6	Ite	m Code:	FBR060810	0	Roll Wid	<i>lth:</i> 15.0	feet				Test D	ate: 9/14/20
Roll No.	Mass per Unit Area	Thickness	Grab S	itrength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106134	6.5	92	204	225	112	123	94	121	121	335	0.180	1.5	



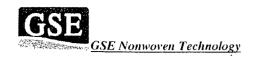
Product: NW6		Ite	em Code:	FBR060810)	Roll Wid	th: 15.0	feet				Test D	ale: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106146	6.5	92	204	225	112	123	94	121	121	335	0.180	1.5	



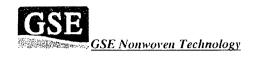
Product: NV	/ 6	Ite	em Code:	FBR060810	0	koll Wid	<i>lth:</i> 15.0	feet				Test De	ate: 9/19/20
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106148	6.5	92	204	225	112	123	94	121	121	335	0.180	1.5	



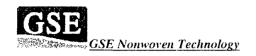
Product: NW	6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106155	6.5	112	176	204	115	118	120	188	120	352	0.180	1.5	



Product : NW6	3	Ita	em Code:	FBR060810	00	Rell Wid	lth: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106159	6.7	82	215	234	90	102	144	148	128	352	0.212	2.1	



Product: NV	V6	- Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106161	6.7	82	215	234	90	102	144	148	128	352	0.212	2.1	



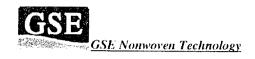
Item Code: FBR0608100 Product: NW6 Roll Width: 15.0 feet Test Date: 9/15/20 Roll No. Mass per Mullen Burst Apparent Opening Size Puncture Grab Strength Thickness Permittivity Permeability Grab Elongation Trap Tear Strength Unit Area Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 ASTM D 3786 ASTM D 4751 ASTM D 4491 (oz/yd2)MD (lbs) CD (lbs) (mils) MD (%) CD (%) (sec-1) (cm/sec) MD (lbs) CD (lbs) (lbs) (psi) (mm) 130106169 6.7 88 192 223 100 116 127 160 120 348 0.212 2.1 130106170 6.7 88 192 223 100 116 127 120 348 0.212 2.1 160 130106171 6.7 88 192 223 100 116 127 160 120 348 0.212 2.1 130106172 6.7 88 192 223 100 116 127 160 120 348 0.212 2.1 130106173 6.7 88 192 223 100 116 127 160 120 348 0.212 2.1



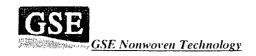
Product: NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	itrength	Grab El	longation	Trap Teal	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
w. 402-202-201	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106175	6.7	88	192	223	100	116	127	160	120	348	0.212	2.1	
130106176	6.7	88	192	223	100	116	127	160	120	348	0.212	2.1	



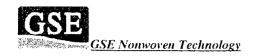
Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 9/15/20 Roll No. Apparent Opening Size Mass per Puncture Mullen Burst Thickness Grab Strength Permittivity Permeability Grab Elongation Trap Tear Strength Unit Area Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4491 ASTM D 4533 ASTM D 4833 ASTM D 3786 ASTM D 4751 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) (lbs) (psi) (sec-1) (cm/sec) MD (lbs) CD (lbs) (mm) 130106181 6.3 91 186 205 97 113 2.1 124 183 121 330 0.212 130106182 6.3 91 186 205 .7 113 183 121 330 0.212 2.1 124 130106183 6.3 186 205 97 113 330 0.212 2.1 124 183 121 130106184 6.3 91 186 205 97 113 121 330 0.212 2.1 124 183 130106185 6.3 91 186 205 97 2.1 113 124 183 121 330 0.212



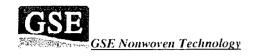
Product : NV	V6	Ite	em Code:	FBR060810	0	Roll Wid	lth: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM.	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	I D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106194	6.8	90	220	209	99	112	79	108	122	338	0.212	2.1	



Product: NV	V6	Ite	em Code:	FBR060810	0	Roll Wid	lth: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106225	6.4	84	209	201	97	109	82	105	120	332	0.212	1.6	
130106226	6.4	84	209	201	97	109	82	105	120	332	0.212	1.6	



Product : NW6		Ite	em Code:	FBR060810		Roll Wid	<i>th</i> : 15.0	feet				Test D	ale: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	longation	Trap Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106233	6.7	87	218	234	95	110	91	108	120	354	0.212	1.6	
130106234	6.7	87	218	234	95	110	91	108	120	354	0.212	1.6	



Product: NW6		Ite	em Code:	FBR060810	0 .	Roll Wid	<i>lth:</i> 15.0	feet				Test De	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106237	6.7	87	218	234	95	110	91	108	120	354	0.212	1.6	



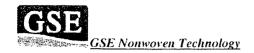
Product: NW	6	Ita	em Code:	FBR060810	00	Roll Wid	lth: 15.0	feet				Test D	ate: 9/15/20
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeahility
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106242	6.8	87	209	232	102	114	86	110	120	357	0.212	1.6	



Product : 1	NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 9/15/20
Roll No.		Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	1	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
		(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106262		6.5	93	193	204	102	115	142	187	115	350	0.212	1.6	



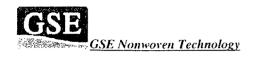
Product: NW6		Ite	em Code:	FBR060810	0 -	Roll Wid	lth: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111223	6.3	87	201	186	93	125	151	162	121	338	0.212	2.1	0.5



Product : NW	6	Ite	em Code:	FBR060810	0	Roll Wid	<i>th</i> : 15.0	feet				Test D	ate: 9/23/20
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130106839	6.7	86	207	221	103	108	98	115	112	332	0.212	1.9	



Product: NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	I D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111202	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5
130111203	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5
130111204	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5
130111205	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5
130111206	6.5	87	204	208	107	121	114	150	121	349	0.212	2.0	0.5



Product: NW6 Item Code: FBR0608100 Foll Width: 15.0 feet Test Date: 11/26/2

1704467. 14440	,	211	im Cout.		N.	NOR THE	<i>un.</i> 15.0	reet				163617	ure: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	itrength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111209	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111210	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111211	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111212	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111213	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111214	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111215	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111216	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111217	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111218	6.6	96	216	246	90	118	87	124	117	352	0.212	2.0	0.5
130111219	6.3	87	201	186	93	125	151	162	121	338	0.212	2.1	0.5
130111220	6.3	87	201	186	93	125	151	162	121	338	0.212	2.1	0.5
130111221	6.3	87	201	186	93	125	151	162	121	338	0.212	2.1	0.5
130111222	6.3	87	201	186	93	125	151	162	121	338	.0.212	2.1	0.5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

Tendrain 770-2 Pasco Landfill JOB:

LOT#: DATE:

3 12/14/01

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101189	0100364	130111216	130106194	200
0101190	0100364	130111216	130106194	200
0101191	0100364	130111215	130106194	200
0101192	. 0100364	130111215	130106194	200
0101193	0100364	130111215	130106194	200
0101194	0100364	130111215	130111217	200
0101195	0100364	130111215	130111217	200
0101196	0100364	130111219	130111217	200
0101197	0100364	130111219	130111217	182
0101198	0100365	130111219	130111217	200
0101199	0100365	130111219	130111217	200
01012`0	0100365	130111219	130111204	200
0101201	0100365	130106125	130111204	200
0101202	0100365	130106125	130111204	200
0101203	0100365	130106125	130111204	200
0101204	0100365	130106125	130111212	200
0101205	0100366	130106125	130111212	200
0101206	0100366	130106125	130111212	200
0101207	0100366	130111221	130111212	200
0101208	0100366	130111221	130111212	200
0101209	0100366	130111221	130111213	200
0101210	0100366	130111221	130111213	200
0101211	0100366	130111221	130111213	200
0101212	0100366	130106175	130111213	200
0101213	0100366	130106175	130111213	185
0101214	0100367	130106175	130111209	200
0101215	0100367	130106175	130111209	200
0101216	0100367	130106175	130111209	200
0101217	0100367	130111214	130111209	200
0101218	0100367	130111214	130111209	200
0101219	0100367	130111214	130111222	200
0101220	0100367	130111214	130111222	200
0101221	0100367	130111214	130111222	200
0101222	0100368	130111205	130111222	200
0101223	0100368	130111205	130111222	200
0101224	0100368	130111205	130111203	200
0101225	0100368	130111205	130111203	200
0101226	0100368	130111205	130111203	200
0101227	0100368	130111220	130111203	200
0101228	0100368	130111220	130111203	200
0101229	0100368	130111220	130111206	200
0101230	0100368	130111220	130111206	200
0101231	0100369	130111220	130111206	200
0101232	0100369	130111202	130111206	200
0101233	0100369	130111202	130111206	200
0101234	0100369	130111202	130111211	200

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

JOB:

Tendrain 770-2 Pasco Landfill

LOT #: DATE: 3 12/14/01

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101235	0100369	130111202	130111211	200
0101236	0100369	130111202	130111211	200
0101237	0100369	130111210	130111211	200
0101238	0100369	130111210	130111211	200
0101239	0100369	130111210	130106262	194
0101240	0100369	130111210	130106262	200
′0101241	0100371	130111210	130106262	200
0101242	0100371	130106171	130106262	200
0101243	0100371	· 130106171	130106262	200
0101244	0100371	130106171	130106134	200
0101245	0100371	130106171	130106134	200
0101Ç <u>1</u> 6	0100372	130106171	130106134	200
0101247	0100372	130111126	130106134	200
0101248	0100372	130111126	130106134	200
0101249	0100372	130111126	130111163	200
0101250	0100372	130111126	130111163	200
0101251	0100372	130111126	130111163	200
0101252	0100372	130111086	130111163	200
0101253	0100372	130111086	130111163	200
0101254	0100372	130111086	130111182	200
0101255	0100384	130111120	130111100	200
0101256	0100384	130111120	130111100	200
0101257	0100384	130111120	130111100	200
0101258	0100384	130111120	130111100	200
0101259	0100384	130111120	130111100	200
0101260	0100384	130111141	130111103	200
0101261	0100384	130111141	130111103	200
0101262	0100384	130111141	130111103	200

Office: (410) 522-7000 (410) 522-7015 Waste Mgt: (800) US-GRIDS Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report ASTM F904*

Product

Tendrain 770-2

Lot:

Roll Size

6.7' x 200'

Project **Testing Lab** Pasco Landfill Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101189	12/16/2001			
		1.11	1.02	
		1.37	1.15	
		1.25	1.08	
		1.51	1.22	
		1.60	1.31	
		1.37	1.16	Average
		0.20	0.11	Std. Deviation
		1.00	1.00	Specification (minimum)

^{*}Please note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

Tested by

Tim Bauters, Ph.D.

Date 12/19/2001

Checked by

Date 12/19/2001

^{*}Ply adhesion is tested by the manufacturer every 100,000 sq.ft, of production per modified AS' M F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.

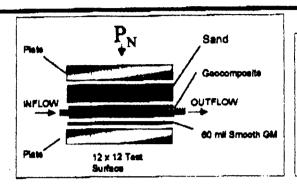
TRANSMISSIVITY TEST RESULTS ASTM D-4716

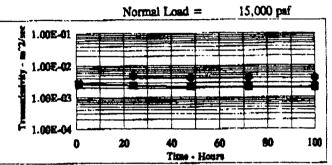
JLT

Client: Project: Tenax Corporation
Pasco Landfill

Material: Sample ID: Tendrain 770-2 Lot 3 Job Number: Date: 01G2769-02 12/14/01 MLB

Tested By: Checked By: MLB





replicate No.	GRADIENT	VOLUME	TIME	I/LOW RATE cc/sec	TRANSMISSIVITY m2/mc	TRANSMISSIVITY gal/min/ft
1 Hour		Test Wa	ter Temp. =	17.3	Temp. Cor. Fact =	1.071
i	0.10	2416.00	30.28	79.79	2.80E-03	1.35
2	0.10	2466.00	30.82	80.01	2.81E-03	1.36
3	0.10	2454.00	30.72	79.88	2.81E-03	1.36
Average			• • • •		2.81E-03	1.36
24 Hours		Test Wa	ter Temp	16.9	Temp. Cor. Fact =	1.082
1	0.10	2147.00	30.69	69.96	2.48E-03	1.20
2	0.10	2169.00	30.88	70.24	2.49E-03	1.20
3	0.10	2119.00	30.20	70.17	2.49E-03	1.20
Average					2.49E-03	1.20
24 Hours		Test Wa	ter Temp. =	17.3	Temp. Cor. Pact =	1.071
1	0.02	1129.00	40.25	28.05	4.93E-03	0.48
2	0.02	1119.00	40.18	27.85	4.89E-03	0.47
3	0.02	1122.00	40.23	27.89	4.90E-03	0.47
Average				*	4.91E-03	9.47
48 Hours		Test Wa	ter Temp. =	15.2	Temp. Cor. Fact =	1.131
1	0.10	1796.00	30.71	58.48	2.17E-03	1.05
2	0.10	1805.00	30.94	58.34	2.16E-03	1.05
3	0.10	1797.00	30.70	58.53	2.17E-03	1.05
Average				<u></u>	2.17E-03	1.05
48 Hours	****	Test Wa	ter Temp. =	15.2	Temp. Cor. Fact =	1.131
1	0.02	899.00	40.20	22.36	4.15E-03	0.40
2	0.02	915.00	40.35	22.68	4.21E-03	0.41
3	0.02	922.00	41.01	22.48	4.17E-03	0.40
Average			·· ·- ·	·	4.18E-03	0,40

TRANSMISSIVITY TEST RESULTS ASTM D-4716

JLT

Client:

Tenax Corporation

Project:

Pasco Landfill

Material: Sample ID: Tendrain 770-2 Lot 3 Job Number:

01G2769-02

Date:

12/16/01

Tested By:

MLB

Checked By:

18

Normal Load =

15,000 psf

REPLICATE No.	GRADIENT	VOLUME ec	TIME	FLOW RATE	TRANSMISSIVITY m2/sec	TRANSMISSIVITY
72 Hour		Test Wa	ter Temp. =	15.8	Temp. Cor. Fact =	1.113
1	0.10	2317.00	39.44	58.75	2.15E-03	1.04
2	0.10	2334.00	39.71	58.78	2.15E-03	1.04
3	0.10	2352.00	39.88	58.98	2.15E-03	1.04
Average					2.15E-03	1.04
72 Hours		Test Wa	ter Temp. =	15.8	Temp. Cor. Fact =	1.113
1	0.02	919.00	40.22	22.85	4.17E-03	0.40
2	0.02	941.00	41.24	22.82	4.17B-03	0.40
3	0.02	949.00	41.54	22.85	4.17E-03	0.40
Average					4.17E-03	0.40
100 Hours		Test Wa	ter Temp. =	14.1	Temp. Cor. Fact =	1.164
1	0.10	2275.00	40.56	56.09	2.14E-03	1.03
2	0.10	2203.00	39.40	55.91	2.14E-03	1.03
3	0.10	2259.00	40.40	55.92	2.14E-03	1,03
Average		·			2.14E-03	1.03
100 Hours		Test Wa	ter Temp. =	14.1	Temp. Cor. Fact -	1.164
1	0.02	918.00	42.17	21.77	4.16E-03	0.40
	0.02	906.00	41.62	21.77	4.16E-03	0.40
3	0.02	901.00	41.37	21.78	4.16E-03	0.40
Average			<u> </u>		4.16E-03	0.40

J&L Testing Company, Inc.

19760616711

938 S. Central Ave., Canonsburg, Pa. Tel: 724-746-4441 : Fax: 724-745-4261

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COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL	CONTROL	FORM
CODMITTAL	CONTINUE	TURIN

Project:	WEST	PASCO COUNTY LA	NDFII	LL EXPANS	ION - CELLS A	-3 A	ND S	W-2	
Owner:	Pasco C	County B.O.C.C.		Project No.	01-063		Project Manager:		John Power
Engineer:	Camp I	Dresser & McKee	_	Project No.	6104-28936		_	ect Manager:	Daniel Strobridge, Q.E.P.
Contractor:	Handex	of Florida, Inc.	_	Project No.	123477			ect Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMA	NCO Environmental Corp.	<u>-</u>	Project No.	010-848	_	Project Manager:		Pablo J. Rivera
COMPLETED E	BY CONTE	ACTOR:						· · · · · · · · · · · · · · · · · · ·	
Certification State	ement:	materials, dimensions, c applicable approved shop	catalog	numbers and	similar data and I	rified have	l all fie check	ced and coord:	ots, field construction criteria inated each item with othe
		Signature:			y	_		Date:	02-13-02
Submittal Identifie	er:	D-02274-010-A	X	Original Sul	omittal	\neg	Г	Supplement	†
Submitted:		February 13, 2002						Саррістоп	
No. of Copies:		8		Resubmittal				Information	Only
6.15.14.15.	.•					_			
Submittal Description Identification		Geocomposite QA/QC Ro			Lot 4				
	шиег:	01300, 02274 Section 1.0	3 (A.9)	and Section 2	.03 (A)				
Manufacturer:		Tenax Corporation							
Installer:		COMANCO Environment	tal Cor	poration					
No. of Copies Reco	eived:	Code 1 - Approved			No. of (Copie	т		d As Noted, Resubmit
					-		·		
		Code 2 - Approved As N	Voted				Со	de 5 - Not Appi	roved
		Code 3 - Approved As N	Noted,	Confirm	,		Co	de 6 - Commen	ts Attached
					J <u>L </u>			de o Commen	13 Attached
Engineer Stamp	or Remarks	Area: SHC	OP D	RAWING I	3f Marian	-			
	1	ENGANGER'S RE	VEW						
		A	Carovad Ammente Itached		PONSE REQUIRE CONTRACTOR Confirm (1)		\dashv		
		The Enginoer's rovious of dimensions, equipment an specifications and for do Contractor from errors or cor's responsibility of adequits. The Contractor is rishination and manufacture procedures of construction an CAMP DRESSER & MoKES INC.	Omiesi	lons in these	review does not re	lieva	the		

QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: January 2, 2002 Lot # 4

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637 (813) 988-8829

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MQC of Geocomposite	·····.4



Office: 410-522-7000 Order Line: (800) 356-8495 Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE: Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 4

January 2, 2002

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101263, 0101264, 0101265, 0101266, 0101267, 0101268, 0101269, 0101270, 0101271, 0101272, 0101273, 0101274, 0101275, 0101276, 0101277, 0101278, 0101279, 0101280, 0101281, 0101282, 0101283, 0101284, 0101285, 0101286, 0101287, 0101288, 0101289, 0101290, 0101291, 0101292, 0101293, 0101294, 0101295, 0101296, 0101297, 0101298, 0101299, 0101300, 0101301, 0101302, 0101303, 0101304, 0101305, 0101306, 0101307, 0101308, 0101309, 0101310, 0101311, 0101312, 0101313, 0101314, 0101315, 0101316, 0101317, 0101318, 0101319, 0101320, 0101321, 0101322, 0101323, 0101324, 0101325, 0101326, 0101327, 0101328, 0101329, 0101330, 0101331, 0101332, 0101333, 0101334, 0101335, 0101336, 0101337, of Tendrain 7 70-2, consisting of lot # 4 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 4, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D. Quality Control Manager



TENDRAIN 770-2 JBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

The drainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

PROPERTIES	TEST METHOD	<u>UNIT</u>	<u>VALUE</u>	QUALIFIER
GEONET CORE				
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
Compressive Behavior (% Retained thickness)		(" , " , " , " , " , " , " , " , " , "	(, , , ,	,
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)		%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c, Note 4
Melt Flow Index	ASTM D1238	g/10 min.	1.0	d, note 4
Carbon Black Content	ASTM D4218	%	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	oz/yd² (g/m²)	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
	ASTM D4632	%	50	b, Note 4
↑ n Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
UV Resistance @500 Hours	ASTM D4355	%	70	b, Note 4
GEOCOMPOSITE				
Roll Width		ft (m)	6.7 (2.0)	a, Note 5
Roll Length		ft (m)	200 (61)	a. Note 5
Ply Adhesion	ASTM F904	lb/in (N/m)	1.0 (175)	c, Note 6
10/22 1/4/2 25/4/4/2 25 25 25 25 25 25 25 25 25 25 25 25 25	(modified)			
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE				
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				c, Notes 7
<u>Gradient/Load:</u>			15,000 psf (720 kPa)	
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

= Typical Value b = Mir

c = Minimum Value d = Maximum Value

NOTES:

- 1. Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- 2. Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- 3. Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- 4. Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- Roll dimensions are measured at the time of manufacture.
- 6. Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling ate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- 7. Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.



