

Sep 21st, 2022

John

Taian Lin Yuan Engineering Materials Co., Ltd.
泰安市泰山区省庄镇繁荣大街 164 号

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

Dear Mr. John:

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 four (4) Nonwoven Geotextile samples.

附上一份 4 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:** Sep 21st, 2022**REFERENCE TRI JOB NO. 涉及工作编号:** SCH22155**DATE RECEIVED 接收日期:** Sep 16th, 2022**SAMPLE(S) SENT BY 送样人:** Taian Lin Yuan Engineering Materials Co., Ltd.**SAMPLE IDENTIFICATIONS 样品信息:****SAMPLE ID 样品 ID****TRI CONTROL NUMBER 受控编号**

Polyester Continuous Filament Nonwoven Geotextile 140g

10702

Polyester Continuous Filament Nonwoven Geotextile 250g

10703

Polyester Continuous Filament Nonwoven Geotextile 350g

10704

Polyester Continuous Filament Nonwoven Geotextile 450g

10705

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

1. ASTM D5261

Mass per Unit Area 单位面积质量

2. ASTM D4632

Grab Tensile 握持强度

3. ASTM D4533

Trapezoidal Tear Resistance 梯形撕裂

TEST RESULTS 检测结果: The test results are summarized in the attached Tables 1 to 4. 检测结果参见附表 1 到 4.

Respectfully, 此致

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



Steve Xi

Quality Assurance



Chad Blackwell

General Manager



Signatures are on file

It shall be noted that the sample/s tested is/are believed to be representative 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, 所述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 个月度后废弃。如需保存更长时间, 请以书面方式提前通知

5 Pages Total (including this sheet)



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TABLE 表 1.
MATERIAL PROPERTIES
材料属性

CLIENT客户: Taian Lin Yuan Engineering Materials Co., Ltd.
PROJECT项目: Geotextile Testing

Date Received接收日期: 2022.09.16

Date Reported报告日期: 2022.09.21

Client Sample ID样品信息: Polyester Continuous Filament Nonwoven Geotextile 140g

Material Description材料描述: White Nonwoven Geotextile 白色无纺布

QC'd By质量担当: *Shao/Ann. 邵*

TRI Job No.工作编号: SCH22155

TRI Control No.受控编号: 10702

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
METHOD 方法描述														
ASTM D5261	Mass per Unit Area / 单位面积质量 (gm/ m ²) Test Specimen Size 样品尺寸: 4" x 8"													
	151.5	149.6	157.8	143.3	145.7						149.6	5.6	143.3	157.8
ASTM D4632	Grab Tensile 握持强度 Test was performed as directed in D4632, dry condition. CRE Type Tensile Testing Machine (YT010 P) with hydraulic action grips and 1" x 2" (25.4mmX 50.8mm) rubber faces was used. set for 12" (300 mm)/min constant rate of extension, with initial gauge length (distance between grips) of 3" (76mm). Specimen size: 4" X 8" (100mmX200mm). Maximum load used for testing: 1000 lbs(5000 N) 检测按 D4632 的指导进行。干燥条件。拉力机附带气动夹具, 用 1" x 2" (25.4mmX50.8mm) 橡胶面夹具。 设定恒定拉伸速率 12" (300 mm)/min, 夹具初始距离为 3" (76mm)。样本尺寸: 4" X 8" (100mmX200mm)。最大负荷: 1000 lbs(5000 N)													
	Grab Breaking Load 断裂强度 (N)													
沿机方向	MD	678	700	756	740	690	750	645	637	721	694	47	627	756
非沿机方向	TD	695	687	619	714	642	674	712	792	774	712	60	619	792
	Apparent Breaking Elongation 表观断裂延伸率(percent百分率)													
沿机方向	MD	71	72	82	76	73	83	83	77	74	77	5	71	83
非沿机方向	TD	74	75	69	73	67	61	71	68	67	70	4	61	75
ASTM D4533	Trapezoid Tear Strength / 梯形撕裂强度 (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 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: 1000 lbs(5000 N)													
沿机方向	MD	349	307	301	325	296	289	315	322	304	311	17	289	349
非沿机方向	TD	277	264	292	279	284	259	264	254	283	275	13	254	292

