Feb 28th, 2020

GAI-LAP
Initial: CVZ / Steve Xi #: 79
DATE: 02/28/2020

Liang Jing
Gu Guo Eco-environmental Co., Ltd
Middle section of Taiqian street, Taishan Industrial Park (JINGWAH Industrial Park)
Taian, China

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

Dear Ms. Liang:

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) GCL sample**.
附上一份 1 个 GCL 样品的最终符合性实验室检测报告

PROJECT NAME 项目名称: GCL Testing

DATE REPORTED 报告日期: **Feb 28th, 2020**

REFERENCE TRI JOB NO.涉及工作编号: SCH20027

DATE RECEIVED 接收日期: Feb 17th, 2020

SAMPLE(S) SENT BY 送样人: Tai'an Hongyuan

SAMPLE IDENTIFICATIONS 样品信息:

SAMPLE ID 样品 ID	*TRI CONTROL NUMBER 受控编号*
GCL	02082

TESTS REQUIRED / PERFORMED 检测需求/检毕:

TEST METHOD 检测方法	*DESCRIPTION 描述*
1. ASTM D5890	Swell Index
2. ASTM D6496	Peel Strength
3. ASTM D5084	Permeability
4. ASTM D5891	Fluid Loss
5. ASTM D6768	Tensile Strength

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

Chad Blackwell
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 个月后废弃。如需保存更长时间，请以书面方式提前通知

3 Pages Total *(including this sheet)*

TABLE表 1.

MATERIAL PROPERTIES
材料属性

CLIENT客户: Tai'an Hongyuan
PROJECT项目: GCL Testing

Date Received接收日期: **2020.02.17**
Date Reported报告日期: **2020.02.28**
Client Sample ID样品信息: **GCL**
Material Description材料描述: **GCL**

QC'd By质量担当:
TRI Job No.工作编号: **SCH20027**
TRI Control No.受控编号: **02082**

SPECIMENS样品

METHOD	DESCRIPTION	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
ASTM D5084	Hydraulic Conductivity (m./ sec.)														
	Effective Consolidation Stress: _5_ psi														
		1.6E-11										**1.6E-11**	N/A	N/A	N/A
ASTM D5890	Swell Index (mL/ 2 g.) / 膨胀指数														
	Temperature of the slurry after mixing 22°C					Temperature after aging 23°C									
	混合后泥浆温度					老化后温度									
		27										**27.0**	N/A	N/A	N/A
ASTM D5993	Mass per Unit area of the GCL @ 0% MC (gm/ m^2)								*Specimen Size: 4"x 8" Die cut*						
	单位面积克重（零水分）								*样品尺寸：4″x 8″ 磨具冲压*						
	Drying Time/ Temp: 110+/- 5°C for 16 hrs using thermostatically controlled oven.														
	干燥时间/ 温度：110±5 ℃，置于可控制温度的烘箱中16 个小时														
		5627	**5383**	**5413**	**5514**	**5074**						**5402**	**207**	**5073.8**	**5627.5**
ASTM D5891	Fluid Loss 滤失量 (mL)														
	Temperature of the slurry at the start of test: 22 °C					*After test: 23 °C*									
	开始检测前泥浆温度:					检测后									
		15.2										**15.2**	N/A	N/A	N.A

(Continued on next page)

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION

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SPECIMENS样品

METHOD	DESCRIPTION	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
ASTM D6496	Bonding Peel Strength 剥离强度 (N/m)														
	Specimens were die cut using 4" x 8" (100mmX 200mm) die parallel to the machine direction. Tensile Testing Machine: YT010 P (CRE Type)														
	样品被4" x 8" (100 mmX 200 mm)的模具冲压剪切下来，平行于沿机方向，拉伸测试仪：YT010 P(拉伸仪型号)														
	set for 12" (300 mm/min) constant rate of extension, with initial gauge length (distance between grips) of 2" (50mm).														
	Load Full scale: 100lbs(500N)														
	设定拉伸仪恒定拉伸速率为12" (300 mm/min), 夹具初始距离为 2 "(50mm). 满负荷：100lbs(500N)														
		349	**347**	**336**	**320**	**318**						**334**	**15**	**318**	**349**
ASTM D6768	Tensile Strength 抗拉强度 (N/m)														
	Specimens were die cut using 4" x 8" (100mmX 200mm) die parallel to the machine direction. Tensile Testing Machine: YT010 P (CRE Type)														
	样品被4" x 8" (100 mmX 200 mm)的模具冲压剪切下来，平行于沿机方向，拉伸测试仪：YT010 P(拉伸仪型号)														
	set for 12" (300 mm/min) constant rate of extension, with initial gauge length (distance between grips) of 4" (100mm).														
	Load Full scale: 1000lbs(5000N)														
	设定拉伸仪恒定拉伸速率为12" (300 mm/min) , 夹具初始距离为 4 " (100mm). 满负荷：1000lbs(5000N)														
	MD	**10981**	**11168**	**9338**	**10234**	**9702**						**10285**	**791**	**9338**	**11168**

End of Table 1 (Sheet 2 of 2)

MD - MACHINE DIRECTION
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