Office: (410) 522-7000 Orc Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot #

4

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
0100386	12/13/2001	329	0.952	2.50	0.510	1488
0100389	12/14/2001	318	0.952	2.61	0.550	1512
0100393	12/15/2001	325	0.953	2.36	0.490	1592
0100398	12/20/2001	325	0.950	2.49	0.055	1968
0100402	12/20/2001	335	0.950	2.50	0.500	1597
0100406	12/20/2001	335	0.952	2.70	0.510	1597
0100409	12/20/2001	320	0.947	2.50	0.500	2160

Wednesday, January 02, 2002

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			327	0.951	2.52	0.445	1702
Standard Dev.			7	0.002	0.11	0.173	257
Specifications			300	0.940	2.00	< 1	1000

-Com		

Load (psf)	Roll #	Thickness Retained (%)	Specification (%)
50000			50
	0100386	54.00	50
	0100389	55.00	50
	0100393	55.00	50
	0100398	57.00	50
	0100402	60.00	50
	0100406	61.00	50
	0100409	56.00	50
\mathbf{A}^{\cdot}	verage (Specs)	56.86	50

Tested by

David Mitchell

Ghada Ellithy, Ph.D., P.E.

Date

01/02/2002

Date

01/02/2002

Date: 12/7/2001

Number of Rolls

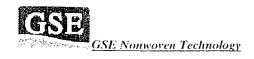
FBR0608100

SO#21538

APPROVED BY: 100mg freeze

54

		
ROLL#		
130111084	130111123	130111163
130111085	130111124	130111164
130111086	130111133	130111165
130111087	130111134	130111166
130111088	130111135	130111167
130111089	130111137	130111168
130111090	130111138	130111169
130111091	130111139	130111170
130111092	130111140	130111171
130111093	130111141	130111172
130111094	130111142	130111173
130111095	130111143	130111182
130111100	130111144	130111184
130111103	130111151	130111185
130111118	130111159	130111192
130111119	130111160	130111195
130111120	130111161	130111196
130111122	130111162	130111126



Product: NW6 | Item Code: FBR0608100 | Roll Width: 15.0 | feet | Test Date: 11/25/2

						Non Will	in: 15.0	icet				rest D	ate: 11/25/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111084	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111085	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111086	6.7	92	214	228	92	124	134	152	125	356	0.212	2.0	0.5
130111087	6.2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111088	6 2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111089	6.2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111090	6.2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111091	6.2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111092	6.2	85	197	223	99	117	107	116	119				
130111093	6.2	85	197	223	99	117	107	116	119	352	0.212	2.0	0.5
130111094	6.2	85	197	223	99	117	107			352	0.212	2.0	0.5
130111095	6.2	85	197	223	99	117	107	116 116	119 119	352 352	0.212 0.212	2.0 2.0	0.5 0.5



Product: NW	' 6	Ite	em Code:	FBR060810	()	Roll Wid	<i>th:</i> 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs) -	(psi)	(mm)	(sec-1)	(cm/sec)
130111100	6.2	89	190	215	96	114	114	122	114	352	0.212	2.2	0.5



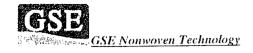
Product : NM	/6	Ita	em Code:	FBR060810	00 ·	Roll Wid	th: 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111103	6.2	89	190	215	96	114	122	121	114	352	0.212	2.2	0.5



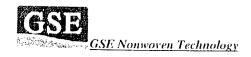
Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/26/2 Roll No. Mass per Puncture Mullen Burst Apparent Opening Size Grab Strength Thickness Trap Tear Strength **Grab Elongation** Permittivity Permeability Unit Area Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 - ASTM D 3786 - ASTM D 4751 ASTM D 4491 (oz/yd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1)(cm/sec) 130111118 6.4 90 197 224 93 123 121 123 126 2.2 340 0.212 0.5 130111119 6.4 90 197 224 93 123 121 123 126 340 0.212 2.2 0.5 130111120 6.4 90 197 224 93 123 121 123 126 340 0.212 2.2 0.5



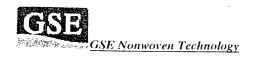
Product: NW6		Ite	em Code:	FBR0608100)	Roll Wid	th: 15.0	feet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Stre ngth	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz <u>/y</u> d2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111122	6.4	90	197	224	93	123	1 21	123	126	340	0.212	2.2	0.5
130111123	6.4	90	197	224	93	123	121	123	126	340	0.212	2.2	0.5
130111124	6.4	90	197	224	93	123	121	123	126	340	0.212	2.2	0.5



Product: NW6		Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab Ele	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111133	6.1	94	192	219	97	120	94	143	118	356	0.212	2.2	0.5
130111134	6.1	94	192	219	97	120	94	143	118	356	0.212	2.2	0.5
130111135	6.1	94	192	219	97	120	94	143	118	356	0.212	2.2	0.5



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/26/2 Roll No. Mass per Grab Strength Puncture Thickness Mullen Burst Apparent **Grab Elongation** Unit Area Trap Tear Strength Permittivity Permeability Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130111137 6.1 94 94 192 219 97 120 143 118 356 0.212 2.2 0.5 130111138 6.6 99 206 211 97 119 1107 128 120 372 0.212 2.2 0.5 130111139 6.6 99 206 211 97 119 107 128 372 120 0.212 2.2 0.5 130111140 6.6 99 206 211 97 107 119 128 120 372 0.212 2.2 0.5 130111141 6.6 99 206 211 97 119 107 128 120 372 0.212 2.2 0.5 130111142 6.6 99 206 211 97 119 107 128 120 372 0.212 2.2 0.5 130111143 6.6 99 206 211 97 119 107 128 120 372 0.212 2.2 0.5 130111144 6.6 99 206 211 97 119 107 128 120 372 0.212 2.2 0.5



Product: NW	/6	Ita	em Code:	FBR060810	0	Roll Wid	<i>th:</i> 15.0	feet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261		ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111151	6.4	97	199	171	94	116	101	140	112	352	0.212	2.2	0.5



Product: NW6 Item Code: FBR0608100 ____ Roll Width: 15.0 feet Test Date: 11/26/2

Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teal	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
		ASTM D 5199			ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111159	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111160	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111161	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111162	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111163	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111164	6.6	99	202	236	103	121	113	141	125	37.2	0.212	2.0	0.5
130111165	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111166	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111167	6.6	99	202	236	103	121	113	141	125	372	0.212	2.0	0.5
130111168	6.1	92	188	218	98	121	101	133	116	342	0.212	2.0	0.5
130111169	6.1	92	188	218	98	121	101	133	116	342	0.212	2.0	0.5
130111170	6.1	92	188	218	98	121	101	133	116	342	0.212	2.0	0.5
130111171	6.1	92	188	218	98	121	101	133	116	342	0.212	2.0	
130111172	6.1	92	188	218	98	121	101	133	116	342	0.212		0.5
130111173	6.1	92	188	218	98	121	101	133	116	342	0.212	2.0 2.0	0.5. 0.5



Product: NW	6	lt.	em Code:	FBR060810	00	Roll Wid	<i>lth:</i> 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea.	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4-191
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111182	6.5	93	201	234	97	114	96	120	122	354	0.212	2.0	0.5



Product : NW	6	Ita	em Code:	FBR060810	ю.	Roll Wid	lth: 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111184	6.5	93	201	234	97	114	96	120	122	354	0.212	2.0	0.5
130111185	6.5	93	201	234	97	114	96	120	122	354	0.212	2.0	0.5



Product : NW	/6	Ite	em Code:	FBR060810	()	Roll Wid	<i>lth:</i> 15.0	eet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM I	9 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-l)	(cm/sec)
130111192	6.7	92	197	220	94	123	125	114	124	355	0.212	2.0	0.5



Product: NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111195	6.7	92	197	220	94	123	125	114	124	355	0.212	2.0	0.5
130111196	6.7	92	197	220	94	123	125	114	124	355	0.212	2.0	0.5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

JOB: LOT #: DATE: Tendrain 770-2

Pasco Landfill

01/02/02

COMPOSITE#	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101263	0100391	130111141	130111103	200 ` ′
0101264	0100391	130111141	130111103	200
0101265	0100391	130111141	130111103	200
0101266	0100391	130111143	130111093	200
0101267	0100391	130111143	130111093	200
0101268	0100391	130111143	130111093	200
0101269	0100391	130111143	130111093	200
0101270	0100391	130111084	130111091	200
0101271	0100391	130111084	130111091	200
0101272	0100391	130111084	130111091	180
0101273	0100387	130111084	130111091	200
0101274	0100387	130111084	130111091	200
0101275	0100387	130111135	130111087	200
0101276	0100387	130111135	130111087	200
0101277	0100387	130111135	130111087	200
0101278	0100387	130111135	130111087	200
0101279	0100387	130111135	130111087	200
0101280	0100387	130111134	130106331	200
0101281	0100387	130111134	130106331	147
0101282	0100392	130111134	130106331	200
0101283	0100392	130111134	130106331	200
0101284	0100392	130111134	130111173	200
0101285	0100392	130111134	130111173	200
0101286	0100392	130111134	130111142	200
0101287	0100392	130111134	130111142	200
0101288	0100392	130111134	130111142	200
0101289	0100392	130111142	130111173	200
0101290	0100392	130111142	130111170	195
0101291	0100393	130111142	130111170	200
0101292	0100393	130111172	130111170	200
0101293	0100393	130111172	130111170	200
0101294	0100393	130111172	130111168	200
0101295	0100393	130111092	130111168	139
0101296	0100398	130111169	130111164	200
0101297	0100398	130111169	130111164	200
0101298	0100398	130111169	130111164	200
0101299	0100398	130111169	130111118	200
0101300	0100398	130111169	130111118	200
0101301	0100398	130111171	130111118	200
0101302	0100398	130111171	130111118	200
0101303	0100398	130111171	130111118	200
0101304	0100398	130111171	130111133	182
0101305	0100403	80075170	130111133	200
0101306	0100403	130111261	130111133	200
0101307	0100403	130111261	130111133	200
0101308	0100403	130111261	130111279	200
0101309	0100403	130111261	130111279	200
	= =		,55111215	200

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT : JOB: Tendrain 770-2 Pasco Landfill

LOT #: DATE:

01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEVTU E #	1 45 (60)
0101310	0100403		TEXTILE #	Length (ft)
0101310	0100403	130111261	130111279	200
0101311		130111285	130111279	200
	0100403	130111285	130111279	200
0101313	0100403	130111285	130111309	194
0101314	0100405	130111285	130111309	200
0101315	0100405	130111285	130111309	200
0101316	010,0405	130112615	130111309	200
0101317	0100405	130112615	130111309	200
0101318	0100405	130112615	130111309	200
0101319	0100404	13011235	130111269	200
0101320	0100404	13011235	130111250	200
0101321	0100404	13011235	130111250	200
0101322	0100404	130111265	130111250	200
0101323	0100404	130111265	130111250	200
0101324	0100404	130111265	130111250	200
0101325	0100404	130111265	130111248	200
0101326	0100404	130111265	130111248	200
0101327	0100404	130111270	130111269	200
0101328	0100406	130111310	130111237	200
0101329	0100406	130111310	130111237	200
0101330	0100406	130111310	130111300	200
0101331	0100406	130111310	130111300	200
0101332	0100408	130111310	130111300	200
0101333	0100408	130111268	130111300	200
0101334	0100408	130111268	130111300	200
0101335	0100408	130111268	130111278	200
0101336	0100408	130111268	130111278	200
0101337	0100408	130111268	130111278	200
3,0,007	3100400	130111200	130111276	200



Office: (410) 522-7000 Fax: (410) 522-7015

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report ASTM F904*

Product

Tendrain 770-2

Lot:

4

Roll Size

6.7' x 200'

Project

Pasco Landfill

Testing Lab

Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101263	12/21/2001			
		1.21	1.41	
		1.28	1.50	
		1.25	1.33	
		1.05	1.20	
á.		1.12	1.37	
		1.18	1.36	Average
		0.10	0.11	Std. Deviation
		1.00	1.00	Specification (minimum)

^{*}Please note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

Tested by

David Mitchell

Mush Carepuso

Date 01/02/2002

Checked by

Date 01/02/2002

^{*}Ply adhesion is tested by the manufacturer every 100,000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.



Precision Geosynthetic Laboratories

150 9002

ALSO MAE S

December 26, 2001

Mr. David Mitchell TENAX CORPORATION 4800 E Monument Street Baltimore, MD 21205

Post-it [®] Fax Note 7671	Date Mile # of pages 3
	From EDITH
Co./Dept.	Co.
Phone #	Phone #
Fax # 410-522-7015	Fax#

Dear Mr. Mitchell;

RE: PASCO LANDFILL

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence and disclosed to other parties only with the authorization of Client or Precision Geosynthetic Laboratories.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. Failed seam samples are kept for 7 years; good seam samples are disposed after 2 we ks and conformance samples are disposed after 1 month. Should you need us to keep them longer, please advise us in writing.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Edit Pintor Quality Assurance

Cora B. Queja Vice President

Enclosure: (Job No. 011294)



Precision Geosynthetic Laboratories

ISO 9002

CLIENT: TENAX CORPORATION PROJECT: PASCO LANDFILL

VERIFICATION OF MATERIAL PROPERTIES (PGL Job No. 011294)

MATERIAL DESCRIPTION: Geocomposite, TENDRAIN 770-2 (PRE-CUT SAMPLE)

DATE RECEIVED: December 20, 2001

DATE REPORTED: December 26, 2001

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

Lot No. 4

73894

TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D4716

Transmissivity

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at 22 ± 2°C $(71.6 \pm 3.6$ °F) and at 60 ± 10 % relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on the table.

PRECISION GEOSYNTHETIC LABORATORIES



Edith Pintor Quality Assurance

Cora B. Queja Vice President

TABLE 1.

MATERIAL PROPERTIES

CLIENT: TENAX CORPORATION PROJECT: PASCO LANDFILL

Date Received: 12/20/01 Date Final Reported: 12/26/01 Client Sample ID: Lot No. 4

PGL Control No.:

73894

Material Description: Geocomposite, TENDRAIN 770-2 (PRE-CUT SAMPLE)

METHOD	DESCRIPTION		3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Proj
		4									7.18.	Std. Dev.	Spec
Зеосотроsі											ŀ		
STM D4716	** Transmissivity MD 2.96	(x10 ⁻³	m²/sec)	(Normal Pro	988ure: 1	5,000 psf; G	Gradient: 0	0.1, Seating	Time: 1 hr)			
	** Transmissivity MD 2.85	(x10 ⁻³	m²/sec)	(Normal Pre	essure: 1	5,000 psf. G	iradient: 0	.1; Seating	Time: 24 h	rs)	2.96	N/A	
	** Transmissivity MD 2.73	(x10 ⁻³	m²/sec)	(Normal Pre	essure: 1	5,000 psf ; G	iradient: 0	.1; Seating	Time: 48 h	rs)	2.85	N/A	
	** Transmissivity MD 2.62	(x10 ⁻³	m²/sec)	(Normal Pre	essure: 1	5,000 psf ; G	radient: 0	.1; Seating	Time: 72 h	rs)	2.73	N/A	
	** Transmissivity MD 2.58	(x10 ⁻³	m²/sec)	(Normal Pre	essure: 1.	5,000 psf ; G	radient: 0	.1; Seating 1	Time: 96 h	rs)	2.62	N/A	
	** Transmissivity MD 2.58	(x10 ⁻³	m²/sec)	(Normal Pre							2.58	N/A	
	** Geosynthetics	Plate	e	_		Thickness = Thickness =	= 418 mils = 372.5 mil	(Before) 's (After)		·	2.58	N/A	
	Cooo	va sano	+++++	<u>+</u>				•				! [:	-
f	Geocd 30 mil Smooth HDF	mposite	• XXXXXXXX	2								1	
`		E Liner Plate		<u>.</u>						,	i	1 1	







150 9002

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

Denient:	SUBMI				
Project:	WEST PASCO COUNTY LANI	DFILL EXPANS	SION - CELLS A	3 AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.F
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
COMPLETED BY	Y CONTRACTOR:				
Certification Staten	ment: By this submittal, I hereby materials, dimensions, cata applicable approved shop di	alog numbers and	similar data and I l	ified all field measuremen nave checked and coordi	ts, field construction criteri nated each item with oth
	Signature:	-th		Date:	02-13-02
Submittal Identifier:	D-02274-011-A	Original Su	bmittal	Supplement	
Submitted:	February 13, 2002				
No. of Copies:	8	Resubmittal		Information	Only
Submittal Description	on: Geocomposite QA/QC Roll	Certificates:	Lot 5		
· ·			· · · · · · · · · · · · · · · · · · ·		
Specification Identif			· · · · · · · · · · · · · · · · · · ·		
Submittal Description Specification Identif Manufacturer: Unstaller:	fier: 01300, 02274 Section 1.03 ((A.9) and Section 2	· · · · · · · · · · · · · · · · · · ·		
Specification Identif Manufacturer:	fier: 01300, 02274 Section 1.03 (Tenax Corporation	(A.9) and Section 2	· · · · · · · · · · · · · · · · · · ·		
Specification Identif Manufacturer:	fier: 01300, 02274 Section 1.03 (Tenax Corporation COMANCO Environmental	(A.9) and Section 2	· · · · · · · · · · · · · · · · · · ·		
Specification Identif Manufacturer: Installer:	fier: 01300, 02274 Section 1.03 (Tenax Corporation COMANCO Environmental TENGINEER:	(A.9) and Section 2	2.03 (A)	onies Returned	
Specification Identif Manufacturer: Installer: COMPLETED BY	fier: 01300, 02274 Section 1.03 (Tenax Corporation COMANCO Environmental TENGINEER:	(A.9) and Section 2	2.03 (A)	opies Returned:	
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QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: January 3, 2002 Lot # 5

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637

(813) 988-8829

Table of Contents

Certification Letter and Product Specification	
MQC of Geonet	2
MQC of Geotextile	ب
	•••
MQC of Geocomposite	4



Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE:

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 5

January 2, 2002

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101338, 0101339, 0101340, 0101341, 0101342, 0101343, 0101344, 0101345, 0101346, 0101347, 0101348, 0101349, 0101350, 0101351, 0101352, 0101353, 0101354, 0101355, 0101356, 0101357, 0101358, 0101359, 0101360, 0101361, 0101362, 0101363, 0101364, 0101365, 0101366, 0101367, 0101368, 0101369, 0101370, 0101371, 0101372, 0101373, 0101374, 0101375, 0101376, 0101377, 0101378, 0101379, 0101380, 0101381, 0101382, 0101383, 0101384, 0101385, 0101386, 0101387, 0101388, 0101389, 0101390, 0101391, 0101392, 0101393, 0101394, 0101395, 0101396, 0101397, 0101398, 0101399, 0101400, 0101401, 0101402, 0101403, 0101404, 0101405, 0101406, 0101407, 0101408, 0101409, 0101410, 0101411, 0101412, 0101413, of Tendrain 7 70-2, consisting of lot # 5 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications:

Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 5, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters /Cl. l.C.

Tim Bauters, Ph.D.

Quality Control Manager



TENDRAIN 770-2

UBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

...e drainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below.