End of Table 1

(Sheet 1 of 1)

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。



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TABLE 2.
MATERIAL PROPERTIES

材料属性

CLIENT客户: Taian Lin Yuan Engineering Materials Co., Ltd.
PROJECT项目: Geotextile Testing

Date Received接收日期: 2022.09.16

Date Reported报告日期: 2022.09.21

Client Sample ID样品信息: Polyester Continuous Filament Nonwoven Geotextile 250g

Material Description材料描述: White Nonwoven Geotextile 白色无纺布

QC'd By质量担当: *Shao Lin*

TRI Job No.工作编号: SCH22155

TRI Control No.受控编号: 10703

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	
METHOD	DESCRIPTION方法描述														
ASTM D5261	Mass per Unit Area / 单位面积质量 (gm/ m ²) Test Specimen Size 样品尺寸: 4" x 8"														
	271.6	255.6	261.9	269.7	261.4						264.0	6.5	255.6	271.6	
ASTM D4632	Grab Tensile 握持强度 Test was performed as directed in D4632, dry condition.CRE Type Tensile Testing Machine (YT010 P) with hydraulic action grips and 1" x 2" (25.4mmX 50.8mm) rubber faces was used. set for 12" (300 mm)/min constant rate of extension, with initial gauge length (distance between grips) of 3"(76mm). Specimen size: 4" X 8"(100mmX200mm). Maximum load used for testing: 1000 lbs(5000N)														
	Grab Breaking Load 断裂强力 (N)														
沿机方向	MD	1280	1367	1227	1266	1224	1282	1298	1300	1277	1209	1274	47	1209	1367
非沿机方向	TD	1385	1454	1562	1655	1607	1388	1427	1391	1418	1372	1466	103	1372	1655
	Apparent Breaking Elongation 表观断裂延伸率(percent百分率)														
沿机方向	MD	81	68	79	81	88	78	79	86	80	79	80	5	68	88
非沿机方向	TD	74	73	72	72	73	71	73	70	70	71	72	1	70	74
ASTM D4533	Trapezoid Tear Strength / 梯形撕裂强度 (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。 CRE Type Tensile Testing Machine (YT010P) equipped with 2" x 8" (50mmX 200mm) Grips was used. 使用 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)														
沿机方向	MD	489	475	497	509	576	484	509	511	478	492	502	29	475	576
非沿机方向	TD	513	508	529	478	497	562	553	521	489	492	514	28	478	562

End of Table 2

(Sheet 1 of 1)

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.

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TABLE 表 3.

MATERIAL PROPERTIES

材料属性

CLIENT客户: Taian Lin Yuan Engineering Materials Co., Ltd.

