

Dec 11th, 2019

Jet Li
Shandong Lingxiang New Material Co., Ltd
North of Yingbin Road and east of Zhuchang road in
Lingcheng Economic Development Zone ,
Dezhou, Shandong, China

Re: FINAL LABORATORY TEST REPORT 最终实验室检测报告



Dear Mr. Lin:

Thank you for consulting TRI Suzhou for your material testing needs.

感谢选用 TRI 苏州实验室为您检测材料

Enclosed is the **final** laboratory report for the **Conformance** testing of **one (1) Nonwoven Geotextile sample**.

附上一份 1 个土工织物样品的最终符合性实验室检测报告

PROJECT NAME 项目名称: Geotextile Testing**DATE REPORTED 报告日期:** Dec 11th, 2019**REFERENCE TRI JOB NO. 涉及工作编号:** SCH19115**DATE RECEIVED 接收日期:** Sep 9th, 2019**SAMPLE(S) SENT BY 送样人:** Shandong Lingxiang**SAMPLE IDENTIFICATIONS 样品信息:****SAMPLE ID 样品 ID**

Nonwoven Geotextile

TRI CONTROL NUMBER 受控编号

86820

TESTS REQUIRED / PERFORMED 检测需求/检毕:**TEST METHOD 检测方法**

1. ASTM D5261
2. ASTM D5199
3. ASTM D4595
4. ASTM D4491
5. ASTM D4533
6. ASTM D6241
7. ASTM D4533
8. ASTM D4751

DESCRIPTION 描述

- Mass per Unit Area 单位面积质量
Thickness 厚度
Wide Width Tensile 宽条拉伸
Permittivity 垂直渗透系数
Trapezoidal Tear Resistance 梯形撕裂
CBR Puncture 顶破强度
UV Resistance 紫外曝光
AOS 表观孔径

TEST RESULTS 检测结果: The test results are summarized in the attached Table(s) 1. 检测结果参见附表 1。

Respectfully, 此致

TRI Geosynthetic Testing and Services (Suzhou) Co., Ltd.



Steve Xi
Quality Assurance



Cora Queja
General Manager

Signatures are on file

It shall be noted that the **sample/s** tested **is/are** believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory tests results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. TRI neither accepts responsibility for nor makes claims to the intended final use and purpose of the material. The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from the client or any pertinent entity duly authorized by the respective client. It is our policy to keep physical records of each job for five (5) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. **Retained conformance samples are disposed of after one (1) month.** On the other hand, should you need us to keep them at a longer period, please advise us in writing.

需说明的是, 所送检样品会被认为是根据设计所生产材料的真实代表。另外, 所附实验室检测结果仅表明所检测样品质量。此次合适的检测方法的采用是根据目前通用行业实际情况。TRI 既不对样品接受负责也不对材料的最终使用目的及用途发表声明。检测数据及相关项目信息为商业秘密, 不得复制, 非经客户书面同意或授权同意不得外泄给其他机构。我司自接收样品日起保存纸质记录 5 年, 保存相应电子记录 7 年。样品留存 1 个月废弃。如需保存更长时间, 请以书面方式提前通知

5 Pages Total 共 5 页 (including this sheet 含此页)



TABLE 1.
MATERIAL PROPERTIES

材料属性

CLIENT客户: Yantai Distinct

PROJECT项目: Geotextile Testing

Date Received接收日期: **2019.09.09**
 Date Reported报告日期: **2019.12.11**
 Client Sample ID样品信息: **White Nonwoven Geotextile**
 Material Description材料描述: **White Nonwoven Geotextile**

QC'd By质量担当: *Steve/李心恩*
 TRI Job No.工作编号: **SCH19115**
 TRI Control No.受控编号: **86820**