PROPERTIES	TEST METHOD	UNIT	VALUE	QUALIFIER
050//55				
GEONET CORE				
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
Compressive Behavior (% Retained thickness)			•	
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)		%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c, Note 4
Melt Flow Index	ASTM D1238	g/10 min.	1.0	d, note 4
Carbon Black Content	ASTM D4218	%	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	oz/yd² (g/m²)	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	ibs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
Grab Elongation	ASTM D4632	%	50	b, Note 4
N n Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4 b, Note 4
Uvikesistance @500 Hours	ASTM D4355	%	70	b, Note 4 b, Note 4
<u> </u>	, , , , , , , , , , , , , , , , , , , ,	70	70	b, Note 4
GEOCOMPOSITE				
Roll Width		ft (m)	6.7 (2.0)	a, Note 5
Roll Length		ft (m)	200 (61)	a, Note 5 a, Note 5
Ply Adhesion	ASTM F904	lb/in (N/m)	1.0 (175)	c, Note 6
	(modified)	(, (, (, , , , , , , , , , , , , , , ,	1.0 (170)	C, NOTE O
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE	(
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				o Natas 7
Gradient/Load:			15,000 psf (720 kPa)	c, Notes 7
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

c = Minimum Value d = Maximum Value

NOTES:

- Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- Roll dimensions are measured at the time of manufacture.
- Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of ne "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.



Office: (410) 522-7000 Fax: (410) 522-7015

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Geonet MQC Test Results

Product

TD 7

Project

Testing Lab

Pasco Landfill

Lot#

Dimensions

6.7' x 200'

Tenax Corp.

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)	
	0100406	12/20/2001	335	0.952	2.70	0.510	1597	
	0100409	12/20/2001	320	0.947	2.50	0.500	2160	
	0100413	12/22/2001	323	0.952	2.50	0.350	1968	
	0100417	12/23/2001	335	0.950	2.50	0.400	2088	
Average			328	0.950	2.55	0.440	1953	
Standard Dev. Specifications		144	8 300	0.002 0.940	0.10 2.00	0.078 < 1	250 1000	

Compression

Load (psf) 50000	Roll #	Thickness Retained (%)	Specification (%) 50
30000	0100406	61.00	50
	0100409	56.00	50
	0100413	57.00	50
	0100417	61.00	50
A	verage (Specs)	58.75	50

Tested by

Date

01/03/2002

Checked by

Date

01/03/2002

Date: 12/19/2001



 Product: NW6
 Item Code: FBR0608100
 Roll Width: 15.0 feet
 Test Date: 11/20/2

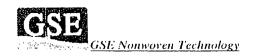
												1 6.51 171	me. 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110767	6.5	97	189	230	91	121	104	129	120	376	0.212	2.2	0.6
130110768	6.5	97	189	230	91	121	104	129	120	376	0.212	2.2	0.6
130110769	6.5	97	189	230	91	121	104	129	120	376	0.212	2.2	0.6
130110770	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6
130110771	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	
130110772	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6
130110773	6.6	97	201	238	94	120	117	161	128	362			0.6
130110774	6.6	97	201	238	94			-			0.212	2.2	0.6
100110777	0.0	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



Product: NW6		Item Code: FBR0608100			0	Roll Width: 15.0 feet						Test De	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab Si	Grab Strength		Grab Elongation		r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability	
	ASTM D 5261	ASTM D 5199	ASTM.	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110777	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



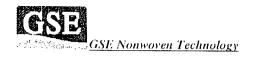
Product: NW6		Item Code: FBR0608100			D	Roll Width: 15.0 feet						Test De	Test Date: 11/20/2	
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability		
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130110779	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6	



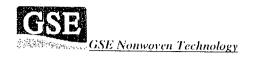
Product: NW6	Item Code: FBR0608100 Roll Width: 15.0 feet												ale: 11/27/2
Roll No.	Mass per Unit Area ASTM D 5261	Thickness	Grab Strength ASTM D 4632		Grab Elongation ASTM D 4632		Trap Tear Strength ASTM D 4533		Puncture Strength	Mullen Burst Strength ASTM D 3786	Appárent Opening Size		
		ASTM D 5199							ASTM D 4833		ASTM D 4751		
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111243	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5
130111244	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5



Product: NW6	_	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test Date: 11/27/2		
Roli No.	Mass per Unit Area	Thickness					, , , , , , , , , , , , , , , , , , , ,		Puncture Strength	Mullen Burst Strength	Apparent Opening Size			
	ASTM D 5261	ASTM D 5199							ASTM D 4833	ASTM D 3786	ASTM D 4751			
	(07/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130111246	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5	
130111247	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5	



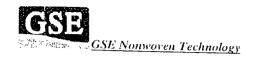
Product: NW	6	Ite	em Code:	FBR060810	0	Roll Wid	<i>th:</i> 15.0 f	eet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness			Grab El	Grab Elongation		Trap Tear Strength		Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability	
	ASTM D 5261	ASTM D 5199			ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	I ASTM D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111234	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



Product: NW6		Ita	em Code:	FBR060810	O	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab Strength ASTM D 4632		Grab El	ongation	Trap Tear Strength		Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability	
	ASTM D 5261	ASTM D 5199			ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	I ASTM D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111238	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



Product: NW6	5	Ita	em Code:	FBR0608100)	Roll Wid	th: 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab Strength ASTM D 4632		Grab El	Grab Elongation Tr		Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability	
	ASTM D 5261	ASTM D 5199			ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111258	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5
130111259	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5



Product: NW6 | Hem Code: FBR0608100 | Roll Width: 15.0 feet

Roll No.			Roll Width: 15.0 feet											
Kon 140.	Mass per Unit Area	Thickness	Grab Strength		Grab El	Grab Elongation		Trap Tear Strength		Mullen Burst Strength	Apparent Opening Size	Permittivity Permeability		
	ASTMLD 5261 (0z/yd2)	ASTM D 5199		D 4632	ASTM D 4632				ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM D 4491		
	(04/3/42)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130111262	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5	
130111263	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5	
130111264	6.5	83	228	230	100	125	. 141	158	121	332	0.212	2.1	0.5	

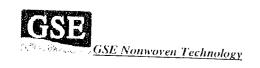


Product: NW	6	Ita	em Code:	FBR0608100)	Roll Wid	<i>th:</i> 15.0	feet				Test Di	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab Strength ASTM D 4632		Grab El	ongation	Trap Tear Strength		Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199			ASTM D 4632		ASTM D 4533		ASTM D 4833	ASTM D 3786	ASTM D 4751	I ASTM D 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111266	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5



Product: NW6 | Item Code: FBR0608100 | Roll Width: 15.0 feet | Test Date: 11/27/2

Troumer . Itire	,												
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teat	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111271	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111272	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111273	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111274	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111275	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111275	6.6	84	228	230	100	125	132	171	124	375	0.212	2.1	0.5
130111270	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111277	6.6	84	228	230	100	125	132	171	124	375	0.212	2.1	0.5



Product: NW6		It	em Code:	FBR060810)()	Roll Wia	th 150						
Roll No.	Mass per		<u> </u>				th: 15.0	teet				Test D	ale: 11/27/2
	Unit Area	Thickness		Strength	Grab E	longation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength		Pormittivit	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533		ζ,	. 0	Commissing	rermeability
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)						ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111280	6.9	89	246	230	- (1.0)		MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
				230	95	125	141	162	115	358	0.212	1.8	0.4



Product: NW6

Item Code: FBR0608100

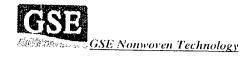
Roll Width: 15.0 feet

Test Date: 11/27/2

												i est i)	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness		trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261		,		ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111288	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111289	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111290	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



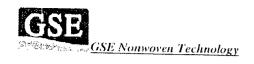
Product: NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				1 est 17	aie: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teat	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	<i>(mm)</i>	(sec-1)	(cm/sec)
130111283	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111284	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



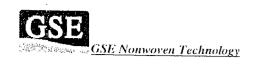
Product: NW6		It	em Code:	FBR060810)()	Roll Wia	lth: 15.0	feet				Tout D	
Roll No. A	Mass per Unit Area	Thickness		itrength	Grab E	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
	ASTM D 5261 (oz/yd2)	ASTM D 5199 (mils)	7 7	D 4632 CD (lbs)		D 4632		D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111292			1117 (1173)	(1) (103)	(311) (1/0)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111292	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



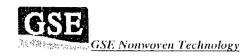
Product : NW6	6	Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab Si	rength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM.	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111294	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6		Ite	em Code:	FBR060810	0	Roll Wia	lth: 15.0	feet				Tout P	
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Pate: 11/27/2 y Permeability
		ASTM D 5199		D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	A STA	1 D 4491
	(07/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111296	6.6	99	242	250	96	115	124	136	110				(cm/sec)
130111297	6.6	99	242	250	96	115			119	360	0.212	1.8	0.4
30111298	6.6	99	242				124	136	119	360	0.212	1.8	0.4
30111299	6.6			250	96	115	124	136	119	360	0.212	1.8	0.4
130111300		99	242	250	96	115	124	136	119	360	0.212	1.8	0.4
	6.7	90	231	231	92	120	101	120	128	357			
130111301	6.7	90	231	231	92	120	101				0.212	1.8	0.4
						.20	101	120	128	357	0.212	1.8	0.4



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/27/2 Roll No. Mass per Thickness Puncture Grab Strength Grab Elongation Mullen Burst Apparent Opening Size Unit Area Trap Tear Strength Permittivity Permeability Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) - CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130111304 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111305 6.7 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111306 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111307 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111308 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4



Product: NW6		Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	Pate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	(rength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit __	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111310	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111311	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111312	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4



Product: NW6		It	em Code:	FBR060810	3()	Roll Wia	lth: 15.0	feet					
Roll No.	Mass per Unit Area	Thickness		itrength		longation			Puncture Strength	Mullen Burst Strength	Apparent	· · · · · · · · · · · · · · · · · · ·	ale: 11/27/2 Permeability
	ASTM D 5261 (07/yd2)			D 4632 CD (lbs)		D 4632 CD (%)		D 4533	ASTM D 4833	ASTM D 3786	7		D 4491
130111314	7.0	99	231	243			(1111)	(17 (103)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111315	7.0	99	231	243	103 103	116 116	109 109	134 134	125 125	368 368	0.212 0.212	1.8 1.8	0.4 0.4

BEST AVAILABLE COPY

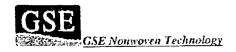
Date: 12/20/20	01	
Number of Rolls	54	
FBR0608100	4	. /
SO#21538	1 1 1 1	U
APPROVED BY:_	Culotal OI.	Hore
ROLL#		
130110712 ~	130110729 -	130110746
130110713~	130110730-	130110747
130110714-	130110731 -	130110751 ~
130110715 -	130110732	130110752-
130110716 -	130110733 ~	130110753 -
130110717 -	130110734 -	130110775.
130110718 .	130110735	130110776-
130110719-	130110736-	130110778 -
130110720 -	130110737 -	130110780-
130110721 -	130110738-	130110781.7
130110722 1	130110739 ~	130110782.
130110723 -	130110740-	130110783 -
130110724 -	130110741_	130110784 ~
130110725 -	130110742-	13011078 5 -
130110727 ~	130110743 -	130111101-
130110728-	130110744-	130111113 ~
	130111130-	130111114 ~
	130112665-	130111115

130112666-

130112674 -



Product: NW	6	Ite	em Cade:	FBR06081 0	Ú	Roll Wid	th: 15.0	feet				Test D	nte: 12/16/2
Rall No.	Mass per Unit Area	Thickness	Grab Si	irength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(em/sec)
130112674	6.9	94	234	242	94	128	108	112	118	350	D.18D	1.5	0.3



Product: NW6		Ite	eni Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	nte: 12/16/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongativn	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit)	Permeability
		ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASIM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)		CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(min)	(sec-1)	(cm/sec)
130112665	6.4	92	200	225	98	109	98	123	121	352	0.180	1.5	03
130112666	6 4	92	200	225	98	109	98	123	121	352	Q 18D	1.5	0.3



Product: NW	'6	fte	em Code:	FBR060810	n	Roll Wid	lth: 150	feet				Test De	ale: 11/26/2
Roli No.	Mass per Unit Aren	Thickness	Grab S	Strength	Grab E	augation	Trop Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Site	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(orlyd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111130	61	94	192	219	97	120	94	143	118	356	0.212	2.2	0.5



Product: NW	6	Ita	em Code:	FBR060810)0	Roll Wid	lth: 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grat El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	I D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD ((bx)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111113	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5
130111114	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5
130111115	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5



Product: NW6		Hem Code: FBR0508100			v	Roll Width: 15.0 feet						Test Date: 11/26/2		
Roli No.	Mass per Unit Aren	Thickness	Gmb S	irength	Grab E	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability	
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491	
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MI) (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)	
130111101	6.2	89	150	215	96	114	114	122	114	352	0.212	22	0.5	



6.6

99

226

215

88

113

130110785

Roll Test Data Summary - English Units

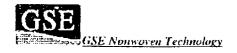
Test Date: 11/20/2 Product: NW6 Item Code: FBRU608100 Roll Width: 15.0 feet Mullen Burst Koll No. Mass per Puncture Apparent Permittivity Permeability Grab Strength Grab Elongation Trap Tear Strength Thickness Opening Size Strength Unit Area Strength ASTM D 4491 ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 ASTM D 3786 ASTM D 4751 (sec-1) (cm/sec) (ozlyd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (psi) (mm) 2.3 06 0.212 130110780 6.6 99 226 215 88 113 90 119 123 368 368 0.212 2.3 0.6 6.6 226 215 BB 113 123 130110781 99 90 119 0.6 0.212 2.3 130110782 6.6 99 226 215 88 113 90 119 123 368 368 0.212 2.3 0.6 130110783 86 99 228 215 88 113 90 119 123 2.3 0.8 130110784 66 99 226 215 88 113 119 123 388 0.212 0.212 2.3 0.6

90

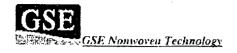
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123

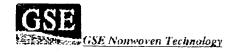
368



Product: NW6		Ise	em Code:	FBR060810	O	Roll Wid	th: 15.0	feet				Test Da	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(em/sec)
130110778	6.6	97	201	238	94	120	117	161	128	362	0212	2.2	0.6



Product: NW6		Ita	em Code:	F BRO 60810	10	Roll Wid	th: 150	feet				Test Di	ale: 11/20/2
Rall No.	Mass per Unit Area	Thickness	Grab S	trength	Grab "I	ongaliun	Trap Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeubility
	ASTM D 5261	ASTM 1) 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(02/y d 2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lhs)	CD (lbs)	(Ibs)	(psi)	(mm)	(sec-1) ·	(em/sec)
130110775	6.6	97	201	23B	94	120	117	161	128	362	0.212	2.2	0.6
130110776	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.8



Product: NW	6	Ite	em Code:	FBRO60810	0	Roll Wid	th: 15.0	feet				Test D	atr: 11/20/2
Roll No.	Mass per Unit Arca	Thickness	Grab S	trength	Grab El	ongation	Frap Teal	Strength	Puncture Strength	Mullen Burst Strength	Apparent Openiug Sizo	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTA	1) 4491
	(oziyd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/see)
130110751	6.1	89	137	214	98	120	98	127	119	352	0.212	2.2	9.6
130110752	6.1	89	1: 7	214	98	120	98	127	119	352	0.212	2.2	0.6
130110753	6.1	89	187	214	98	120	98	127	119	352	0.212	2.2	0.6



Product: NW	6	He	nı Code:	FBR060810	10	Roll Wid	th: 15.0	feet				1esi D	are: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teat	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivíty	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110746	6.7	102	555	241	91	110	100	131	120	386	0.212	2.2	0.6
130110747	6.7	102	555	241	91	110	100	131	120	386	0.212	2.2	0.6



6.7

6.7

Roll Test Data Summary - English Units

Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mullen Burst Puncture Mass per Apparent Permittivity Permeability Grah Elongation Thickness Gmb Strength Trap Tear Strength Opening Size Unit Area Strength Strength ASTM D 4491 ASTM D 4632 ASTM D 4751 ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4533 ASTM D 4833 ASTM D 3786 (endsec) (oz/yd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) (psi) (sec-1) MD (lbs) CD (lbs) (lbs) (mm) 6.7 0 212 2.2 0.6 6.7 0 212 2.2 0.6 0.6 6.7 0.212 2.2 0.6 6.5 0.212 2.2 0.212 2.2 0.6 6.5 6.5 0.212 2.2 0.6 0.6 6.5 0.212 2.2

6.5 2.2 0.6 6.5 0.212 2.2 6.5 0.212 2.2 0.6 0 2 1 2 2.2 0.6 6.5 2.2 0.6 6.5 0.212 0.6 0.212 2.2 6.5 0.6 6.7 0.212 2.2 2.2 0.6 6.7 0.212 0.212 6.7

0.212

0.212

0.6

0.6

2.2



Test Date: 11/18/2 Roll Width: 15.0 feet Product: NW6 Item Code: 138R0608100 Mullen Burst Apparent Roll No. Mass per Puncture Trap Tear Strength Permittivity Permembility Thickness Grab Strength Grab . longation Strength Opening Size Strength Unit Area ASTM D 4632 ASTM D 4833 ASTM D 3786 ASTM D 4751 ASTM D 4491 ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4533 (sec-1) MD (%) CD (%) MD (lbs) CD (lbs) (psi) (mm)(cm/sec) (oz/vd2) (mils) MD (lbs) CD (lbs) (lbs) 0.6 0.212 2.3 8.4 0.6 0.212 2.3 6.2 0 212 2.3 0.6 0 212 2.3 0.6 0.212 0.6 2.3 6.4 0.212 2.3 0.6 6.2 0.212 2.3 0.6 6.2 0.212 2.3 0.6 6.2 6.7 0.212 2.2 0 212 2.2 6.7 0.212 2.2 0.6 6.7 0.6 0.212 2.2 6.7 0.212 2.2 0.6 6.7 0 212 2.2 0.6 6.7

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT: Tendrain 770-2

JOB:	Pasco Landfill
LOT #:	5
DATE:	01/02/02
	<u></u>

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101338	0100408	130111277	130111278	200
0101339	0100408	130111277	130111278	200
0101340	0100406	130111277	130110774	200
0101341	0100406	130111277	130110774	200
0101342	0100406	130111311	130110774	128
0101343	0100409	130111311	130110774	200
0101344	0100409	130111311	130110774	200
0101345	0100409	130111311	130111312	200
0101346	0100409	130111311	130111312	200
0101347	0100409	130111311	130111312	200
0101348	0100409	130111311	130111312	200
0101349	0100409	130111314	130111312	200
0101030	0100409	130111314	130111284	200
0101351	0100409	130111314	130111284	180
0101352	0100407	130111314	130111284	200
0101353	0100407	130110776	130111284	200
0101354	0100407	130110776	130111284	200
0101355	0100407	130110776	130110783	200
0101356	0100407	130110776	130110783	200
0101357	0100407	130110776	130110783	200
0101358	0100407	130110782	130110783	200
0101359	0100407	130110782	130110783	200
0101360	0100407	130110782	130110783	114
0101361	0100413	130110782	130110778	200
0101362	0100413	130110782	130110778	200
0101363	0100413	130110785	130110778	200
0101364	0100413	130110785	130110778	200
0101365	0100413	130110785	130110778	200
0101366	0100413	130110785	130110780	200
0101367	0100413	130110785	130110780	200
0101368	0100413	130110735	130110780	200
0101369	0100413	130110735	130110780	190
0101370	0100412	130110735	130110780	200
0101371	0100412	130110735	130110781	200
0101372	0100412	130110735	130110781	200
0101373	0100412	130110722	130110781	200
0101374	0100412	130110722	130110781	200
0101375	0100410	130110722	130110733	200
0101376	0100410	130110722	130110733	200
0101377	0100410	130110784	130110733	200
0101378	0100410	130110784	130110733	200
0101379	0100410	130110784	130110733	200
0101380	0100410	130110784	130110723	200
0101381	0100410	130110784	130110723	200
0101382	0100410	130110784	130110723	200
0101383	0100411	130111115	130110723	200
0101384	0100411	130111115	130110714	200

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

Tendrain 770-2 Pasco Landfill 5

JOB: LOT #: DATE:

01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101385	0100411	130111115	130110714	200
0101386	0100411	130111115	130110714	200
0101387	0100411	130111115	130110714	200
0101388	0100411	130110731	130110714	200
0101389	0100411	130110731	130110714	200
0101390	0100411	130110731	130110775	200
0101391	0100411	130110731	130110775	200
0101392	0100414	130110719	130110713	200
0101393	0100414	130110719	130110713	200
0101394	0100414	130110719	130110713	200
0101395	0100414	130110736	130110713	200
0101396	0100414	130110736	130110713	200
0101397	0100414	130110736	130110725	200
0101398	0100414	130110736	130110725	200
0101399	0100414	130110736	130110725	200
0101400	0100414	130111130	130110725	200
0101401	0100415	130111130	130110725	200
0101402	0100415	130111130	130110718	200
0101403	0100415	130111130	130110718	200
0101404	0100415	130111130	130110718	200
0101405	0100415	130111130	130110718	200
0101406	0100415	130111114	130110718	200
0101407	0100415	130111114	130110727	200
0101408	0100415	130111114	130110727	200
0101409	0100415	130110732	130110727	200
0101410	0100416	130110732	130110727	200
0101411	0100416	130110732	130110727	200
0101412	0100416	130110732	130110720	200
0101413	0100416	130110732	130110720	200



Office: (410) 522-7000 Fax: (410) 522-7015

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report **ASTM F904***

Product

Tendrain 770-2

Lot:

5

Roll Size

6.7' x 200'

Project

Pasco Landfill

Testing Lab Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101338	12/26/2001			
		1.38	1.50	
		1.02	1.15	
		1.22	1.25	
		1.08	1.37	
		1.11	1.45	
		1.16	1.34	Average
		0.14	0.14	Std. Deviation
		1.00	1.00	Specification (minimum)

se note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

Tested by

Date 01/03/2002

Checked by

Date 01/03/2002

^{*}Ply adhesion is tested by the manufacturer every 100,000 sq.ft, of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.

