



April 28, 2009

Mail To:

Mr. Holger Jung
PES.TEC GmbH
Am Limespark 2
65843 Sulzbach
GERMANY

email: holger.jung@pes.tec.com

Bill To:

<= Same (Invoice # 0801.P150-3)

Dear Mr. Jung:

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: E2326-22-04

Material(s) Tested: 1 Coupler
1 PP Grout Port Grey

Test(s) Requested: Notched Constant Ligament Stress Crack Test (ASTM F 2136)
Plaque Manufacturing

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

Sincerely,

A handwritten signature in black ink that reads 'M Patel'.

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager



LABORATORY TEST RESULTS
 TRI Client: PES.TEC GmbH

Material: Polyethylene Coupler
 Sample Identification: Plaque from Coupler
 TRI Log #: E2326-22-04

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	
	1	2	3	4	5	6	7	8	9	10			
Notched Constant Ligament Stress Crack Test (ASTM F2136)													
SURFACTANT:	CO-630												
EXPOSURE PERIOD:	Failure												
DATE TEST STARTED:	24-Apr-09												
TEST TEMPERATURE:	50C												
Standard Stress	348 (psi)					Mechanical Advantage					5		
x hinge thickness (in)	0.0600 (80 % of nominal sheet thickness)					Lever Weight					0.33 (lbs)		
x specimen width	0.124 (0.124")					Grip Weight					0.09 (lbs)		
Load	2.59 (lbs)												
Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage =											0.47 lbs	=	213 grams
Replicate No.:	1	2	3	4	5								
Thickness:	0.0740	0.0750	0.0750	0.0750	0.0750								
Hinge:	0.0592	0.0600	0.0600	0.0600	0.0600								
Load:	210	213	213	213	213								
No. Hours to Failure:	>65	>65	>65	>65	>65							>65	

The testing 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.



LABORATORY TEST RESULTS
 TRI Client: PES.TEC GmbH

Material: PP Grout Port Gray
 Sample Identification: Plaque from Grout Port Gray
 TRI Log #: E2326-22-04

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	
	1	2	3	4	5	6	7	8	9	10			
Notched Constant Ligament Stress Crack Test (ASTM F2136)													
SURFACTANT:	CO-630												
EXPOSURE PERIOD:	Failure												
DATE TEST STARTED:	24-Apr-09												
TEST TEMPERATURE:	50C												
Standard Stress	348 (psi)					Mechanical Advantage					5		
x hinge thickness (in)	0.0536 (80 % of nominal sheet thickness)					Lever Weight					0.33 (lbs)		
x specimen width	0.124 (0.124")					Grip Weight					0.09 (lbs)		
Load	2.31 (lbs)												
Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage =											0.41 lbs	= 188 grams	
Replicate No.:	1	2	3	4	5								
Thickness:	0.0665	0.0665	0.0670	0.0670	0.0670								
Hinge:	0.0532	0.0532	0.0536	0.0536	0.0536								
Load:	187	187	188	188	188								
No. Hours to Failure:	27.1	15.2	34.3	43.7	19.6							27.98	

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