SPECIMENS样品

		1	2	3	4	5	6	7	8	9	10	Avg. 平均值	Std. Dev. 标准偏差	Min 最小值	Max 最大值	Proj. Specs. 项目指标 (See Note1)	
METHOD	DESCRIPTION方法描述																
ASTM D5199	Thickness/厚度 (mm) <i>Apparatus: Dead weight dial micrometer with 56.4mm (2.22in) dia presser foot and a pressure of 2kPA (0.29psi)</i> <i>仪器: 测微计带 56.4mm 直径的压脚, 并由 509g 重的压脚提供 2kPA 压力</i> <i>provided by a 509gm weight. Loading time: 5sec Specimen Size: 4" x 4"</i> <i>负载时间: 5 秒 样品尺寸: 101.6mmx101.6mm</i>	4.3	4.2	4.1	3.8	4.2	4.2	4.2	3.9	3.9	4.1	4.1	0.2	3.8	4.3	4.0-4.4	
ASTM D5261	Mass per Unit Area / 单位面积质量 (gm/ m ²) <i>Test Specimen Size 样品尺寸: 4" x 8"</i>	608.5	605.1	608.4	608.7	605.5						607.2	1.5	605.1	608.7	≥600	
ASTM D4595	Wide-Width Strip Tensile宽条拉伸性能- Initial 初始强度 <i>Test was performed as directed in ASTM D4595, dry condition. CRE Type Tensile Testing Machine (YT010P) equipped with 2" x 8" (50mmX 200mm) Grips</i> <i>检测按照 ASTM D4595 指导进行, 干燥条件. 拉伸测试仪附带 2 in x 8 in (50mmX 200mm) 夹具.</i> <i>was used. set for 0.4" (10 mm/min) constant rate of extension, with initial gauge length (distance between grips) of 4"(100mm)</i> <i>设定恒定拉伸速率 0.4" (10 mm/min), 夹具初始距离为 4"(100mm). 样本尺寸: 8in X 8in(200mm X200mm). 检测的全量程范围: 18000 lbs (80000 N)</i> <i>Specimen Size: 8" X 8" (200mm X200mm). Full scale force range used for testing: 18000lbs (80000N)</i>																
	Tensile Strength 拉伸强度 (kN/m)																
沿机方向	MD	39	40	43	41	41	43						41	1	39.2	43.1	≥34
非沿机方向	TD	34	34	34	34	34	34						34	1	34.2	34.5	≥34
	Elongation at Break/断裂延伸率 (百分比percent)																
沿机方向	MD	66	59	64	63	60	62						62	3	58.9	66.2	50-90
非沿机方向	TD	86	83	85	85	84	89						85	5	83.7	89.0	50-90

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QC'd By质量担当: *Steve/李心恩*
 TRI Job No.工作编号: SCH19115
 TRI Control No.受控编号: 86820

SPECIMENS样品											Avg. 平均值	Std. Dev. 标准偏差	Min 最小值	Max 最大值	Proj. Specs. 项目指标 (See Note1)	
1	2	3	4	5	6	7	8	9	10							
METHOD	DESCRIPTION方法描述															
ASTM D4533	Trapezoid Tear Strength / 梯形撕裂强度 (kN) Specimens were tested as directed in Test Method D4533, dry condition. 样品按照 D4533 的方法进行测试, 干燥条件 CRE Type Tensile Testing Machine (YT010P) equipped with 2" x 8" (50mmX 200mm) Grips was used. 使用带 2" x 8" (50mmX 200mm) 夹具的拉伸仪 set for 12" (300 mm/min) constant rate of extension, with initial gauge length (distance between grips) of 1" (25.4mm) 设定恒定拉伸速率 12" (300 mm/min), 夹具初始距离为 1" (25.4mm). 样本尺寸: 3" X 8" (76mmX200mm). 检测的全量程范围: 1000lbs(5000 N) Specimen Size: 3" X 8" (76mmX200mm). Full scale force range used for testing: 1000lbs(5000 N) Specimens were tested as directed in Test Method D4533, dry condition. 样品按照 D4533 的方法进行测试, 干燥条件															
沿机方向	MD	0.88	0.85	0.87	0.89	0.90	0.94	0.85	0.86	0.88	0.88	0.88	0.03	0.8	0.9	≥0.65
非沿机方向	TD	0.81	0.69	0.78	0.82	0.76	0.68	0.69	0.72	0.74	0.73	0.74	0.05	0.7	0.8	≥0.65
ASTM D4491	Permittivity渗水率 (sec. ⁻¹)															
Constant Head 恒压水头	Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected 通过保持在常压水头 50mm 中检测四个样品。用相应的水量通过样品并在另一侧收集, 记录量和时间。 at the discharge side and the amount and time recorded. Five readings were taken for each specimen. Four specimens were tested. 每个样品读取 5 个数, 共检测 4 个样本, 使用的设备符合 ASTM D4491 的要求 The apparatus compliant to ASTM D4491 requirements was used.															
		0.52	0.49	0.44	0.46							0.48	0.03	0.44	0.52	
	Permeability (cm./sec.)															
		0.20	0.19	0.18	0.19							0.19	0.01	0.18	0.20	≤0.2
	Flow Rate (l/sec/m ²)															
		26	25	22	23							24	2	22	26	