TRANSMISSIVITY TEST RESULTS ASTM D-4716

JLT

Client:

Tenax Corporation

Project: Material: Pasco County Landfill Tendrain 770-2

Sample ID:

Lot 5

Job Number:

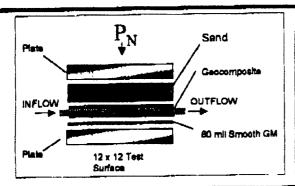
01**G2769-02** 12/31/01

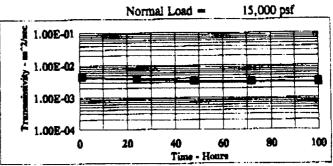
Date: Tested By:

12/31/t DB

Checked By:

JB





REPLICATE No.	GRADIENT	volume ∝	TIME	FLOW RATE	TRANSMISSIVITY m2/sec	TRANSMISSIVITY
1 Hour		Test Wa	ter Temp. =	12.9	Temp. Cor. Fact =	1.203
1	0.10	3550.00	30.75	115.45	4.56E-03	2.20
2	0.10	3523.00	30.60	115.13	4.54E-03	2.20
3	0.10	3516.00	30.58	114.98	4.54E-03	2.19
Average					4.55E-03	2.20
24 Hours		Test Wa	ter Temp. =	12.7	Temp. Cor. Fact =	1.21
1	0.10	2935.00	30.65	95.76	3.80E-03	1,84
2	0.10	2938.00	30.67	95.79	3.80E-03	1.84
3	0.10	2949.00	30.79	95.78	3. 80E-03	1,84
Average					3.80E-03	1.84
48 Hours		Test Wa	ter Temp. =	12.1	Temp. Cor. Fact =	1.23
1	0.10	2540.00	30.48	83.33	3.36E-03	1.62
2	0.10	2537.00	30.36	83.56	3.37E-03	1.63
3	0.10	2525.00	30.16	83.72	3.38E-03	1.63
Average					3.37E-03	1.63
72 Hours		Test Wa	ter Temp. =	12.6	Temp. Cor. Fact =	1.213
1	0.10	2526.00	30.36	83.20	3.31E-03	1.60
2	0.10	2509.00	30.39	82.56	3.29E-03	1.59
3	0.10	2544.00	30.75	82.73	3.29E-03	1.59
Average				·· ·	3.30E-03	1.59
100 Hours		Test Wa	ter Temp. =	12.8	Temp. Cor. Fact =	1.207
1	0.10	2514.00	30.44	82.59	3.27E-03	1.58
2	0.10	2519.00	30.52	82.54	3.27E-03	1.58
3	0.10	2524.00	30.61	82.46	3.27E-03	1.58
Average		1		• • • • • • • • • • • • • • • • • • • •	3.27E-03	1.58

Pasco County Landfill

Lot 5

PASCOLT5.WK4/Disk SI-CC-1

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

	. Phor	one (813)988-8829	Fax (813)98	8-3720		
	SUBM	ITTAL CO	ONTROI	L FOR	M	
Project:	WEST PASCO COUNTY LANI	DFILL EXPANS	SION - CEL	LLS A-3 Al	ND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063		Project Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	6	Project Manager:	Daniel Strobridge, Q.E.P
Contractor:	Handex of Florida, Inc.	Project No.	123477		Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848		Project Manager:	Pablo J. Rivera
COMPLETED BY	Y CONTRACTOR:					
Certification Statem	nent: By this submittal, I hereby materials, dimensions, cat applicable approved shop d	italog numbers and	l similar data a	and I have	all field measuremen checked and coordi	nts, field construction criteri inated each item with oth
	Signature:	-14	Mi-	<u></u>	Date:	02-13-02
Submittal Identifier:	: D-02274-012-A	Original Sul	ıbmittal		Supplement	1
Submitted:	February 13, 2002				1	
No. of Copies:	8	Resubmittal	.1		Information	1 Only
lnstaller: COMPLETED BY	Tenax Corporation COMANCO Environmental ENGINEER:	l Corporation				
No. of Copies Receiv	ved:		N	No. of Copies	s Returned:	
Status:	Code 1 - Approved				Code 4 - Approve	ed As Noted, Resubmit
	Code 2 - Approved As No	oted	7 _		Code 5 - Not App	roved
					00000	TOYCG
	Code 3 - Approved As No	oted, Confirm			Code 6 - Commen	nts Attached
Engineer Stamp or	r Remarkt Area	OP DRAWING	REVIEW			
	Approved A Not A Approved to Note of the Engineer's review of the Approved to	Accorded Comments Artiched Comments Of this shop drawing and materials Comments	ESPONSE RE CONTRA Confirm Resubm ving is itraited presented in the review does	mit to the revite Contract	view of plans, eve the	·
	dimonsions, oquisment specifications and for d Contractor from errors of ctor's responsibility of a ente. The Contractor is isotrophical and manufact procedures of construction CAMP DRESSER & MCNEE S	eddreaming any devi- a reaponable for t ture, the means, re- a and performing his w INC.	the details one	rolanenib br	Docum- ns of ncce or	

QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: January 3, 2002 Lot # 6

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637

(813) 988-8829

Table of Contents

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MQC of Geocomposite	4



Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE: Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 6

January 2, 2002

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101414, 0101415, 0101416, 0101417, 0101418, 0101419, 0101420, 0101421, 0101422, 0101423, 0101424, 0101425, 0101426, 0101443, 0101428, 0101429, 0101430, 0101431, 0101432, 0101433, 0101434, 0101435, 0101436, 0101437, 0101438, 0101439, 0101440, 0101441, 0101442, 0101443, 0101444, 0101445, 0101446, 0101447, 0101448, 0101449, 0101450, 0101451, 0101452, 0101453, 0101454, 0101455, 0101456, 0101457, 0101458, 0101459, 0101460, 0101461, 0101462, 0101463, 0101464, 0101465, 0101466, 0101467, 0101468, 0101469, 0101470, 0101471, 0101472, 0101473, 0101474, 0101475, 0101476, 0101477, 0101478, 0101479, 0101480, 0101481, 0101482, 0101483, 0101484, 0101485, 0101486, 0101487, of Tendrain 7 70-2, consisting of lot # 6 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 6, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D. Quality Control Manager



TENDRAIN 770-2

JBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

The drainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

PROPERTIES	TEST METHOD	UNIT_	<u>VALUE</u>	QUALIFIER
GEONET CORE				
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	o Noto 1 4
Compressive Behavior (% Retained thickness)	A311VI D4333	ID/IL (KIN/III)	1000 (14.0)	c, Note 1, 4
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)	7.01101 1021	%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c,`Note 4
Melt Flow Index	ASTM D1303	g/10 min.	1.0	d, note 4
Carbon Black Content	ASTM D4218	9/10 mm. %	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	. 300 (7.6)	c, Note 4
THOMICOS	A011W D0199	iiiis (iiiiii)	. 300 (1.0)	c, Note 5, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	oz/yd² (g/m²)	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
C り Elongation	ASTM D4632	%	50	b, Note 4
n Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
UV Resistance @500 Hours	ASTM D4355	%	70	b, Note 4
GEOCOMPOSITE				•
Roll Width		# />	0.7.(0.0)	
Roll Length		ft (m)	6.7 (2.0)	a, Note 5
Ply Adhesion	ASTM F904	ft (m)	200 (61)	a, Note 5
Try Adriesion	(modified)	lb/in (N/m)	1.0 (175)	c, Note 6
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE	(modified)			
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				a Notas 7
Gradient/Load:			15,000 psf (720 kPa)	c, Notes 7
	•			
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV) c = Minimum Value d = Maximum Value

NOTES:

- Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- 5. Roll dimensions are measured at the time of manufacture.
- Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Office: (410) 522-7000 Ori Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot#

Dimensions

6.7' x 200'

Testing Lab Tenax Corp.

Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
0100413	12/22/2001	323	0.952	2.50	0.350	1968
0100417	12/23/2001	335	0.950	2.50	0.400	2088
0100421	12/24/2001	341	0.950	2.40	0.550	1789
0100425	12/25/2001	330	0.952	2.44	0.460	1588
0100428	12/26/2001	320	0.951	2.52	0.300	2256
0100430	12/27/2001	327	0.950	2.49	0.400	2136

	Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			329	0.951	2.48	0,410	1971
Standard Dev.			8	0.001	0.05	0.087	246
Specifications			300	0.940	2.00	< 1	1000

Compression			
Load (psf)	Roll#	Thickness Retained (%)	Specification (%)
50000			50
	0100413	57.00	50
	0100417	61.00	50
	0100421	56.00	50
	0100421	57.00	50
	0100425	60.90	50
	0100428	60.00	50
	0100430	61.00	50
Ave	erage (Specs)	58.99	50

Date

01/03/2002

Date

01/03/2002

Number of Rolls FBR0608100 SO#21538	54	1/
APPROVED BY:_	Cujotal A.	Hore
ROLL#	•	
130110712 ~	130110729 -	130110746 -
130110713 -	130110730-	130110747~
130110714-	130110731 -	130110751 ~
130110715 -	130110732 -	130110752-
130110716 -	130110733 ~	130110753 -
130110717 -	130110734 -	130110775
130110718	130110735 ~	130110776-
130110719-	1301107361	130110778 ~
130110720 -	130110737 -	130110780-

130110738-

130110739 -

130110740-

130110741_

130110742-

130110743 -

130110744-130111130-

130112665-

130112666-

130110781.

130110782.-

130110783 -

130110784 ~ 130110785 ~

130111101~

130111113 ~

130111114 ~

130111115~

130112674 -

Date:

130110721 -

130110722 1

130110723 -

130110724 -

130110725 -

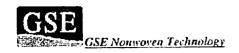
130110727 ~

130110728-

12/20/2001



Product: NM	/ 6	Ite	em Code:	FBR060810	J	Roll Wid	th: 150	feet				1 ext D	We: 12/16/2
Roll No.	Mass per Unit Aren	Thickness	Grab Si	irength	Grab Li	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASIM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(fbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130112674	6.9	94	234	242	94	128	108	112	118	350	0 180	1.5	0.3



Product: NW6	1	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				1 est D	ME: 12/10/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teat	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit)	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASIM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(min)	(sec-1)	(cmlsec)
130112665	6 4	92	200	225	98	109	98	123	121	352	0.180	1.5	03
130112666	6.4	92	200	225	98	109	98	123	121	352	0 180	1.5	0.3



Product: NW	6	Ita	em Code:	FBR060810	a	Roll Wid	lth: 15.0	feet				Test D	ale: 11/26/2
Roți No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	angation	Ττορ Τεα	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Site	Permittivity	: Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(orlyd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111130	6.1	94	19/2	219	97	120	94	143	118	356	0.212	2.2	0.5



Product: NW	3	It	em Code:	FBR060810	10	Roll Wid	lth: 15.0	feet				Test D	ale: 11/28/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeubility
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111113	6.7	90	228	222	96	119	106	108	122	340	0.212	22	0.5
130111114	6 7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5
130111115	6.7	90	228	222	96	119	106	108	122	340	0.212	22	0.5



Product: NW6		Ite	em Code:	I-BR068310	O	Roll Wia	lth: 15.0	feet				Test D	ate: 11/26/2
Roli No.	Mass per Unit Aren	Thickness	Grab S	Strength	Grab F	ongation	Trop Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111101	6 2	89	190	215	96	114	114	122	114	352	0.212	22	0.5



Product : NW	6	Ite	em Code:	FBR060810	0	Roll Wia	lth: 15.0	feet				Test D	ale: 11/20/2
Koll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trop Tea.	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(ozlyd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110780	6.6	99	226	215	88	113	90	119	123	368	0 2 1 2	2.3	06
130110781	6.6	99	226	215	88	113	90	119	123	368	0.212	2.3	0.6
130110782	6.6	99	226	215	88	113	90	119	123	368	0.212	23	0.6
130110783	86	99	226	215	88	113	90	119	123	368	0.212	2.3	0.6
130110784	6.6	99	226	215	88	113	90	119	123	388	0 212	2.3	0.6
130110785	66	99	226	215	88	113	90	119	123	368	0.212	23	0.6



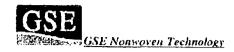
Product: NV	/6	Iso	em Code: 4	BR060810	O	Roll Wia	lth: 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab Str	ength	Grab El	ongation	Trop Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM D	4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(0z/yd2)	(mils)	MD (lbs) (CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	. (mm)	(sec-1)	(cm/sec)
130110778	6.6	97	201	238	94	120	117	161	128	362	0 212	2.2	0.6



Product: NW6		Ita	em Code:	FBR060810	0	Roll Wid	lth: 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(Ibs)	(psi)	(mm)	(sec-1)	(em/sec)
130110775	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6
130110776	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.B



Product: NW6		Ite	em Code:	FBR060810	OC OC	Roll Wid	th: 15.0	feet				Test D	atr: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Teal	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 1) 4491
	(oziyd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	(D) (%)	MD (tbs)	CD (lbs)	(ths)	(psi)	(mm)	(sec-1)	(cm/sec)
130110751	6.1	89	187	214	98	120	98	127	119	352	0.212	2.2	30
130110752	6.1	89	187	214	. 98	120	98	127	119	352	0.212	2.2	0.6
130110753	6.1	89	187	214	98	120	98	127	119	352	0.212	2.2	06



Product : NW	6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feel				Test D	ale: 11/20/2
Roll No.	Mass per Unit Arça	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Multen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM.	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASIM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110746	6.7	102	222	241	91	110	100	131	120	386	0.212	2.2	0 6
130110747	6.7	102	555	241	91	110	100	131	120	386	0.212	22	06



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mass per Puncture Mullen Burst Apparent Thickness Grab Strength Grab Elongation Trap Tear Strength Permittivity Permeability Unit Area Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4751 ASTM D 4491 (oz/yd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) (sec-1) MD (lbs) CD (lbs) (lbs) (psi) (mm) (endsec) 6.7 1D4 0.6 2.2 6.7 0 212 2.2 6.7 0.212 2.2 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 0.6 2.2 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0 212 2.2 0.6 6.5 0.212 2.2 0.8 6.5 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 **B1** 0.212 2.2 9.0 6.7 0.212 6.7 0.212 6.7 0.212 2.2

0.6



Product: NW6 Item Code: 1-13R0608100 Roll Width: 15.0 feet Test Date: 11/18/2 Roll No. Mass per Puncture Mullen Burst Apparent Thickness Grab Strength Grab Elongation Trap Teat Strength Permittivity Permeability Unit Area Opening Size Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/vd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (mm)(sec-1) (cm/sec) (psi) 6.4 0.212 6.2 0.212 2.3 0.6 6.2 0 212 2.3 0.6 8.4 0 212 2.3 0.6 **5.4** 0.212 2.3 0.6 6.2 0.212 2.3 0.6 6.2 0.212 2.3 6.2 0.212 2.3 6.7 0.212 2.2 6.7 0.212 2.2 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 2.2 0.6 0.212 6.7

0.212

2.2

0.6

Date: 12/20/2001

Number of Rolls	54	
FBR0608100		
SO#21538		
APPROVED BY:	**11	· jaka
ROLL#		
	100110700	100110710
130110712	130110729	130110746
130110713	130110730	130110747
130110714	130110731	130110751
130110715	130110732	130110752
130110716	130110733	130110753
130110717	130110734	130110775
130110718	130110735	130110776
130110719	130110736	130110778
130110720	130110737	130110780
130110721	130110738	130110781
130110722	130110739	130110782
130110723	130110740	130110783
130110724	130110741	130110784
130110725	130110742	130110785
130110727	130110743	130111101
130110728	130110744	130111113
	130111130	130111114
	130112665 •	130111115
	130112666 •	130112674



 Product:
 NW6
 Item Code:
 FBR0608100
 Roll Width:
 15.0 feet
 Test Date:
 11/18/2

				111111111111111111111111111111111111111		Non Till	15.0	reet				I est D	Pate: 11/18/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	longation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751		(I) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MI) (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110712	6.4	92	202	217	101	112	98	140	115	342	0.212	2.3	0.6
130110713 +	6.2	95	190	207	95	124	96	114	124	364	0.212	2.3	0.6
130110714	6.2	95	190	207	95	124	96	114	124	364	0.212	2.3	
130110715	6.4	92	202	217	101	112	98	140	115	342	0.212		0.6
130110716	6.4	92	202	217	101	112	98	140	115	342		2.3	0.6
130110717	6.2	95	190	207	95	124	96	114	124		0.212	23	0.6
130110718	6.2	95	190	207	95	124	96	114	124	364	0.212	2.3	0.6
130110719	6.2	95	190	207	95	124	96	114	124	364	0.212	2.3	0.6
130110720	6.7	. 99	201	212	101	124	104	146		364	0.212	2.3	0.6
130110721	6.7	99	201	212	101	124	104		126	351	0.212	2.2	0.6
130110722	6.7	99	201	212	101	124	104	146	126	351	0.212	2.2	0.6
130110723	6.7	99	201	212	101	124		146	126	351	0.212	2.2	0.6
130110724	6.7	99	201	212	101		104	146	126	5 1	0.212	2.2	0.6
130110725	6.7	99	201			124	104	146	126	3 51	0.212	2.2	0.6
	0.,	0.5	201	212	101	124	104	146	126	351	0.212	2.2	0.6



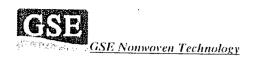
0.212

2.2

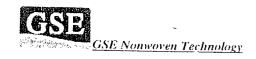
0.6

Roll Test Data Summary - English Units

Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mass per Puncture Mullen Burst Thickness Apparent Grab Strength Grab Elongation Trap Tear Strength Unit Area Permittivity Permeability Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.5 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7 0.212 2.2 0.6 6.7



Product : NW	6	Ita	em Code:	FBR060810	00	Roll Wia	<i>lth:</i> 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	longation	Trap Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	' D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(ths)	(psi)	(mm)	(sec-1)	(cm/sec)
130110746	6.7	102	222	241	91	110	100	131	120	386	0.212	2.2	0.0
130110747	6.7	102	222	241	91	110	100	131	120				0.6
							.50	131	120	386	0.212	2.2	0.6