PROJECT项目: Geotextile Testing

Date Received接收日期: 2022.09.16

Date Reported报告日期: 2022.09.21

Client Sample ID样品信息: Polyester Continuous Filament Nonwoven Geotextile 350g

Material Description材料描述: White Nonwoven Geotextile 白色无纺布

QC'd By质量担当: *Shao*

TRI Job No.工作编号: SCH22155

TRI Control No.受控编号: 10704

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
METHOD 方法描述														
ASTM D5261	Mass per Unit Area / 单位面积质量 (gm/ m ²)													
	Test Specimen Size 样品尺寸: 4" x 8"													
	369.4	373.7	359.7	351.5	349.5						360.8	10.7	349.5	373.7
ASTM D4632	Grab Tensile 握持强度													
	Test was performed as directed in D4632, dry condition. CRE Type Tensile Testing Machine (YT010 P) with hydraulic action grips and 1" x 2" (25.4mmX 50.8mm) rubber faces was used. set for 12" (300 mm)/min constant rate of extension, with initial gauge length (distance between grips) of 3" (76mm). Specimen size: 4" X 8" (100mmX200mm). Maximum load used for testing: 1000 lbs (5000N)													
	Grab Breaking Load 断裂强度 (N)													
沿机方向	MD	1849	1887	1985	1771	1789	1824	1708	1642	1773	1826	75	1708	1985
非沿机方向	TD	1802	1768	1974	1728	1922	1794	1757	1839	1775	1822	78	1728	1974
	Apparent Breaking Elongation 表观断裂延伸率 (percent 百分率)													
沿机方向	MD	71	70	74	73	71	71	71	72	70	71	2	67	74
非沿机方向	TD	74	72	81	75	80	75	75	75	75	76	3	72	81
ASTM D4533	Trapezoid Tear Strength / 梯形撕裂强度 (N)													
	Specimens were tested as directed in Test Method D4533, dry condition. 样品按照 D4533 的方法进行测试。 CRE Type Tensile Testing Machine (YT010P) equipped with 2" x 8" (50mmX 200mm) Grips was used. 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) (25.4mm) 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)													
沿机方向	MD	801	756	790	792	806	796	825	748	772	785	24	748	825
非沿机方向	TD	777	756	696	648	726	684	669	708	714	711	39	648	777

End of Table 3

(Sheet 1 of 1)

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.
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TABLE 表 4.

MATERIAL PROPERTIES

材料属性

CLIENT客户: Taian Lin Yuan Engineering Materials Co., Ltd.

PROJECT项目: Geotextile Testing

Date Received接收日期: 2022.09.16

Date Reported报告日期: 2022.09.21

Client Sample ID样品信息: Polyester Continuous Filament Nonwoven Geotextile 450g

Material Description材料描述: White Nonwoven Geotextile 白色无纺布

QC'd By质量担当: *Shaojun Ma*

TRI Job No.工作编号: SCH22155

TRI Control No.受控编号: 10705

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
METHOD 方法描述														
ASTM D5261	Mass per Unit Area / 单位面积质量 (gm/ m ²)													
	Test Specimen Size 样品尺寸: 4" x 8"													
	492.4	479.3	461.9	453.1	458.0						468.9	16.4	453.1	492.4
ASTM D4632	Grab Tensile 握持强度													
	Test was performed as directed in D4632, dry condition. CRE Type Tensile Testing Machine (YT010 P) with hydraulic action grips and 1" x 2" (25.4mmX 50.8mm) rubber faces was used. set for 12" (300 mm)/min constant rate of extension, with initial gauge length (distance between grips) of 3" (76mm). 样品尺寸: 4" X 8" (100mmX200mm). 最大负荷: 1000 lbs(5000N)													
	Grab Breaking Load 断裂强度 (N)													
沿机方向	MD	2521	2130	2019	2101	2252	2117	2077	2228	2397	2225	167	2019	2521
非沿机方向	TD	2302	2656	2413	2353	2339	2679	2524	2421	2582	2477	132	2302	2679
	Apparent Breaking Elongation 表观断裂延伸率(percent百分率)													
沿机方向	MD	69	68	67	67	65	69	68	70	69	68	2	65	70
非沿机方向	TD	65	67	66	67	67	67	65	67	67	66	1	65	67
ASTM D4533	Trapezoid Tear Strength / 梯形撕裂强度 (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													
	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). 样品尺寸: 3" X 8" (76mmX200mm). 标定的量程范围: 1000lbs(5000 N)													
	Specimen Size: 3" X 8" (76mmX200mm). Full scale force range used for testing: 1000lbs(5000 N)													
沿机方向	MD	701	680	714	624	709	645	714	640	692	679	33	624	714
非沿机方向	TD	616	667	645	674	693	634	648	662	689	666	24	616	693

End of Table 4

(Sheet 1 of 1)

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。