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**TABLE 1.
 MATERIAL PROPERTIES**

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QC'd By质量担当: *Steve/...*
 TRI Job No.工作编号: **SCH19115**
 TRI Control No.受控编号: **86820**

SPECIMENS样品										Avg. 平均值	Std. Dev. 标准偏差	Min 最小值	Max 最大值	Proj. Specs. 项目指标 (See Note1)
1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION方法描述													
ASTM D4751*	Apparent Opening Size /表观孔径 (美国标准筛U.S. standard sieve size) Specimens were tested as directed in Test Method D4751. Type of sieve shaker used was W.S. Tyler Rotap. 样品被检测按D4751指导进行。振动筛类型是.W.S. Tyler Rotap									170-200	N/A			
	170-200	170-200	170-200	170-200	170-200									
ASTM D4751*	Apparent Opening Size/表观孔径 (mm) Specimens were tested as directed in Test Method D4751. Type of sieve shaker used was W.S. Tyler Rotap. 样品被检测按D4751指导进行。振动筛类型是.W.S. Tyler Rotap									0.087	0.001	0.09	0.09	≤0.1
	0.086	0.087	0.088	0.085	0.087									
ASTM D4595	Wide-Width Strip Tensile宽条拉伸性能- After Exposure 曝光后 Test was performed as directed in ASTM D4595, dry condition. CRE Type Tensile Testing Machine (YT010P) equipped with 2" x 8" (50mmX 200mm) Grips 检测按照 ASTM D4595 指导进行, 干燥条件. 拉伸测试仪附带2 in x 8 in (50mmX 200mm) 夹具。 was used. set for 0.4" (10 mm/min) constant rate of extension, with initial gauge length (distance between grips) of 4"(100mm) 设定恒定拉伸速率 0.4" (10 mm/min), 夹具初始距离为 4"(100mm)。 样本尺寸: 8in X 8in(200mm X200mm)。 检测的全量程范围: 18000 lbs (80000 N) Specimen Size: 8" X 8" (200mm X200mm). Full scale force range used for testing: 18000lbs (80000N)													
沿机方向	MD	26	24	28	25	26	23			25	3	23.4	28.8	
	Elongation at Break/断裂延伸率 (百分比percent)													
沿机方向	MD	64	60	61	62	63	60			62	5	60.3	64.1	
ASTM D4355*	UV Exposure Xenon ARC Hrs of Exposure 紫外线氙弧曝露老化 Tensile Strength 拉伸强度 (% Retained 百分比)													
		72							500 hrs	72	N/A	N/A	N/A	≥70
	Elongation at Break 断裂延长率 (% Retained百分比)													
		53								53	N/A	N/A	N/A	

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TABLE 表 1.
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材料属性

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QC'd By质量担当: *Steve/李... 启*
 TRI Job No.工作编号: **SCH19115**
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SPECIMENS样品										Avg. 平均值	Std. Dev. 标准偏差	Min 最小值	Max 最大值	Proj. Specs. 项目指标 (See Note1)	
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION方法描述														
ASTM D6241	Static Puncture Strength静态穿刺强度 (KN) <i>The specimens were tested in accordance with ASTM D6241. Specimens were conditioned for 1 hr in the laboratory at 21±5°C (75±3.6°F) and at 60%±10 Relative Humidity. Specimens were secured between the holding plates ensuring that they extended to or beyond the outer edges of the clamping plates.</i> 样品按照 ASTM D6241 的要求进行测试, 样品在实验室环境下温度: 21±5°C 相对湿度: 60%±10 调湿一小时 样品需要牢固的夹持在盘中。待检样品需超过或漏出圆盘夹具的边缘。														
	6.05	6.40	6.71	6.51	6.51	7.34	6.99	6.67	6.19	6.43	6.58	0.37	6.05	7.34	≥6.2

* Tested in TRI CA lab
 End of Table 1

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Note 1 : The Project Specification values reflected herein were provided by the Client.项目指标由客户提供

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI SUZHOU from Client and all other related parties for any claims on issues, due to the use of this data, to the cost respective of the tests presented in this report; and the Client agrees to indemnify and hold harmless TRI SUZHOU from and against all liabilities in excess of the aforementioned limits.
 通过接受了这篇报告中数据和结果,客户同意限定TRI 苏州来自客户和所有其他相关方的责任。所有其因使用这些数据索赔问题,报告中提出的各项检测的成本;客户同意赔偿并承担后果,TRI 苏州不承担超过上述限额的所有责任。