Product: NW	6	11	em Code:	FBR060810	Ю	Roll Wia	<i>lth</i> : 15.0	feet				Test D	Pate: 11/20/2
Roll No.	Mass per Unit Area	Thickness		trength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
		ASTM D 5199		D 4632		D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110751	6.1	89	187	214	98	120	98	127	119	352	0.040		
130110752	6.1	89	187	214	98	120	98				0.212	2.2	0.6
130110753	6.1	89	187	014			90	127	119	352	0.212	2.2	0.6
	2	55	107	214	98	120	98	127	119	352	0.212	2.2	0.6



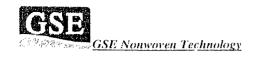
Product : NW	roduct : NW6		Item Code: FBR0608100 Roll Width: 15.0 feet							Test Date: 11/20/2			
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
		ASTM D 5199		D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110775	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6
130110776	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



Product : NW	/6	It	em Code:	FBR060810	00	Roll Wia	th: 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110778	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



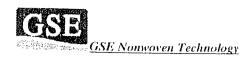
Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mass per Puncture Mullen Burst Thickness Grab Strength Apparent **Grab Elongation** Trap Tear Strength Unit Area Permittivity Permeability Opening Size Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 - ASTM D 3786 ASTM D 4751 ASTM D 4491 (oz/yd2) (mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130110780 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6 130110781 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6 130110782 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6 130110783 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6 130110784 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6 130110785 6.6 99 226 215 88 113 90 119 123 368 0.212 2.3 0.6



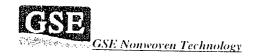
Product : NW	16	Ite	em Code:	FBR060810	00	Roll Wid	th: 15.0	feet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab St	rength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strongth	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM I	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111101	6.2	89	190	215	96	114	114	122	114	352	0.212	2.2	0.5



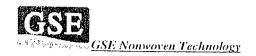
Product : NW	/6	Ita	em Code:	FBR060810	00	Roll Wid	th: 15.0	feet				Test D	ate: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	ID 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111113	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5
130111114	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5
130111115	6.7	90	228	222	96	119	106	108	122	340	0.212	2.2	0.5



Product : NW6		Ita	em Code:	FBR060810	00	Roll Wia	<i>th:</i> 15.0	feet				Test D	ale: 11/26/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		Permeability
		ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111130	6.1	94	192	219	97	120	94	143	118	356	0.212	2.2	0.5



Product: NW	6	It	em Code:	FBR060810	00	Roll Wia	<i>lth:</i> 15.0	feet				Test D	ate: 12/16/2
Roll No.	Mass per Unit Area	Thickness	Grab :	Strength	Grab El	longation	Trap Tea	r Strength	Puncture . Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
		ASTM D 5199		D 4632		D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130112665	6.4	92	200	225	98	109	96	123	121	352	0.180		
130112666	6.4	92	200	225	98	109					0.180	1.5	0.3
					30	109	96	123	121	352	0.180	1.5	0.3



Product : NW	/6	Ita	em Code:	FBR060810	ю.	Roll Wia	<i>lth:</i> 15.0	feet				Test D	ate: 12/16/2
Roll No.	Mass per Unit Area	Thickness	Grab St	rength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM I	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	' I) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130112674	6.9	94	234	242	94	128	108	112	118	350	0.180	1.5	0.3

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

JOB: LOT #: DATE: Tendrain 770-2 Pasco Landfill 6 01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101414	0100416	130110737	130110720	200
0101415	0100416	130110737	130110720	200
0101416	0100416	130110737	130110720	200
0101417	0100416	130110737	130110740	200
0101418	0100416	130110737	130110740	200
0101419	0100417	130110721	130110740	200
0101420	0100417	130110721	130110740	200
0101421	0100417	130110721	130110740	200
0101422	0100417	130110721	130110729	200
0101423	0100417	130110721	130110729	200
0101424	0100417	130110728	130110729	200
0101425	0100417	130110728	130110729	200
0101426	0100417	130110728	130110729	200
0101427	0100417	130110728	130110734	195
0101428	0100419	130110728	130110734	200
0101429	0100419	130110738	130110734	200
0101430	0100419	130110738	130110734	200
0101431	0100419	130110738	130110734	200
0101432	0100419	130110738	130110730	200
0101433	0100419	130110741	130110730	200
0101434	0100419	130110741	130110730	200
0101435	0100419	130110741	130110730	111
0101436	0100420	130110741	130110743	200
0101437	0100420	130110741	130110743	200
0101438	0100420	130111276	130110743	200
0101439	0100420	130111276	130110743	200
0101440	0100420	130111276	130111298	200
0101441	0100420	130111276	130111298	200
0101442	0100420	130111276	130111298	200
0101443	0100420	130110742	130111298	200
0101444	0100422	130110742	130111298	200
0101445	0100422	130110742	130110742	200
0101446	0100422	130110742	130110742	200
0101447	0100422	130110742	130110744	200
0101448	0100422	130110739	130110744	200
0101449	0100422	130110739	130110753	200
0101450	0100422	130110739	130110753	200
0101451	0100422	130110739	130110753	200
0101452	0100423	130110739	130110753	200
0101453	0100423	130112674	130110753	200
0101454	0100423	130112674	130111101	200
0101455	0100423	130112674	130111101	200
0101456	0100423	130112674	130111101	200
0101457	0100423	130110747	130111101	200
0101458	0100423	130110747	130111101	200
0101459	0100423	130110747	130111306	200
0101460	0100423	130110747	130111306	200

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT: JOB: Tendrain 770-2 Pasco Landfill

LOT #: DATE:

6 01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101461	0100424	130110747	130111306	200
0101462	0100424	130110751	130111306	200
0101463	0100424	130110751	130111306	200
0101464	0100424	130110751	130111283	200
0101465	0100424	130110751	130111283	200
0101466	0100424	130110751	130111283	200
0101467	0100424	130111275	130111283	200
0101468	0100424	130111275	130111283	200
0101469	0100424	130111275	130110746	200
0101470	0100425	130111275	130110746	200
0101471	0100425	130111275	130110746	200
0101472	0100425	130112665	130110746	200
0101473	0100425	130112665	130110746	200
0101474	0100425	130112665	130112666	200
0101475	0100425	130112665	130112666	200
0101476	0100425	130111305	130112666	200
0101477	0100429	130111305	130112666	200
0101478	0100429	130111304	130112666	200
0101479	0100429	130111304	130112666	200
0101480	0100429	130111304	130111274	200
0101481	0100429	130111304	130111274	200
0101482	0100426	130111304	130111274	200
0101483	0100426	130110752	130111274	200
0101484	0100426	130110752	130111274	200
0101485	0100426	130110752	130111274	200
0101486	0100426	130110752	130110777	200
0101487	0100426	130110752	130110777	200
				200



Office: (410) 522-7000 Order Line: (800) 356-8495 (410) 522-7015 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report **ASTM F904***

Product

Tendrain 770-2

Lot:

Roll Size

6.7' x 200'

Project Testing Lab

Pasco Landfill Tenax Corp.

	Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
	0101414	12/27/2001			
			1.21	1.05	
			1.39	1.08	
			1.15	1.33	
			1.35	1.22	
			1.29	1.00	,
		,	1.28	1.14	Average
•		,	0.10	0.14	Std. Deviation
			1.00	1.00	Specification (minimum)

^{*.} Lase note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

Tested by

Date 01/03/2002

Checked by

Date 01/03/2002

^{*}Ply adhesion is tested by the manufacturer every 100,000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min.. for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll. David Mitchell

Al Stollarguse



Office: (410) 522-7000 Or. Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Transmissivity Test Data ASTM D 4716-95

Product Lot #

Tendrain 770-2

Roll Size

6.7' x 200' Pasco Landfill

Project Specimen Size

12" x 14"

Testing Lab

Tenax Corp.

TEST CONFIGURATION

Plate

Sand

Tendrain 770-2

Geomembrane

Geocomposite Roll	Testing Date	Load (psf)	Seating Period (hrs)	Gradient	Transmissivity (m2/sec)	Specification (m2/sec)	_
0101414	12/26/2001	15000	100	0.1	3.12E-03	1.80E-03	_

Tested by

David Mitchell

Carpon State 01/03/2002

Checked by

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

	SUBM	ITTAL CO	ONTROL FO	DRM	
Project:	WEST PASCO COUNTY LAN	DFILL EXPAN	SION - CELLS A-	3 AND SW-2	
Owner:	Pasco County B.O.C.C.	Project No.	01-063	Project Manager:	John Power
Engineer:	Camp Dresser & McKee	Project No.	6104-28936	Project Manager:	Daniel Strobridge, Q.E.P
Contractor:	Handex of Florida, Inc.	Project No.	123477	Project Manager:	Gary L. Conaway, P.E.
Subcontractor:	COMANCO Environmental Corp.	Project No.	010-848	Project Manager:	Pablo J. Rivera
COMPLETED E	BY CONTRACTOR:			-	
Certification State	By this submittal, I hereby materials. dimensions, cat applicable approved shop d	alog numbers and	l similar data and I h	fied all field measuremen ave checked and coord	nts, field construction criteria linated each item with other
	Signature:		The	_ Date:	02-13-02
Submittal Identifie	er: D-02274-013-A	Original Su	ıbmittal	Supplemen	it
Submitted: No. of Copies:	February 13, 2002	Resubmitta		Information	n Only
,		<u> </u>	· · · · · · · · · · · · · · · · · · ·		Ciny
Submittal Descript	tion: Geocomposite QA/QC Roll	Certificates:	Lot 7		
Specification Ident	tifier: 01300, 02274 Section 1.03	(A.9) and Section 3	2.03 (A)		
Manufacturer:	Tenax Corporation				
Installer:	COMANCO Environmental	Corporation			
COMPLETED B			No. of Co	opies Returned:	
Status:	Code I - Approved			Code 4 - Approve	ed As Noted, Resubmit
	Code 2 - Approved As No	ted		Code 5 - Not App	proved
	Code 3 - Approved As No	ted, Confirm		Code 6 - Commer	nts Attached
Engineer Stamp	or Remarks Area:	,	···		
	SHO	P DRAWING	REVIEW		
	engineer's rev		SPONSE REQUIRE	D OF	1
	Approved/as Noted 🗆 Cor	proved mmento	Confirm Rosulamit		
	The Engineer's review of dimensions, equipment on specifications and for de Contractor for errors or citor's responsibility of acts and the Contractor for fabrication and manufacture for procedures of construction of CAMP DATESCER & DAKKEE MASSES	o sharrings as production controls and the controls are the controls are assetted for the controls are assetted to the controls are	esanted in the Contra is review does not re- committed or from the sone from the Contrac o details and dimensi backs. Sectionals	et plans, fleve the e Contra- t Docum-	

QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: January 3, 2002 Lot # 7

Project: Pasco Landfill

Submitted to:

Pablo Rivera

7911 Professional Place Tampa, Florida 33637

(813) 988-8829

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Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE: P

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 7

January 2, 2002

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101488, 0101489, 0101490, 0101491, 0101492, 0101493, 0101494, 0101495, 0101496, 0101497, 0101498, 0101499, 0101500, 0101501, 0101502, 0101503, 0101504, 0101505, 0101506, 0101507, 0101508, 0101509, 0101510, 0101511, 0101512, 0101513, 0101514, 0101515, 0101516, 0101517, 0101518, 0101519, 0101520, 0101521, 0101522, 0101523, 0101524, 0101525, 0101526, 0101527, 0101528, 0101529, 0101530, 0101531, 0101532, 0101533, 0101534, 0101535, 0101536, 0101537, 0101538, 0101539, 0101540, 0101541, 0101542, 0101543, 0101544, 0101545, 0101546, 0101547, 0101548, 0101549, 0101550, 0101551, 0101552, 0101553, 0101554, 0101555, 0101556, 0101557, 0101558, 0101559, 0101560, 0101561, 0101562, of Tendrain 7 70-2, consisting of lot # 7 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 7, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Fin Buters/W/4/.

Tim Bauters, Ph.D.

Quality Control Manager



TENDRAIN 770-2

NUBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

ine drainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

PROPERTIES	TEST METHOD	<u>UNIT</u>	<u>VALUE</u>	QUALIFIER
GEONET CORE				•
Tensile Strength - MD	ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
Compressive Behavior (% Retained thickness)		,	()	., , .
@50,000 psf (short term)	ASTM D1621	%	50	a, Note 2, 4
@25,000 psf (10,000 hours)		%	65	a, Note 4
Density	ASTM D1505	g/cm ³	0.94	c, Note 4
Melt Flow Index	ASTM D1238	g/10 min.	1.0	d. note 4
Carbon Black Content	ASTM D4218	%	2.0	c, Note 4
Thickness	ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
GEOTEXTILE				
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
Weight	ASTM D3776	$oz/yd^2 (g/m^2)$	6 (203)	b, Note 4
Water Flow Rate	ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
Permeability	ASTM D4491	cm/sec	0.2	b, Note 4
Permittivity	ASTM D4491	sec ⁻¹	1.3	b, Note 4
Puncture Strength	ASTM D4833	lbs (N)	90 (400)	b, Note 4
Trapezoid Tear	ASTM D4533	lbs (N)	65 (290)	b, Note 4
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	b, Note 4
്രാb Elongation	ASTM D4632	%	50	b, Note 4
en Burst	ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
UV Resistance @500 Hours	ASTM D4355	%	70	b, Note 4
GEOCOMPOSITE				*
Roll Width		ft (m)	6.7 (2.0)	a, Note 5
Roll Length		ft (m)	200 (61)	a, Note 5
Ply Adhesion	ASTM F904 (modified)	lb/in (N/m)	1.0 (175)	c, Note 6
HYDRAULIC BEHAVIOR OF GEOCOMPOSITE	(modified)			
Transmissivity - MD, ASTM D 4716-99 (m ² /sec)				o Notos 7
Gradient/Load:			15,000 psf (720 kPa)	c, Notes 7
0.1			1.8x10 ⁻³	

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

c = Minimum Value d = Maximum Value

NOTES:

- 1. Tensile properties tested by manufacture; every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- 2. Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- 3. Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- 4. Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- 5. Roll dimensions are measured at the time of manufacture.
- 6. Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- 7. Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot #

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
0100413	12/22/2001	323	0.952	2.50	0.350	1968
0100417	12/23/2001	335	0.950	2.50	0.400	2088
0100421	12/24/2001	341	0.950	2.40	0.550	1789
0100425	12/25/2001	330	0.952	2.44	0.460	. 1588
0100428	12/26/2001	320	0.951	2.52	0.300	2256
0100430	12/27/2001	327	0.950	2.49	0.400	2136
0100433	12/27/2001	325	0.950	2.50	0.410	1968
0100436	12/27/2001	325	0.952	2.63	0.400	1820
0100438	12/29/2001	337	0.950	2.46	0.420	1895
0100441	12/29/2001	328	0.952	2.55	0.445	1884

BEST AVAILABLE COPY

	Geonet Roll	Date Tested		Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			329	0.951	2,50	0.414	1939
Standard Dev.			7	0.001	0.06	0.066	191
Specifications			300	0.940	2.00	< 1	1000

Compression			
Load (psf)	Roll #	Thickness Retained (%)	Specification (%)
50000			50
	0100413	57.00	50
	0100417	61.00	50
	0100421	56.00	50
	0100421	57.00	50
	0100425	60.90	50
	0100428	60.00	50
	0100430	61.00	50
	0100433	60.00	50
	0100436	59.70	50
	0100436	56.52	50
	0100438	59.00	50
	0100441	57.00	50

Tested by

David Mitchell

Date

50

58.76

01/03/2002

Checked by

Christine Caropresso

Average (Specs)

Date

01/03/2002

Date: 12/19/2001

Number of Rolls FBR0608100 SO#21538 APPROVED BY:_	54 Quistal S.	Hore
ROLL#		
130110767	130111258	130111289
130110768	130111259	130111290
130110769	130111262	130111283
130110770	130111263	130111284
130110771	130111264	130111292
130110772	130111266	130111294
130110773	130111271	130111296
130110774	130111272	130111297
130110777	130111273	130111298
130110779	130111274	130111299
130111243	130111275	130111300
130111244	130111276	130111301
130111246	130111277	130111304
130111247	130111278	130111305
130111234	130111280	130111306
130111238	130111288	130111307
	130111314	130111308
	130111315	130111310
		130111311

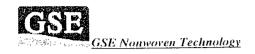
130111312



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mass per Mullen Burst Apparent Puncture Thickness Grab Strength Grab Elongation Trap Tear Strength Permittivity Permeability Unit Area Opening Size Strength Strength ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 - ASTM D 3786 - ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (sec-1) (cm/sec) (psi) (mm)130110767 6.5 97 189 230 91 121 104 129 120 376 0.212 2.2 0.6 130110768 6.5 97 189 230 91 121 104 129 120 376 0.212 2.2 0.6 130110769 6.5 97 189 230 91 121 104 129 120 376 0.212 2.2 0.6 130110770 6.6 97 201 238 94 120 117 128 0.212 2.2 161 362 0.6 130110771 6.6 97 201 238 94 120 117 128 362 0.212 2.2 161 0.6 130110772 6.6 97 201 238 94 120 117 128 362 0.212 2.2 161 0.6 130110773 6.6 97 201 238 94 120 117 161 128 362 0.212 2.2 0.6 130110774 6.6 97 201 238 94 120 117 161 128 362 0.212 2.2 0.6



Product: NV	/6	Ite	em Code:	FBŘ060810	0 -	Roll Wid	th: 15.0	feet				Test D	ale: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab Si	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110777	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



Product : NW	6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110779	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6



Product: NW	16	Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111243	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5
130111244	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5

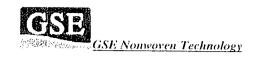
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Product: NW6 Test Date: 11/27/2 Item Code: FBR0608100 Roll Width: 15.0 feet Roll No. Mass per Apparent Opening Size Paneture Mullen Burst Thickness Grab Strength Grab Elongation Trap Tear Strength Permittivity Permeability Unit Area Strength Strength ASTM D 4632 ASTM D 5261 ASTM D 5199 ASTM D 4491 ASTM D 4632 ASTM D 4833 - ASTM D 3786 - ASTM D 4751 ASTM D 4533 (oz/yd2)(mils) MD (lbs) CD (lbs) (sec-1) . (cm/sec) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)130111246 6.9 90 217 245 2.1 0.5 92 0.212 115 130 173 117 356 130111247 6.9 90 217 245 92 0.212 2.1 0.5 115 130 173 117 356



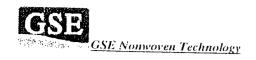
Product: NW6		Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111234	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



Product : NW6		Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	itrength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111238	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



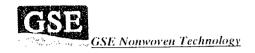
Test Date: 11/27/2 Item Code: FBR0608100 Roll Width: 15.0 feet Product: NW6 Mullen Burst Apparent Puncture Roll No. Mass per Permittivity Permeability Thickness Grab Strength **Grab Elongation** Trap Tear Strength Opening Size Strength Strength Unit Area ASTM D 4491 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 5261 ASTM D 5199 ASTM D 4533 ASTM D 4632 ASTM D 4632 (cm/sec) (sec-1) (mm) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (oz/yd2)(mils) 0.5 2.1 376 0.212 130111258 6.6 86 216 246 96 122 144 150 126 2.1 0.5 376 0.212 96 122 144 150 126 130111259 6.6 86 216 246



Product : NW6		Ite	em Code;	FBR060810	90	Roll Wid	lth: 15.0	feet				Tact D	Pate: 11/27/2
Roll No.	Mass per Unit Area	Thickness		Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
	(oz/yd2)	ASTM D 5199 (mils)		D 4632 CD (lbs)		D 4632		D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 D 4491
130111262		· · · · · · · · · · · · · · · · · · ·	1115 (10S)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111262	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5
	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	
130111264	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5 0.5

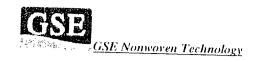


Product : NW	1 6	Ita	em Code:	FBR060810	n ·	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permvability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111266	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5

