



TRI/ENVIRONMENTAL, INC.

A Texas Research International Company

February 24, 2006

Dr. Peterle
TEMA Technologies and Materials
Via dell'Industria, 21
31029 VITTORIO VENETO (TV)
ITALY

email: graziano.peterle@temacorporation.com

Dear Dr. Peterle:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

TRI Job Reference Number: E2251-50-02

Material(s) Tested: 3 Geogrid(s)

Test(s) Requested: Wide Width Tensile (ASTM D 6637, modified)
Single Rib Tensile (GRI GG1)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

A handwritten signature in blue ink that reads "Jarrett A. Nelson". The signature is written in a cursive style and is positioned above the printed name.

Jarrett A. Nelson
Special Projects Manager
Geosynthetic Services Division



GEOGRID TEST RESULTS
TRI Client: TEMA

Material: Xgrid Geogrid
Sample Identification: XGRID PET PVC 100/30 IT
TRI Log #: E2251-50-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 6637, modified)													
MD Number of Ribs per Specimen:	5	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were left intact.											
MD Number of Ribs per foot:	9.52												
MD Ultimate Strength (lbs)	4830	4871	4516	4594	5056	4968					4806	193	
MD Ultimate Strength (lbs/ft)	9200	9278	8602	8750	9630	9463					9154	367	
MD Ultimate Strength (kN/m)	134.3	135.5	125.6	127.8	140.6	138.2					133.6	5.4	
MD Strength @ 2% Strain (lbs)	839	867	855	866	769	783					830	39	
MD Strength @ 2% Strain (lbs/ft)	1598	1651	1629	1650	1465	1491					1581	75	
MD Strength @ 2% Strain (kN/m)	23.3	24.1	23.8	24.1	21.4	21.8					23.1	1.1	
MD Strength @ 5% Strain (lbs)	1185	1190	1160	1169	1066	1042					1135	59	
MD Strength @ 5% Strain (lbs/ft)	2257	2267	2210	2227	2030	1985					2163	112	
MD Strength @ 5% Strain (kN/m)	33.0	33.1	32.3	32.5	29.6	29.0					31.6	1.6	
MD Strength @ 10% Strain (lbs)	2801	2689	2585	2574	1972	1893					2419	353	
MD Strength @ 10% Strain (lbs/ft)	5335	5122	4924	4903	3756	3606					4608	672	
MD Strength @ 10% Strain (kN/m)	77.9	74.8	71.9	71.6	54.8	52.6					67.3	9.8	
MD Break Elongation (%)	14.8	15.6	14.3	14.4	18.1	18.0					15.9	1.6	
Single Rib Tensile Properties (ASTM D 6637, modified)													
MD - Number of Ribs per foot:	9.52	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were removed.											
MD Maximum Strength (lbs)	1009	969	1038	1020	1043	1043	1042	982	1019	1042	1021	26	
MD Maximum Strength (N)	4490	4312	4619	4539	4641	4641	4637	4370	4535	4637	4542	114	
MD Maximum Strength (lbs/ft)	9610	9229	9886	9714	9933	9933	9924	9352	9705	9924	9721	243	
MD Maximum Strength (kN/m)	140.3	134.7	144.3	141.8	145.0	145.0	144.9	136.5	141.7	144.9	141.9	3.5	
MD Break Elongation (%)	16.5	15.8	16.5	16.6	15.8	16.3	16.7	16.3	16.5	17.3	16.4	0.4	

MD - Machine Direction TD - Transverse/Cross Machine Direction

Note: Sample received in folded and rolled condition which may bias test results. Where possible, specimens cut from rolled portion.

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 prior approval of TRI.