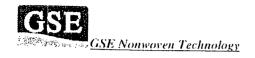


Test Date: 11/27/2 Item Code: FBR0608100 Roll Width: 15.0 feet Product: NW6 Mullen Burst Apparent Puncture Mass per Permittivity Permeability Roll No. Grab Elongation Trap Tear Strength Opening Size Thickness Grab Strength Strength Strength Unit Area ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 5261 ASTM D 5199 (sec-1) (cm/sec) (mm)(psi) (lbs) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (oz/yd2)(mils) 2.1 0.5 0.212 375 124 237 244 101 111 132 171 84 130111271 6.6 0.5 375 0.212 2.1 124 132 171 130111272 84 237 244 101 111 6.6 0.212 2.1 0.5 375 171 124 111 132 6.6 84 237 244 101 130111273 0.5 0.212 2.1 375 124 132 171 84 237 244 101 111 130111274 6.6 0.5 375 0.212 2.1 124 132 171 130111275 6.6 237 244 101 111 2.1 0.5 0.212 375 171 124 230 100 125 132 6.6 84 228 130111276 2.1 0.5 0.212 375 111 132 171 124 84 237 244 101 130111277 6.6 2.1 0.5 0.212 375 124 6.6 84 228 230 100 125 132 171 130111278

1



Product : NW	6	lt	em Code:	FBR060810	30	Roll Wid	lth: 15.0	foot					
Roll No.	Mass per	27.1					13.0	reet				Test D	ate: 11/27/2
	Unit Area	Thickness		itrength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	3879.7	D 4533		**	7 3		, r comeaning
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)						ASTM D 3786	ASTM D 4751	ASTM	(D 4491
130111280	6.9	89			NID (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
	0.5	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



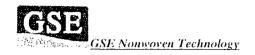
Product: NW6		It	em Code:	FBR060810	0	Roll Wia	<i>th:</i> 15.0	feet				Test D	Pate: 11/27/2
Roll No.	Mass per Unit Area	Thickness		trength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Duman issinis	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lhs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111288	6.9	89	246	230	95	125	141	162	115	358	0.212	1.0	
130111289	6.9	89	246	230	95	125	141	162	115	358		1.8	0.4
130111290	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4
								130	119	300	0.212	1.8	0.4



Product: NW6		Ita	em Code:	FBR060810	0 '	Roll Wid	th: 15.0	feet				Test 19	. 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab .	Strength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)		. CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	<i>(mm)</i>	(sec-1)	(cm/sec)
130111283	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111284	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



Product : NW	6	It	em Code:	FBR060810	00	Roll Wia	leh						
Roll No.	Mass per	Thickness				1011 1112	lth: 15.0	feet				Test D	Pate: 11/27/2
	Unit Area			Strength	Grab E.	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst		Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	4 17723 4		•••	Strength	Opening Size	i cimilityii	у г стеаышу
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)						ASTM D 3786	ASTM D 4751	ASTM	(D 449)
130111292	6.6	99	242			CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
		-3	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product : NV	V6	Ita	em Code:	FBR060810)()	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111294	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/27/2 Roll No. Mass per Thickness Grab Strength Unit Area Grab Elongation Puncture Mullen Burst Trap Tear Strength Apparent Permittivity Permeability Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 (oz/yd2)(mils) MD (lbs) CD (lbs) ASTM D 4491 MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm) 130111296 (sec-1) (cm/sec) 6.6 99 242 250 96 115 124 136 130111297 119 360 6.6 0.212 99 1.8 242 0.4 250 96 115 124 130111298 136 119 6.6 360 0.212 99 1.8 242 0.4 250 96 115 124 136 130111299 119 360 6.6 99 0.212 1.8 242 0.4 250 96 115 124 136 130111300 119 360 6.7 0.212 90 231 1.8 0.4 231 92 120 101 120 130111301 128 357 6.7 0.212 90 1.8 231 0.4 231 92 120 101 120 128 357 0.212

1.8

0.4

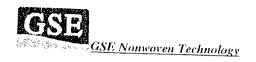


Product: NW6		It	em Code:	FBR060810	0	Roll Wia	lth: 15.0	foot					
Roll No.	Mass per Unit Area ASTM D 5261	Thickness		trength		ongation		r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size		v Permeability
	(0z/yd2)		ASTM MD (lbs)		ASTM MD (%)	D 4632 CD (%)		D 4533 CD (lbs)	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111304	6.7	90	231	231		(12 (10)	BH) (105)	CD (tos)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111305	6.7	90	231		92	120	101	120	128	357	0.212	1.8	0.4
130111306	6.7	90	231	231 231	92	120	101	120	128	357	0.212	1.8	0.4
130111307	6.7	90	231	231	92	120	101	120	128	357	0.212	1.8	0.4
130111308	6.7	90	231	231	92	120	101	120	128	357	0.212	1.8	0.4
			20,	231	92	120	101	120	128	357	0.212	1.8	0.4



Product : NW6		Ita	em Code:	FBR060810	00	Roll Wid	th: 15.0	feet				Test D	afe: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivit	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	f 1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111310	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111311	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111312	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4

(ره



Product: NM	/ 6	It	em Code:	FBR060810	00	Roll Wie	lth: 15.0						
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength		ongation		r Strength	Puncture	Mullen Burst	Apparent		ale: 11/27/2
	ASTM D 5261 (oz/yd2)		ASTM MD (lbs)	D 4632 CD (lbs)		D 4632 CD (%)		D 4533	Strength ASTM D 4833	Strength ASTM D 3786	P. a. m. S. m.		Permeability D 4491
130111314	7.0	99	231	243			1117 (11/3)	CD (ms)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111315	7.0	99	231	243	103 103	116 116	109 109	134 134	125 125	368 368	0.21 <u>2</u> 0.212	1.8 1.8	0.4

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT : JOB: Tendrain 770-2
Pasco Landfill
7

LOT #: DATE:

01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101488	0100426	130111307	130110777	200
0101489	0100426	130111307	130110777	200
0101490	0100426	130111307	130110777	200
0101491	0100427	130111307	130111244	200
0101492	0100427	130111307	130111244	200
0101493	0100427	130111243	130111244	200
0101494	0100427	130111243	130111244	200
0101495	0100427	130111243	130111244	200
0101496	0100427	130111243	130110768	200
0101497	0100427	130111243	130110768	200
0101498	0100427	130111264	130110768	200
0101499	0100427	130111264	130110768	183
0101500	0100428	130111264	130110768	200
0101501	0100428	130111264	130111273	200
0101502	0100428	130111264	130111273	200
0101503	0100428	130110779	130111273	200
0101504	0100428	130110779	130111273	200
0101505	0100428	130110779	130111273	200
0101506	0100428	130110779	130111271	200
0101507	0100428	130110779	130111271	200
0101508	0100430	130110773	130111271	200
0101509	0100430	130110773	130111271	200
0101510	0100430	130110773	130111301	200
0101511	0100430	130110773	130111301	200
0101512	0100430	130110773	130111301	200
0101513	0100430	130111238	130111301	200
0101514	0100430	130111238	130111301	200
0101515	0100430	130111238	130111266	200
0101516	0100431	130111238	130111266	185
0101517	0100431	130111315	130111266	200
0101518	0100431	130111315	130111266	200
0101519	0100431	130111315	130111266	200
0101520	0100431	130111315	130111294	200
0101521	0100431	130111315	130111294	200
0101522	0100431	130111315	130111294	200
0101523	0100431	130110772	130111294	200
0101524	0100431	130110772	130111294	200
0101525	0100431	130110772	130111294	195
0101526	0100433	130110772	130111294	200
0101527	0100433	130111258	130111294	200
0101528	0100433	130111258	130110769	200
0101529	0100433	130111258	130110767	200
0101530	0100433	130111258	130110767	200
0101531	0100433	130111258	130110767	200
0101532	0100433	130111297	130110767	200
0101533	0100433	130111297	130110767	200
	- · · - · · 	· · · · ·		

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

Tendrain 770-2 Pasco Landfill JOB:

LOT#:

DATE:	01/02/02

COMPOSITE#	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101534	0100432	130111297	130111263	200
0101535	0100432	130111297	130111263	200
0101536	0100432	130110771	130111263	200
0101537	0100432	130110771	130111263	200
0101538	0100432	130110771	130111263	200
0101539	0100432	130110771	130111292	200
0101540	0100432	130110771	130111292	200
0101541	0100432	130110771	130111292	200
0101542	0100432	130111280	130111292	200
0101543	0100419	130111280	130111292	200
01015 1	0100419	130111280	130111247	200
0101545	0100419	130111280	130111247	200
0101546	0100419	130112696	130111247	200
0101547	0100419	130112696	130111247	200
0101548	0100419	130112696	130111247	200
0101549	0100419	130112696	130111289	200
0101550	0100419	130112696	130111289	200
0101551	0100419	130112713	130111289	200
0101552	0100436	130112713	130111289	200
0101553	0100436	130112713	130111289	200
0101554	0100436	130112713	130111296	200
0101555	0100436	130112713	130111296	200
0101556	0100436	130111290	130111296	200
0101557	0100436	130111290	130111296	200
0101558	0100436	130111290	130111296	200
0101559	0100436	130111290	130111296	200
0101560	0100437	130111290	130111234	200
0101561	0100437	130111272	130111234	200
0101562	0100437	130111272	130111234	200



Office: (410) 522-7000 (410) 522-7015

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report **ASTM F904***

Product

Tendrain 770-2

Lot:

7

Roll Size

6.7' x 200"

Project Testing Lab

Pasco Landfill Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101488	01/03/2002			
		1.20	1.35	
		1.01	1.15	
		1.02	1.25	
		1.10	1.30	
		1.08	1.26	Average
		0.09	0.09	Std. Deviation
		1.00	1.00	Specification (minimum)

e note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and e. If the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

*Ply adhesion is tested by the manufacturer every 100,000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min.. for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both edges of the roll.

Tested by

Date 01/03/2002

Checked by

David Mitchell

Christian Coronresso

And Coronresso

Date 01/03/2002

TRANSMISSIVITY TEST RESULTS **ASTM D-4716**

JLT

Client:

Tenax Corporation

Project:

Pasco County Landfill

Material:

Tendrain 770-2

Sample ID:

Lot 7

Job Number: Date:

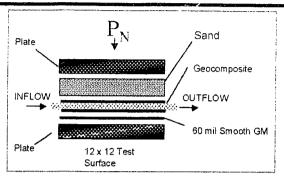
01G2769-03 01/03/01

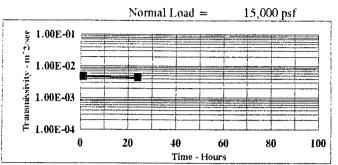
Tested By:

DB

Checked By:

JB





REPLICATE No.	GRADIENT	VOLUME ce	TIME secs	FLOW RATE cc/sec	TRANSMISSIVITY m2/sec	TRANSMISSIVITY gal/min/ft		
1 Hour		Test Water Temp. =		15.0	Temp. Cor. Fact =	1.137		
1	0.10	4025.00	30.65	131.32	4.90E-03	2.37		
2	0.10	4027.00	30.70	131.17	4.89E-03	2.36		
3	0.10	4030.00	30.72	131.18	4.89E-03	2.36		
Average					4.90E-03	2.37		
24 Hours		Test Wat	ter Temp. =	13.0	Temp. Cor. Fact =	1.200		
1	0.10	3440.00	30.68	112.13	4.41E-03	2.13		
2	0.10	3444.00	30.73	112.07	4.41E-03	2.13		
3	0.10	3447.00	30.75	112.10	4.41E-03	2.13		
Average					4.41E-03	2.13		
48 Hours		Test Wat	er Temp. =		Temp. Cor. Fact =			
1	0.10		:	ERR	ERR	ERR		
2	0.10	:	!	ERR	ERR	ERR		
3	0.10		1	ERR	ERR	ERR		
Average					ERR	ERR		
72 Hours		Test Water Temp. =			Temp. Cor. Fact =			
1	0.10			ERR	ERR	ERR		
2	0.10	1	i	ERR	ERR	ERK		
3	0.10			ERR	ERR	ERR		
Average					ERR	ERR		
100 Hours		Test Wat	er Temp. =		Temp. Cor. Fact =			
1	0.10	;	!	ERR	ERR	ERR		
2	0.10			ERR	ERR	ERR		
3	0.10			ERR	ERR	ERR		
Average					ERR	ERR		

J&L Testing Company, Inc.

938 S.Central Ave., Canonsburg, Pa. Tel: 724-746-4441 . Fax: 724-745-4261

COMANCO ENVIRONMENTAL CORPORATION

7911 Professional Place, Tampa, Florida 33527 Phone (813)988-8829 Fax (813)988-3720

SUBMITTAL	CONTROL	FORM

WEST TASCO COUNTY LAP	IDFILL EXPANS	SION - CELLS A-	3 AND	SW-2		
Pasco County B.O.C.C.	Project No.	Project No. 01-063			John Power	
Camp Dresser & McKee	Project No.	6104-28936	Project Manager:		Daniel Strobridge, Q.E.F. Gary L. Conaway, P.E.	
Handex of Florida, Inc.	Project No.	123477 010-848		oject Manager:		
COMANCO Environmental Corp.	Project No.			oject Manager:	Pablo J. Rivera	
Y CONTRACTOR:						
materials, dimensions, ca	atalog numbers and	similar data and I h	fied all t ave che	field measureme cked and coor	ents, field construction crite dinated each item with of	
Signature:	<u>-f</u>	Mi	_	Date:	02-13-02	
r: D-02274-014-A	Original Su	bmittal] [Suppleme	nt	
February 13, 2002						
8	Resubmitta	1		Informatio	on Only	
ion: Geocomposite OA/OC Ro	all Certificates:	Lot 8				
						
	tal Composition					
		· · · · · · · · · · · · · · · · · · ·				
Code 1 - Approved		No. of Co			ved As Noted, Resubmit	
Code 2 - Approved As N	loted			Code 5 - Not Ap	proved	
Code 3 - Approved As N	Noted, Confirm			Code 6 - Commo	ents Attached	
or Remarks Area:			_			
SHOP	DRAWING RE	VIEW		i		
enganger's revi)F	į Į		
Approved as Noted 🗆 Comm		Confirm Rocubmit		ji		
ATTEC			- 1	N N		
	Handex of Florida, Inc. COMANCO Environmental Corp. Y CONTRACTOR: ment: By this submittal, I hereb materials, dimensions, ca applicable approved shop Signature: T: D-02274-014-A February 13, 2002 8 ion: Geocomposite QA/QC Ro of 1300, 02274 Section 1.00 Tenax Corporation COMANCO Environment Y ENGINEER: Sived: Code 1 - Approved Code 2 - Approved As Not Approved As Not Approved ENGANCEER'S REVIE Approved Not Approved Not Approved Not Approved	Handex of Florida, Inc. COMANCO Environmental Corp. Project No. Pro	Handex of Florida, Inc. COMANCO Environmental Corp. Project No. 123477 1010-848 V CONTRACTOR: The ment: By this submittal, I hereby represent that I have determined and verification applicable approved shop drawings and all Contract requirements. Signature: The D-02274-014-A February 13, 2002 8 Resubmittal February 13, 2002 8 Resubmittal February 13, 2002 Resubmittal Fenax Corporation COMANCO Environmental Corporation VENGINEER: Sived: Code 1 - Approved Code 2 - Approved As Noted Code 3 - Approved As Noted Code 3 - Approved As Noted, Confirm The Remarks Area: SHOP DRAWING REVIEW RESPONSE REQUIRED CONTRACTOR Approved Not Approved Confirm Confirm	Handex of Florida, Inc. COMANCO Environmental Corp. Project No. 123477 Pr. COMANCO Environmental Corp. Project No. 1010-848 Pr. 1010-848 Pr. 1010-848 Pr. 1010-848 Pr. 1010-848 Pr. 1010-848 Project No. 1010-848 Project	Handex of Florida, Inc. COMANCO Environmental Corp. Project No. Project No. 123477 010-848 Project Manager: V CONTRACTOR: ment: By this submittal, I hereby represent that I have determined and verified all field measurement materials, dimensions, catalog numbers and similar data and I have checked and coor applicable approved shop drawings and all Contract requirements. Signature: D-02274-014-A February 13, 2002 Resubmittal Original Submittal Supplements: February 13, 2002 Resubmittal Information: Geocomposite QA/QC Roll Certificates: Lot 8 01300, 02274 Section 1.03 (A,9) and Section 2.03 (A) Tenax Corporation COMANCO Environmental Corporation V ENGINEER: ived: No. of Copies Returned: Code 1 - Approved Code 2 - Approved As Noted Code 5 - Not Approved Resubmittal Code 6 - Committed Code 6 - Committed Remarks Area: SHOP DRAWING REVIEW RESPONSE REQUIREO OF CONTRACTOR Approved Not Approved	

QUALITY CONTROL SUMMARY TENAX Tendrain 7 70-2

Prepared for: Comanco Environmental Corporation Date: January 3, 2002 Lot # 8

Project: Pasco Landfill

Submitted to: Pablo Rivera

7911 Professional Place Tampa, Florida 33637

(813) 988-8829

Table of Contents

Certification Letter and Product Specification	1
MQC of Geonet	2
MQC of Geotextile	3
MQC of Geocomposite	4



Office: 410-522-7000 Fax: 410-522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

ATTN: Pablo Rivera

RE: Pa

Pasco Landfill

Tendrain 7 70-2 (200' x 6.7')

Lot # 8

January 2, 2002

Dear Pablo Rivera:

Tenax Corporation certifies the following roll numbers, 0101563, 0101564, 0101565, 0101566, 0101567, 0101568, 0101569, 0101570, 0101571, 0101572, 0101573, 0101574, 0101575, 0101576, 0101577, 0101578, 0101579, 0101580, 0101581, 0101582, 0101583, 0101584, 0101585, 0101586, 0101587, 0101588, 0101589, 0101590, 0101591, 0101592, 0101593, 0101594, 0101595, 0101596, 0101597, 0101598, 0101599, 0101600, 0101601, 0101602, 0101603, 0101604, 0101605, 0101606, 0101607, 0101608, 0101609, 0101610, 0101611, 0101612, 0101613, 0101614, 0101615, 0101616, 0101617, 0101618, 0101619, 0101620, 0101621, 0101622, 0101623, 0101624, 0101625, 0101626, 0101627, 0101628, 0101629, 0101630, 0101631, 0101632, 0101633, 0101634, 0101635, 0101636, of Tendrain 7 70-2, consisting of lot # 8 to be shipped to the above referenced project are in accordance with the geonet properties listed in the attached Tenax specifications: Those rolls were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

This MQC submittal consists of the following sections:

Section 2 contains the geonet Manufacturing Quality Control (MQC); Section 3 entails the MQC on the geotextile used for the manufacture of these geocomposites. Section 4 describes in detail all geocomposites roll numbers that constitute lot # 8, describe there respective geotextile roll numbers and geonet roll numbers, as well as geocomposite transmissivity and peel strength.

Respectfully submitted,

Tim Bauters, Ph.D.

Quality Control Manager

Tim Bouters/Exclass.



ENDRAIN 770-2 JUBLE-SIDED GEOCOMPOSITE

Pasco LF, FL

The drainage geocomposite is comprised of a tri-planar geonet structure consisting of thick supporting ribs with diagonally placed top and bottom ribs and with a thermally bonded, non-woven geotextile on both sides. The product is capable of providing high Transmissivity in a soil environment under high normal loads and will have properties conforming with the values and test methods listed below:

TEST METHOD	<u>UŅIT</u>	<u>VALUE</u>	QUALIFIER
ASTM D4595	lb/ft (kN/m)	1000 (14.6)	c, Note 1, 4
	,	,	•
ASTM D1621	%	50	a, Note 2, 4
	%	65	a, Note 4
ASTM D1505	g/cm³	0.94	c, Note 4
ASTM D1238	g/10 min.	1.0	d, note 4
ASTM D4218	%	2.0	c, Note 4
ASTM D5199	mils (mm)	300 (7.6)	c, Note 3, 4
			•
ASTM D4751	US Sieve (mm)	70 (0.21)	b, Note 4
ASTM D3776	oz/yd² (g/m²)	6 (203)	b, Note 4
ASTM D4491	gal/min/ft ² (lpm/m ²)	110 (4483)	b, Note 4
ASTM D4491	cm/sec	0.2	b, Note 4
ASTM D4491	sec ⁻¹	1.3	b, Note 4
ASTM D4833	lbs (N)	90 (400)	b, Note 4
ASTM D4533	lbs (N)	65 (290)	b, Note 4
ASTM D4632	lbs (N)	160 (712)	b, Note 4
ASTM D4632	%	50	b, Note 4
ASTM D3786	psi (kPa)	325 (2241)	b, Note 4
ASTM D4355	%	70	b, Note 4
	ft (m)	6.7 (2.0)	a, Note 5
	ft (m)	200 (61)	a, Note 5
ASTM F904 (modified)	lb/in (N/m)	1.0 (175)	c, Note 6
(
			c, Notes 7
		15,000 psf (720 kPa)	0,
		1.8x10 ⁻³	
	ASTM D4595 ASTM D1621 ASTM D1505 ASTM D1238 ASTM D4218 ASTM D5199 ASTM D5199 ASTM D4751 ASTM D3776 ASTM D4491 ASTM D4491 ASTM D4491 ASTM D4833 ASTM D4533 ASTM D4533 ASTM D4632 ASTM D4632 ASTM D4632 ASTM D4355	TEST METHOD UNIT ASTM D4595 Ib/ft (kN/m) ASTM D1621 % % % ASTM D1505 g/cm³ ASTM D1238 g/10 min. ASTM D4218 % ASTM D5199 mils (mm) ASTM D4751 US Sieve (mm) ASTM D3776 oz/yd² (g/m²) ASTM D4491 cm/sec ASTM D4491 sec⁻¹ ASTM D4833 lbs (N) ASTM D4533 lbs (N) ASTM D4632 lbs (N) ASTM D4632 % ASTM D3786 psi (kPa) ASTM D4355 % ft (m) ft (m) ft (m) lb/in (N/m)	ASTM D4595

Qualifiers: a = Typical Value

b = Minimum Average Roll Value (MARV)

c = Minimum Value d = Maximum Value

NOTES:

- Tensile properties tested by manufacturer every 50,000 square feet of product per ASTM D4595 with a specimen width of 8.0 in. and cross-head speed of 0.4 in/min
- Short term compressive behavior tested by manufacturer every 50,000 square feet of product per ASTM D1621 with a 4 in.x 4 in. specimen and a constant rate of strain of 0.04 in./min.
- Thickness measured by manufacturer every 50,000 square feet of product per ASTM D5199 with a 2.22 in. diameter presser foot and 2.9 psi pressure.
- 4. Geotextile and geonet properties listed are prior to lamination. Geotextile is tested at the industry standard frequency.
- Roll dimensions are measured at the time of manufacture.
- Ply Adhesion is tested by the manufacturer every 100,000 sf of production per modified ASTM F904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to either side of the geonet is pulled apart at a peeling
 - rate of 12 in/min., for at least 4 inches of peeling distance. The reported value for each laminated side is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width with a 1 foot margin from both edges of the roll.
- Geocomposite transmissivity measured by manufacturer every 100,000 square feet of product as per ASTM D4716-99 with testing boundary conditions as follows: steel plate / uniform sand / geocomposite / 60 mil HDPE geomembrane / steel plate, and seating period of 100 hours.

Office: (410) 522-7000 Orc Fax: (410) 522-7015 Wa Web Site: www.tenaxus.com

Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Geonet MQC Test Results

Product

TD 7

Project

Pasco Landfill

Lot#

Dimensions

6.7' x 200'

Testing Lab

Tenax Corp.

Geonet Roll	Date Tested	Thickness ASTM D5199 (mils)	Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
0100433	12/27/2001	325	0.950	2.50	0.410	1968
0100436	12/27/2001	325	0.952	2.63	0.400	1820
0100438	12/29/2001	337	0.950	2.46	0.420	1895
0100441	12/29/2001	328	0.952	2.55	0.445	1884
0100443	12/29/2001	327	0.951	2.36	0.427	1925

	Geonet Roll	Date Tested		Density ASTM D1505-98 (g/cm3)	CarbonBlack ASTM D4218-96 (%)	MFI ASTM D1238-00 (g/10min)	Tensile Strength ASTM D4595-94 (lb/ft)
Average			328	0.951	2.50	0.420	1898
Standard Dev.			5	0.001	0.10	0.017	55
Specifications			300	0.940	2.00	. <1	1000

Compression			
Load (psf)	Roll #	Thickness Retained (%)	Specification (%)
50000			50
	0100433	60.00	50
	0100436	59.70	50
	0100436	56.52	50
	0100438	59.00	50
	0100441	57.00	50
	0100443	58.00	50
Av	erage (Specs)	58.37	50

Tested by

Checked by

David Mitchell

Aprist Cangana

Date

01/03/2002

Date

01/03/2002

Date: 12/18/2001

Number of Rolls FBR0608100 SO#21538 APPROVED BY:	ionica II	wlitar
ROLL#		<i>o O</i>
130110726	130111285	130112709
130110786		
	130111291	130112710
130110787	130111309	130112711
130111248	130112683	130112712
130111249	130112685	130112713
130111250	130112687	130112714
130111251	130112689	130112715
130111253	130112690	130112716
130111260	130112691	130112717
130111261	130112615	130112718
130111265	130112616	130112719
130111267	130112617	130112720
130111268	130112618	130112721
130111269	130112693	130112722
130111270	130112696	130112723
130111279	130112708	130112724
130112683	130111226	130111236

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Product : NW6			mer alice	FBR060810	()	RedFM idits: 15.0 feet					<i>t → P.0</i> → 11/27/20		
A CONTRACTOR OF THE CONTRACTOR	$\frac{M(n,j)}{L(n,j)}$	11.61.000	rak so., ya		ran's Li	The state of the state of the state of		together englis		Mulley Burst	Appen in Appending Sec.	$f_{sol}(ab, c_s)$ $f_{sol}(aba)$	
	18/1/11/8/9/1	STATES SEE CARRIES OF		(SIMD) (SI)		15.14775 11.55		151011 00		ANTHERSON	18141111111		
	(117, 147)	matsi	Modby	CD (lb.)	$MD(r)_{ar}$. 14 p., r	$MP(\theta_{ij})$	- 15 Mins	: li . i	ipai	(1021)		1 11
130111253	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5



Roll Cost Data Samanag - English Lans

Steelie for NW6 See that the NW6 See tha				0	Nell Ha	11/27/20							
The second secon	Marijan	Manager Francisco		rad Maryi		and may non-			The second	Moden Pace See myh	Cymrasal Commic Society	Frith differs	
	ENTARY - STATE	INTERPORT INTO HIS		$i \sim IM D \approx 12$		18737 B. B.		1 - 1 - 1	1.1301-250	1874/D 184	$-i \sim \ell M H \pi M \ell$		
	Fit to I	$_{BB},b_{B}$	VII) (ilis)	$(D \partial bs)$	MD ("	$i(T)_{A}\cap I$	$MP_3^{(n)} \leftrightarrow$	e trattal	2. 31	(first)	2771112	(5.5.5. 2.7 	to the constant
130111260	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5
130111261	6.5	83	228	230	100	125	141	158	121	332	0 212	2.1	0.5



Roll For Data Summary Anglish Earts

NW	=		77 + 36 ÅC FBR060810		15.0 feet				11/27/20
					The specific section of the		Andrea Europe Santyk	Apparent Apparent Nove	Estate Sales Sales Estate Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales Sales S
	4×74/2 + 900 1000 1000 1000 1000 1000		$484MDms^{21}$	181311111	1921		extra construction (State Care)		1. 11.11.5
	est en le				Sylva May on English		•		
130111265	6.5	83	228 230	100 125	141 158	121	332	0 212	2.1 05



Roll Fest Dana Summer: 2 nghih Cunis

The artist NW6 standard FBR06081						だった (4.5) (4.5) (15.0) feet									
*			caraly Supercytic										The state of the s		
	$= \pm \gamma T M(t) + \gamma r(t)$	3 71/2 10 10 11			$t \times t \times t \times t = 1$		Example 1		and the fearence	18/1/1/19/29	· + /1	12 to 10 to			
e a la la la constitución de la compansa de la comp	473 1	*, . ** ;	Mr ths:	< 13 pHeep	Minter	P. C.				**	6.019		1 ***		
130111267	6.5	83	228	230	100	125	141	158	121	332	0 212	2.1	0.5		
130111268	6.5	83	228	230	.00	125	141	158	121	332	0 212	2 1	05		
130111269	6.5	83	228	230	100	125	141	158	121	· 332	0.212	2.1	05		
130111270	6.6	84	237	244	101	111	132	171	124	375	0 212	2.1	0 5		



Roll Levi Data Summure - Unglish Lane

:/set NW6	5		कर भीटा FBI				15,0						11/27/20
4 A	Trong or Lagrange									Malley Buss			
	1 - 7 AZ 2 - 3 - 2 - 2	Elektrist State	$(t_{i},tMJr_{i})$	5 * *	15,737	1 - 1 - 1	15117			BANA DOMESTIC	Production of		
	(19 to 2)	milki								.,			te to the
130111279	6.6	84		230	100	125	132	171	124	375	0 212	2 1	0.5

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Roll Vesi Data Summare Linglish Units

····················NW	6	D.	on Codes				ий: 15.0 f	eet				j - 1 2 1 2 1 1	11/27/20	
15 1 N +	$M(\alpha_{ij})$. $C(\alpha_{ij})$ by β	floring					2 - 2 - 1 - 1	and the	Marin Sarah Sarah Sarah	Midden Buss	Agrana aran	Lancast Parama		
•	484 M 43 TAT	187A. 113 (9)	15737	18 37.35	13/1/17	1 1: "	israti	;	15731 (1)	PATH DECKE	18/14/2018	18.732.4		
	(st. p.C)	$m^{4}c_{1}$	VIO 776VI	$\mathcal{C}HHPmr$	dDT_{i}	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Mingher			(200	trau.		1 1	
130111285	6.9	89	246	230	95	125	141	162	115	358	0 212	18	0 4	



Roll Fest Data Summary Anglish Cants

Market NW	6	h.	mental defects		•		<i>481</i> 15.0					1 11 180	11/27/20
11 18 N. W.	Mary Johnson	He have					f - iq :		Partition Secondary	Mallen Buss Sucreyli	Approximately States	F. 1224.51	
	18779111701	1-7423-19	457 M F	13835	45737	the profit	1.11	: ;	15.737.78.78.	SIMBLESS	ts FW H 2 NF	11 / 14 /	
	(cv, c, h^*)	20,000							11 42	$(f^{\infty} t)$	(117111)	$p_0 = t r$	C. M. Greek
130111291	6.6	99	242	250	96	115	124	136	119	360	0 212	1.8	0 4



Product : NW	ŝ	ji:	m Codes	FBR060810	()		lett: 15.0 f		en majoristando en la compansión de la compansión de la compansión de la compansión de la compansión de la comp				11/27/20
7 1 1,1	Marie par Unio Area	Her Lower	rerati	starngala	randa 17		I i i je i i i i		Pr. 1	Mullen Russ Swingth	Apparent Opening See	1., n	men Stone
	(STMJ) + 2cT	187W (1879)	1574	(Dun)?	WW	$H(m^{1/\gamma})$	187177	<i>e</i> :	15 t Vi It 15 I I	ESTATION SIG	387477754		11.1703
and a state of the part taylor agreement common gas garden	$(\alpha; xJ^{\gamma})$	qmKi	MD (lhs)	CD (lbsi	MD_{A}^{a}	$CD(\mathcal{C}, r)$	$MP_A p_{SA}$. Dalling	, ker , 4	(psi)	(nem)	15-5-11	6.00;
130111309	6.7	90	231	231	92	120	101	120	128	357	0 212	1 8	0.4



Conduct NV				FBR060810			ich 15.0					f +f file	# 12/17/20
	Markey Control of the	Incl. on							Mark to the	Michael Busse Susanga	Typoreau Openion, NO	* ,	77 + 71
	157MB+561	137 to 56 to 50 cm	(57M	$D(meG^{n,n})$	(S737)	1-16-5	:5737	1 25 3	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	187411186	45/1/11/2014	1574	
· p · · · · · · · · · · · · · · · · · ·	(22.15.7)								$t_{i} \rightarrow I$	(/**/)	From Fig. 1	proprie	
130112615	7.5	89	241	261	103	128	106	143	127	364	0.180	1.6	0 4
130112616	7.5	89	241	261	103	128	106	143	127	364	0.180	16	0 4
130112617	7.5	89	241	261	103	128	106	143	127	364	0 180	1.6	0.4
130112618	7.5	89	241	261	103	128	106	143	127	364	0.180	16	0 4



Roll Test Data Summary Trighth Units

Zeedlis Zoo NV	V 6	<i>[1</i>	ne Coste.	FBR060810	0	$\mathcal{R}(qf(H))$	<i>h/i</i> 15.0	feet				1 1:	····· 12/17/20
The second secon	Mary per Unit Steel	flatters.		Service of the servic					March 1	Mijden Birsi Sir eigh	Applieses		anna a
	18772 1 Conf.	13/11/11/199	1573	(B) (64)	15/37	he to	15737	f	15.731.7638.74	NAMBERA	10.7 VEZE 2" VE		11 11 11
10. b 1 11. b	we sit 's	junki	MO (ibs)	, CD ilhsi	$MD(C_{ij})$	$\sqrt{B}(x',x)$	$MP_{\mathcal{F}}^{H_{\mathcal{F}}}$	e to galaxy	70.7	tjear	[2177] F	f= 1	(D
130112683	6.4	85	215	227	90	120	98	117	124	342	0.180	1 7	0 4
130112685	6 4	85	215	227	90	120	98	117	124	342	0 180	1 7	0 4

,



Roll Fest Data Summary Coghsh Cuits

/* NW	•		eni tənkir.				<i>ith</i> 15.0					; st. 14.	ii. 12/17/20
	African Englished	fix to the							$F_{4i} + 1 \neq i + 1$	And Ton Basse	lynner er	f., 11	dere in Litaria
	is IMD + id	1373735322	15757	District	1574	Posts	15737	<i>i</i> : :	15.737 February	$-\alpha fWDFSS$	elenario de		Days.
	(11) 3 (1)	+ ### 15-2						. 20 . flag.	11 41	q_{sol}	toma	r	1011.
130112687	6.4	85	215	227	90	120	98	117	124	342	0 180	1.7	0 4

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Propert NV	V6			FBR060810			किंग 15.0 ा						iii 12/17/20
grote No.	Mark you Englished	Esta Estas									Application	1.74.	ntaris atribis
	18/3/10 5 201	48744713 9x	1571	LD mil	15737	Programme	15.737	:	27.23-25.28.61	48141111154	1 14 11 137		frant
	$i\alpha, \pm i\beta$	11,001	MAN Alba	(I) (Pic)	Mar s	$_{i}\left(IY_{i}\right) ,_{I}$	Spirit March	+ 2 +,7+x2	$f_{i^{\prime}(s_{i})}^{\prime}$	(pw)	1 -21-27	11 1	(14)
130112689	6.4	85	215	227	90	120	98	117	124	342	0.180	1 7	0 4
130112690	6.4	85	215	227	Ĵ0	120	98	117	124	342	0 180	1 7	0.4
130112691	6.4	85	215	227	90	120	98	117	124	342	0 180	1.7	0.4



Roll Levi Dana Summer - English Units

Confidence NM	<i>1</i> 6	1 1	a(t) $ah(t)$	FBR060810	0	$P(\mathcal{G}(H))$	### 15 .0 1						12/16/20
	Maringan Last George	fills to an	e any filia	ree grie	1.241 - 1.2		to type to the		Park to	Mailen Baist Sueingh	10000000	France	(r) (4)
	$\{s,f,v_t,f\} \times \gamma_{t+1}$	15/14/19/19/19	1.737	true"	15737	1 12 1	15737	· :	ractions.	$(\nabla f M D + \nabla a)$	Section 1	6-24°	
	$m, s, i \in$. 11: (10000	2	41 - 41	H^{NO}	t -91,3	15 11	1 101 m . 1
130112693	6.2	89	208	215	97	115	98	151	111	352	0.212	1 7	0.4



. Roll Lest Data Summure Unglish Units

75 am in NW	V6	ja,	om Flories FBI			2-41 b n	1141 15.0 f	eet				post Bullet	12/16/20
	Mary por Law 3r sc	The training of the second of	terah diri			ar jernar	Arij i r	. vagti	Davis en Stein, ale	Mullen hyps Susingli	kjysned Kynneny Ste	lymsikes Parasihi	1
	(8) 11/1/11/18	INTALIE STATE	IS/M Ir i	r i i	(5/1)	to He	15737	4111	BBMBBB	$-i \tilde{N} I \tilde{M} \tilde{M} \tilde{M} \tilde{N}^{2} N$	INTWITE'ST	(171 ft 1)	
	10 2.75	mba	Million il	· (His.	MDT_{ac}	1.121	5/12 (*h) i	1-2711	4000	(pn)	(irrii)	e , h e	n
130112696	6.2	89	208	215	97	115	98	151	111	352	0 212	1 7	0 4



· ·······················NW6			, ar Carlo.				### 15.0					1 -11	12/16/20
	Maria de la companya della companya della companya de la companya de la companya della companya	:1.00000							$P(t,r,t,r,\tau)$	Mallen Burst Sic. neffi	1/mm.m	Posts Pasta	eate de existence
	ASTALL SOL	1870 91597	14/37	Dugar	15717	From the	19:137	1 1 1	45.7 M. In 1847	INTERPORTAR	1 14771751	. 7.33	
, ,	101 2 1 1 1	1. 5.)		(D. Phy			3773.55		and a national of the common and the common terms of the common te	(pm)		25/1 23 	
130112708	6.5	88	240	242	92	111	102	147	121	334	0.212	1.7	0 4
130112709	65	8 8	240	242	92	111	102	147	121	334	0.212	1.7	0 4
130112710	6.5	88	240	242	92	111	102	147	121	334	0 212	17	0 4
130112711	6.2	89 .	208	215	97	115	98	151	111	352	0 212	1.7	0 4
130112712	6.5	88	240	242	92	111	102	147	121	334	0 212	1 7	0 4
130112713	6.6	88	199	237	98	116	111	130	126	356	0 212	17	0.4
130112714	6.6	88	199	237	98	116	111	130	126	350	0 212	17	0 4
130112715	6.6	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112716	66	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112717	6.6	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112718	6.6	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112719	6.6	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112720	66	88	199	237	98	116	111	130	126	356	0 212	1 7	0 4
130112721	6.6	88	199	237	98	116	111	130	126	356	0 212	1.7	0 4
130112722	6.6	88	199	237	98	116	111	130	126	356	0 212	1.7	0 4
130112723	6.9	90	244	229	87	114	106	122	121	392	0 212	1.7	0.4
130112724	6.9	90	244	229	87	114	106	122	121	392	0 212	1 7	0 4



Roll Test Date Summers Anglish Units

Product : NV	V6	ļņ.	m Code:	FBR060810			### 15.0					1 112	12/17/20
71. 27 Nov.	Massyn Landson	Her Lynn	F CERTIFICATION	negth			for age of some			Midlen Burst Strongh	Apparent Commences	fastei Fran	ito q uhilin
	18/7/11/11/20	[VI W H #1998	15/ W	D political	18747	$E(m)^{\frac{1}{2}}$	15737	1 11 1	157317-2571	4874777386	1577/11/757		11 12 1
	(a, id)	mshi	WO flist	CD (lbs)	$MD(t^{n_{m}})$	+D(1)j	$MPA^{t}w$. In Allery	$e^{i \mathcal{O}_{i,j}}$	(1991	E-171111	(5. 5. E)	go 142 og det mannamenter
130112688	6.4	85	215	227	90	120	98	117	124	342	0 180	1.7	0 4