GEOGRID TEST RESULTS
TRI Client: TEMA

Material: Xgrid Geogrid
Sample Identification: XGRID PET PVC 120/30 IT
TRI Log #: E2251-50-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 6637, modified)													
MD Number of Ribs per Specimen:	5	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were left intact.											
MD Number of Ribs per foot:	9.52												
MD Ultimate Strength (lbs)	5841	5831	6103	5964	5418	6010						5861	219
MD Ultimate Strength (lbs/ft)	11126	11107	11625	11360	10320	11448						11164	418
MD Ultimate Strength (kN/m)	162	162	170	166	151	167						163	6
MD Strength @ 2% Strain (lbs)	935	932	902	933	955	870						921	28
MD Strength @ 2% Strain (lbs/ft)	1781	1775	1718	1777	1819	1657						1755	53
MD Strength @ 2% Strain (kN/m)	26.0	25.9	25.1	25.9	26.6	24.2						25.6	0.8
MD Strength @ 5% Strain (lbs)	1279	1256	1262	1271	1284	1211						1261	24
MD Strength @ 5% Strain (lbs/ft)	2436	2392	2404	2421	2446	2307						2401	46
MD Strength @ 5% Strain (kN/m)	35.6	34.9	35.1	35.3	35.7	33.7						35.1	0.7
MD Strength @ 10% Strain (lbs)	2297	2269	2202	2183	2268	1777						2166	178
MD Strength @ 10% Strain (lbs/ft)	4375	4322	4194	4158	4320	3385						4126	340
MD Strength @ 10% Strain (kN/m)	63.9	63.1	61.2	60.7	63.1	49.4						60.2	5.0
MD Break Elongation (%)	16.9	16.3	17.3	17.1	15.3	19.3						17.0	1.2
Single Rib Tensile Properties (ASTM D 6637, modified)													
MD - Number of Ribs per foot:	9.52	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were removed.											
MD Maximum Strength (lbs)	1215	1229	1221	1228	1233	1225	1231	1216	1241	1196		1224	12
MD Maximum Strength (N)	5407	5469	5433	5465	5487	5451	5478	5411	5522	5322		5445	53
MD Maximum Strength (lbs/ft)	11571	11705	11629	11695	11743	11667	11724	11581	11819	11390		11652	113
MD Maximum Strength (kN/m)	169	171	170	171	171	170	171	169	173	166		170	2
MD Break Elongation (%)	17.6	18.1	18.0	17.8	18.0	16.6	17.0	17.1	18.3	18.2		17.7	0.5

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GEOGRID TEST RESULTS
TRI Client: TEMA

Material: Xgrid Geogrid
Sample Identification: XGRID PET PVC 150/30 IT
TRI Log #: E2251-50-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 6637, modified)													
MD Number of Ribs per Specimen:	5	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were left intact.											
MD Number of Ribs per foot:	9.52												
MD Ultimate Strength (lbs)	6948	7944	7940	7353	6696	6890						7295	497
MD Ultimate Strength (lbs/ft)	13234	15131	15124	14006	12754	13124						13896	947
MD Ultimate Strength (kN/m)	193	221	221	204	186	192						203	14
MD Strength @ 2% Strain (lbs)	986	824	1063	1104	1038	972						998	90
MD Strength @ 2% Strain (lbs/ft)	1878	1570	2025	2103	1977	1851						1901	171
MD Strength @ 2% Strain (kN/m)	27.4	22.9	29.6	30.7	28.9	27.0						27.7	2.5
MD Strength @ 5% Strain (lbs)	1539	1492	1558	1584	1563	1515						1542	31
MD Strength @ 5% Strain (lbs/ft)	2931	2842	2968	3017	2977	2886						2937	59
MD Strength @ 5% Strain (kN/m)	42.8	41.5	43.3	44.1	43.5	42.1						42.9	0.9
MD Strength @ 10% Strain (lbs)	2645	2377	2743	2822	2805	2722						2686	150
MD Strength @ 10% Strain (lbs/ft)	5038	4528	5225	5375	5343	5185						5116	285
MD Strength @ 10% Strain (kN/m)	73.6	66.1	76.3	78.5	78.0	75.7						74.7	4.2
MD Break Elongation (%)	17.2	19.5	18.2	16.8	16.1	16.6						17.4	1.1
Single Rib Tensile Properties (ASTM D 6637, modified)													
MD - Number of Ribs per foot:	9.52	Note: Severing the outer ribs as described in ASTM D 6637 appeared to bias the test results. Therefore the outer ribs were removed.											
MD Maximum Strength (lbs)	1535	1585	1639	1623	1545	1447	1424	1495	1564	1455		1531	71
MD Maximum Strength (N)	6831	7053	7294	7222	6875	6439	6337	6653	6960	6475		6814	314
MD Maximum Strength (lbs/ft)	14619	15095	15610	15457	14714	13781	13562	14238	14895	13857		14583	673
MD Maximum Strength (kN/m)	213	220	228	226	215	201	198	208	217	202		213	10
MD Break Elongation (%)	17.0	16.9	17.1	17.0	14.9	15.8	14.7	14.6	16.0	15.2		15.9	1.0

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