Roll Test Data Summary 2 nglish Custs

Position 1 NW	/6	Į ir		FBR060810			ith 15.0				n na agus ann an an agus ann an agus ann an agus ann an agus an agus ann an agus ann an agus an agus an agus a	1. ·/ //.	iii 12/17/20
	Marky or	fit, to se					Iry to		Pulsarar Sussayii	Mallea Russ Steingh	typaraet Africa St	Estar Parin	
	15/3/11594	ASTAL MARK	5 V ()	$D(a, \mathbb{R}^2)$	15737	15-74	15.17	1-11-	157311642	$(184M) \ln C \delta \alpha$	$-4 \sim t M_{\rm e} T t \pi^{-1/3} t$	18732	10-220
	ten vil b	24,000,2	MD (ths)	CDytho	Matri.	(/F ₁)	3777, 957	. 11,//1		() The company of the second company of the	E. 1937.	esityt y j	1 172
130112692	6.4	85	215	227	90	120	98	117	124	342	0 180	1.7	0 4



Product: NW	/6	Ite	em Code: FBR06081	00 Roll Wid	dth: 15.0 feet				Test De	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab Strength	Grab Elongation	Trap Tear Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM D 4632	ASTM D 4632	ASTM D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(0z/yd2)	(mils)	MD (lbs) CD (lbs)	MD (%) CD (%)	MD (lbs) CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111226	6.3	87	201 186	93 125	151 162	121	338	0.212	2.1	0.5



Product: N	V6	Ite	em Code:	FBR060810	00	Roll Wid	<i>th</i> : 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111235	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5
130111236	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5
130111237	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5

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endud * NV	V6	71	an i ades FBI	0608100)	Red His	⊕4 15.0 f	eet				, , , , , , , ,	11/20/20
	Maria de la deservación de la deservación de la deservación de la defendación del defendación de la de	Fig. 1 or the	territ Misse	gth	1.711575	· · · · · · · · · · · · · · · · · · ·	for the state of	i sa jih		Mallen Bussi Susagth			ato q cabace
	is/Winster	186W in Car	iSIMDi	ni:	13737	10 115	: *: f :: f :	,:·.	V . 738 1 - 28 11	WANTE CAR	18/14/19/34		It is not
	(0.347)	mh1	MO dhy - Cl) (this)	MDT	c 1: (')	5115 (Out	7 7/193	26.33	(jwi)		And the second s	grand and a second
130110726	6.7	99	201	212	101	124	104	146	126	351	0.212	2.2	06



Roll Fest Data Summary Lughsh Units

Z Week NV	V6	Źŧ	me that	FBR060810	0	Raffa	## 15.0 f	eet				2 100 12	11/20/20
The state of the s	Maring . Exercises	fine terms	5 4 2 5 5 fs - 1	Strongth	Contract Con	1.1 (171	to get to the		Marina and a second and a secon	Madan Ruca Secunyth	Episarian Opining Vic	/	office of
	48/32:183	$(\sqrt{M}H) = dx$	15.74	DE MAR	48737	I de	15774		$(x,y,xF,x,yh)^{2}$	INDVIDOR	is en ar . S.		1. 1
	101 111 1	andsi	Virilia	in, this.	$MD(\mathcal{E}, \gamma)$. D	\$14+125 F	1. 1. 1. 1	<i>(</i> ,.	1750	5 11144	85 N 73	6-11-1
130110786	6.6	99	226	215	88	113	90	119	123	368	0 212	2.3	0.6
130110787	66	99	226	215	88	113	90	119	123	368	0 212	2.3	0.6



i white NM	/6	<i>[1</i>	en Cortes	FBR060810	0	Politics.	lith 15.0	feet				1.174	iiis 11/27/20
21 11 X	Maryen Federal Car	Thy Lores	e en año i	drength	t mah ()	a: [71.711	1 1 1 1 1	+ +++25/-4	Paragraph Samgah	Marker Busst	toy are m to seem to see		ar ear
	(NEW (1) 5 '67)	ISTM OF FRAN	:5737	D(m, C)	15747	15-116-5	15747	P + F 1	1577 F 1871	18747 0 5788	15 FW (177W)		15 1100
and the history to be as an experience	Part 1 and 1	- 110/52	Wii Alba	(D) (this	$MD(z^n)$. 7,1,1	Miridia			(757)	te mil	****	patria .
130111248	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5
130111249	6.9	90	217	245	92	115	130	173	117	356	0 212	2.1	0.5
130111250	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5
130111251	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5

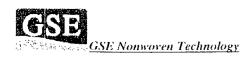
Date: 12/19/2001

Number of Rolls 54

FBR0608100

SO#21538
APPROVED BY: (Wintal & Hore

APPROVED BY:	CUNITRY X	HOLL
ROLL#		
130110767	130111258	130111289
130110768	130111259	130111290
130110769	130111262	130111283
130110770	130111263	130111284
130110771	130111264	130111292
130110772	130111266	130111294
130110773	130111271	130111296
130110774	130111272	130111297
130110777	130111273	130111298
130110779	130111274	130111299
130111243	130111275	130111300
130111244	130111276	130111301
130111246	130111277	130111304
130111247	130111278	130111305
130111234	130111280	130111306
130111238	130111288	130111307
	130111314	130111308
	130111315	130111310
		130111311
		130111312



6.6

97

201

238

94

120

130110774

Roll Test Data Summary - English Units

Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/20/2 Roll No. Mass per Mullen Burst Puncture Apparent Thickness Grab Strength Grab Elongation Trap Tear Strength Permittivity Permeability Unit Area Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/yd2) MD (lbs) CD (lbs) (mils) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130110767 6.5 97 189 230 91 121 104 129 120 376 0.212 2.2 0.6 130110768 6.5 97 189 230 91 121 2.2 0.6 104 129 12C 376 0.212 130110769 6.5 97 189 230 91 121 376 0.212 2.2 0.6 104 129 120 130110770 6.6 97 201 238 94 120 117 128 362 0.212 2.2 0.6 161 130110771 6.6 97 201 238 94 120 117 161 128 362 0.212 2.2 0.6 130110772 6.6 97 201 238 94 120 117 2.2 0.6 161 128 362 0.212 130110773 6.6 97 201 238 94 120 117 161 128 362 0.212 2.2 0.6

117

161

128

362

0.212

2.2

0.6



Product: NW	/6	Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110777	6.6	97	201	238	94	120	117	161	128	362	0.212	2.2	0.6

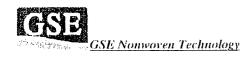
1



Product: NW	/ 6	Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test De	ate: 11/20/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130110779	6.6	97	201	238	94	120	117	16Ì ,	128	362	0.212	2.2	0.6



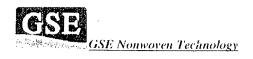
Product: NW	' 6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111243	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5
130111244	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5



Product: NW	6	Ite	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	afe: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111246	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5
130111247	6.9	90	217	245	92	115	130	173	117	356	0.212	2.1	0.5



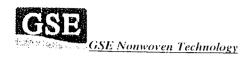
Product: NW6	:	Ita	m Code:	FBR060810	0	Roll Wid	<i>th:</i> 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Arca	Thickness	Grab S	Strength	Grab Ele	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111234	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



Product: NW	6	Ita	em Code:	FBR060810	()	Roll Wid	<i>th:</i> 15.0	feet				Test De	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab St	rength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM I	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111238	6.9	92	231	234	93	133	123	116	128	372	0.212	2.1	0.5



Product: NW6		Ita	m Code:	FBR060810	()	Roll Wid	th: 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1 1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111258	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5
130111259	6.6	86	216	246	96	122	144	150	126	376	0.212	2.1	0.5



Product : NW6		Ite	em Code:	FBR060810	Ю	Roll Wia	<i>lth:</i> 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness		Strength	Grab El	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	<u> </u>	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	A STM	' D 4491
<u> </u>	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111262	6.5	83	228	230	100	125	141	158	121	332	0.010		
130111263	6.5	83	228	230	100	125	141				0.212	2.1	0.5
130111264	6.5	83	220	000			(4)	158	121	332	0.212	2.1	0.5
	5.5	03	228	230	100	125	141	158	121	332	0.212	2.1	0.5



Product: NW	/6	Ita	em Code:	FBR060810	O	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111266	6.5	83	228	230	100	125	141	158	121	332	0.212	2.1	0.5



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/27/2

Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	1) 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-I)	(cm/sec)
130111271	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111272	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111273	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111274	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111275	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111276	6.6	84	228	230	100	125	132	171	124	375	0.212	2.1	0.5
130111277	6.6	84	237	244	101	111	132	171	124	375	0.212	2.1	0.5
130111278	6.6	84	228	230	100	125	132	171	124	375	0.212	2.1	0.5



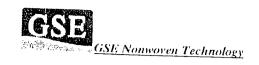
Product : NW6		It	em Code:	FBR060810)()	Roll Wia	th: 15.0	feet			•	T D	
Roll No.	Mass per Unit Area	Thickness		strength	Grab E	longation			Puncture Strength	Mullen Burst Strength	Apparent Opening Size		y Permeability
	ASTM D 5261 (oz/yd2)	ASTM D 5199 (mils)		D 4632 CD (lbs)		D 4632 CD (%)		D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111280	6.9			(43)	1117 (70)	(76)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
2211.200	0.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



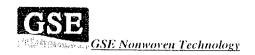
Product : NW6		Ita	em Code:	FBR060810	O	Roll Wid	<i>th:</i> 15.0	feet				Test D	ale: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	I D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111288	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111289	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111290	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



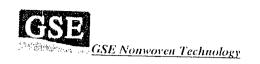
Product: NW	/6	Ita	em Code:	FBR060810)	Roll Wid	<i>th:</i> 15.0	feet				Test D	ate: 11/27/2
	Mass per Unit Area	Thickness	Grab S	trength	Grab El	ongation	Trap Tear	Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(oz/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111283	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4
130111284	6.9	89	246	230	95	125	141	162	115	358	0.212	1.8	0.4



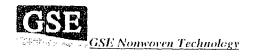
Product: NV	V6	Itt	em Code:	FBR060810	00	Roll Wiz	lth: 15.0						
Roll No.	Mass per					11011 1111	15.0	feet				Test D	ale: 11/27/2
	Unit Area	Thickness		trength	Grab E	longation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength		Permittivit	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D .1533	ASTM D 4833		o poining trace		· · · · · · · · · · · · · · · · · · ·
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)				ASTM D 3786	ASTM D 4751	ASTM	D 4491
130111292	6.6	99	242			(.1)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
			242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product : NV	/6	Ita	em Code:	FBR060810	к)	Roll Wid	<i>th:</i> 15.0	feet	•			Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab S	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	y Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111294	6.6	99	242	250	96	115	124	136	119	360	0.212	1.8	0.4



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/27/2 Roll No. Mass per Thickness Grab Strength Unit Area Puncture Mullen Burst Grab Elongation Trap Tear Strength Apparent Strength Permittivity Permeability Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 | ASTM D 3786 | ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) 130111296 (cm/sec) 6.6 99 242 250 96 115 124 136 119 130111297 360 6.6 0.212 1.8 99 0.4 242 250 96 115 124 136 130111298 119 360 0.212 6.6 1.8 99 0.4 242 250 96 115 124 136 130111299 119 360 6.6 0.212 1.8 99 0.4 242 250 96 115 124 136 130111300 119 360 0.212 6.7 1.8 90 0.4 231 231 92 120 101 120 130111301 128 357 6.7 0.212 90 1.8 0.4 231 231 92 120 101 120 128 357 0.212 1.8 0.4



Product: NW6 Item Code: FBR0608100 Roll Width: 15.0 feet Test Date: 11/27/2 Roll No. Mass per Mullen Burst Puncture Apparent Thickness Grab Strength **Grab Elongation** Trap Tear Strength Unit Area Permittivity Permeability Strength Strength Opening Size ASTM D 5261 ASTM D 5199 ASTM D 4632 ASTM D 4632 ASTM D 4533 ASTM D 4833 - ASTM D 3786 - ASTM D 4751 ASTM D 4491 (oz/yd2)(mils) MD (lbs) CD (lbs) MD (%) CD (%) MD (lbs) CD (lbs) (lbs) (psi) (mm)(sec-1) (cm/sec) 130111304 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111305 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111306 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111307 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4 130111308 6.7 90 231 231 92 120 101 120 128 357 0.212 1.8 0.4



Product : NW		Ita	em Code:	FBR060810	0	Roll Wid	th: 15.0	feet				Test D	ate: 11/27/2
Roll No.	Mass per Unit Area	Thickness	Grab :	Strength	Grab El	ongation	Trap Tea	r Strength	Puncture Strength	Mullen Burst Strength	Apparent Opening Size	Permittivity	Permeability
	ASTM D 5261	ASTM D 5199	ASTM	D 4632	ASTM	D 4632	ASTM	D 4533	ASTM D 4833	ASTM D 3786	ASTM D 4751	ASTM	D 4491
	(0z/yd2)	(mils)	MD (lbs)	CD (lbs)	MD (%)	CD (%)	MD (lbs)	CD (lbs)	(lbs)	(psi)	(mm)	(sec-1)	(cm/sec)
130111310	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111311	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4
130111312	7.0	99	231	243	103	116	109	134	125	368	0.212	1.8	0.4



Product: NW	/6	It	em Code:	FBR060810	н)	Roll Wia	lth: 15.0	fores					
Roll No.	Mass per Unit Area	Thickness		Strength		ongation		r Strength	Puncture Strength	Mullen Burst Strength	11	 	ate: 11/27/2 Permeability
	ASTM D 5261 (oz/yd2)			D 4632 CD (lbs)		D 4632 CD (%)		D 4533 CD (lbs)	ASTM D 4833	ASTM D 3786	. 3		D 4491
130111314	7.0	99	231	243	100			(10.1)	(103)	(psi)	(mm)	(sec-1)	(cm/sec)
130111315	7.0	99	231	243	103 103	116 116	109 109	134 134	125 125	368 368	0.212 0.212	1.8 1.8	0.4

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT : JOB:

Tendrain 770-2
Pasco Landfill
8

LOT #: DATE:

01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Longth (ft)
0101563	0100437	130111272	130111262	Length (ft) 200
0101564	0100437	130111272	130111262	200
0101565	0100437	130111272	130111262	200
0101566	0100437	1301112693	130111262	200
0101567	0100437	130112693	130111262	200
0101568	0100437	130112693	130111308	200
0101569	0100437	130112693	130111308	200
0101570	0100437	130112693	130111308	200
0101570	0100434	130112093	130111308	200
0101571	0100434	130111299	130111308	200
0101573	0100434	130111299	130111308	200
0101574	0100434	130111299	130111246	200
0101575	0100434	130111299	130111246	200
0101576	0100434	130111288	130111246	200
0101577	0100434	130111288	130111246	200
0101578	0100434	130111288	130111246	200
0101579	0100435	130111288	130111259	200
0101580	0100435	130111288	130111259	200
0101581	0100435	130111253	130111259	200
0101582	0100435	130111253	130111259	200
0101583	0100435	130111253	130111259	200
0101584	0100435	130111253	130112718	200
0101585	0100435	130111253	130112718	200
0101586	0100435	130111693	130112718	200
0101587	0100435	130111693	130112718	200
0101588	0100438	130111693	130112718	200
0101589	0100438	130111693	130112711	200
0101590	0100438	130111693	130112711	200
0101591	0100438	130111226	130112711	200
0101592	0100438	130111226	130112711	200
0101593	0100438	130111226	130112711	200
0101594	0100438	130111226	130112708	200
0101595	0100438	130111226	130112708	200
0101596	0100439	130112722	130112708	200
0101597	0100439	130112722	130112708	200
0101598	0100439	130112722	130112708	200
0101599	0100439	130112722	130112714	200
0101600	0100439	130112710	130112714	200
0101601	0100439	130112710	130112714	200
0101602	0100439	130112710	130112714	200
0101603	0100439	130112710	130112714	200
0101604	0100439	130112710	130112709	200
0101605	0100440	130112716	130112709	200
0101606	0100440 .	130112716	130112709	200
0101607	0100440	130112716	130112709	200
0101608	0100440	130112716	130112709	200
0101609	0100440	130112716	130112689	200

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT:

JOB: LOT #: Tendrain 770-2 Pasco Landfill

DATE: 01/02/02

COMPOSITE #	JUMBO ROLL#	TEXTILE #	TEXTILE #	Length (ft)
0101610	0100440	130110787	130112689	200
0101611	0100440	130110787	130112689	200
0101612	0100440	130110787	130112689	200
0101613	0100441	130110787	130112690	200
0101614	0100441	130110787	130112690	200
0101615	0100441	130111166	130112690	200
0101616	0100441	130111166	130112690	200
0101617	0100441	130111166	130112690	200
0101618	0100441	130111166	130112724	200
0101619	0100441	130111166	130112724	200
0101620	0100441	130112720	130112724	200
0101621	0100442	130112720	130112724	200
2ئے۔0101	0100442	130112720	130112724	200
0101623	0100442	130112720	130111192	200
0101624	0100442	130112720	130111192	200
0101625	0100442	130112712	130111192	200
0101626	0100442	130112712	130111192	200
0101627	0100442	130112712	130111192	200
0101628	0100442	130112712	130112717	200
0101629	0100442	130112712	130112717	200
0101630	0100443	130112715	130112717	200
0101631	0100443	130112715	130112717	200
0101632	0100443	130112715	130112717	200
0101633	0100443	130112715	130111185	200
0101634	0100443	130112715	130111185	200
0101635	0100443	130112723	130111185	200
0101636	0100443	130112723	130111185	200



Office: (410) 522-7000 Fax: (410) 522-7015 Order Line: (800) 356-8495 Waste Mgt: (800) US-GRIDS

Web Site: www.tenaxus.com

Peel Strength Geocomposite Testing Report ASTM F904*

Product

Tendrain 770-2

Lot:

8

Roll Size

6.7' x 200'

Project

Pasco Landfill

Testing Lab Tenax Corp.

Geocomposite Roll #	Date Tested	SideA (lb/inch)	SideB (lb/inch)	
0101563	12/31/2001			
		1.00	1.14	
		1.15	1.25	
		1.11	1.27	
		1.45	1.08	
		1.33	1.17	
		1.21	1.18	Average
		0.18	0.08	Std. Deviation
		1.00	1.00	Specification (minimum)

^{*}Please note that the above values are representative of the laminated area of the roll. Please allow 3% of unbonded surface on beginning and end of the roll due to manufacturing constraints. In addition to 4 inches (approximately) on each side of the roll left unbonded to allow for overlapping on the sides.

Tested by

David Mitchell

Amstellupuse

Date 01/03/2002

Checked by

hristine Caropresso

Date 01/03/2002

^{*}Ply adhesion is tested by the manufacturer every 100.000 sq.ft. of production per modified ASTM F 904, with a 2 inch wide (5 longitudinal ribs) by 10 inch long strip. The geotextile bonded to the geonet is pulled apart at a peeling rate of 12 in./min., for at least 4 inches of peeling distance. The reported value is the average of the "peak" values from 5 tested samples. The 5 samples are cut evenly distributed along the roll width, and maintain a 1 foot margin from both deges of the roll.



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Transmissivity Test Data ASTM D 4716-95

Product Lot #

Tendrain 770-2

8

Roll Size

6.7' x 200' Project Specimen Size

Testing Lab

Pasco Landfill

12" x 14" Tenax Corp. TEST CONFIGURATION

Plate

Sand

Tendrain 770-2

Geomembrane

Plate

renax corp.						Trace		
	Geocomposite Roll	Testing Date	Load (psf)	Seating Period (hrs)	Gradient	Transmissivity (m2/sec)	Specification (m2/sec)	_
	0101563	12/30/2001	15000	1	0.1	3 29F-03	1.80F-03	_

Tested by

Date 01/03/2002

ked by