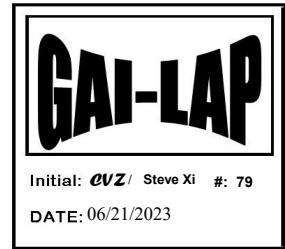


Jun 21st, 2023

Al Stephen
Bentech Bentonite
New Zealand
Christchurch 215510
New Zealand



Re: FINAL LABORATORY TEST REPORT

Dear Mr. Stephen:

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

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

PROJECT NAME: GCL Testing

DATE REPORTED: Jun 21st, 2023

REFERENCE TRI JOB NO.: SCH23156

DATE RECEIVED: Jun 12th, 2023

SAMPLE(S) SENT BY: Bentech Bentonite

SAMPLE IDENTIFICATIONS:

SAMPLE ID
NP5500

TRI CONTROL NUMBER
11025

TESTS REQUIRED / PERFORMED:

TEST METHOD

1. ASTM D4643
2. ASTM D5261
3. ASTM D5890
4. ASTM D5891
5. ASTM D5993
6. ASTM D5887
7. ASTM D6768
8. ASTM D6496
9. ASTM D6241

DESCRIPTION

- Water Content
- Mass per Unit Area
- Swell Index
- Fluid Loss
- Mass per Unit Area
- Index Flux
- Tensile Strength
- Peel Strength
- CBR Puncture

TEST RESULTS: The test results are summarized in the attached Table(s) 1.

Respectfully,

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.

4 Pages Total (including this sheet)



TABLE 1.
MATERIAL PROPERTIES
 CLIENT: Bentech Bentonite
 PROJECT: GCL Testing

Date Received: **2023.06.12**
 Date Reported: **2023.06.21**
 Client Sample ID: **NP5500**
 Material Description: **GCL**

QC'd By: *Steve [Signature]*
 TRI Job No.: **SCH23156**
 TRI Control No.: **11025**

		SPECIMENS										Avg.	Std. Dev.	Min	Max
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10				
ASTM D5261	Mass per Unit Area of the Nonwoven component (g/ m ²) <i>Test specimen size: 4"x 8"</i>	<i>Peeled from GCL</i>										274.8	6.3	265.3	282.7
		275.0	265.3	274.0	282.7	276.9									
ASTM D5261	Mass per Unit Area of the woven component (g/ m ²) <i>Test specimen size: 4"x 8"</i>	<i>Peeled from GCL</i>										132.7	4.5	126.8	137.5
		137.5	126.8	132.7	136.5	129.7									
ASTM D4643	Water (Moisture) Content (percent)											13.2	0.3	12.87	13.50
		13.5	13.4	12.9											
ASTM D5887	Index Flux (m. ³ / m. ² /sec.) <i>Confining Pressure: 5 psi</i>											3.4E-09	N/A	N/A	N/A
		3.4E-09													

(Continued on next page)

(Sheet 1 of 3)



TABLE 1.
MATERIAL PROPERTIES
 CLIENT: Bentech Bentonite
 PROJECT: GCL Testing

Date Received: **2023.06.12**
 Date Reported: **2023.06.21**
 Client Sample ID: **NP5500**
 Material Description: **GCL**

QC'd By: *Steve [Signature]*
 TRI Job No.: **SCH23156**
 TRI Control No.: **11025**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max
METHOD DESCRIPTION														
ASTM D5890 Swell Index (mL/ 2 g.) <i>Temperature of the slurry after mixing 22 °C Temperature after aging 23°C</i>														
30.0											30.0	N/A	N/A	N/A
ASTM D5993 Mass per Unit Area of the dried Clay component of the GCL (gms/ m2) <i>Drying Time/ Temp: 110+/- 5 °C for 16 hrs using thermostatically controlled oven. Specimen Size: 4"x 8" Die cut</i>														
6202 6088 5847 6463 5975											6115	235	5847	6463
Mass per Unit area of the GCL @ 0% MC (gm/ m ²)														
6609 6496 6255 6870 6382											6523	235	6255	6870
Moisture Content of the Clay as received (percent)														
12.0% 11.3% 11.5% 12.2% 11.8%											11.8%	0	0.11	0.12
ASTM D5891 Fluid Loss (mL) <i>Temperature of the slurry at the start of test: 22 °C After test: 23 °C</i>														
14.4											14.4	N/A	N/A	N.A
ASTM D6496 Bonding Peel Strength (N/m) <i>Specimens were die cut using 4" x 8" (100mmX 200mm) die parallel to the machine direction. Tensile Testing Machine: YT010 P (CRE Type) 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)</i>														
1835 1629 1722 1599 1830											1723	110	1599	1835

(Continued on next page)

(Sheet 2 of 3)



TABLE 1.
MATERIAL PROPERTIES
 CLIENT: Bentech Bentonite
 PROJECT: GCL Testing

Date Received: **2023.06.12**
 Date Reported: **2023.06.21**
 Client Sample ID: **NP5500**
 Material Description: **GCL**

QC'd By: *Steve [Signature]*
 TRI Job No.: **SCH23156**
 TRI Control No.: **11025**

		SPECIMENS										Avg.	Std. Dev.	Min	Max
		1	2	3	4	5	6	7	8	9	10				
METHOD	DESCRIPTION														
ASTM D6768	Tensile Strength (N/m) <i>Specimens were die cut using 4" x 8" (100mmX200mm) die parallel to the machine direction. Tensile Testing Machine: YT010 P (CRE Type) 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)</i>														
MD		10588	11257	11031	12202	11651						11345	614	10588	12202
ASTM D6241	Static Puncture Strength (N) <i>The specimens were tested in accordance with ASTM D6241. Specimens were conditioned for 1 hr in the laboratory at 21+/-5 °C (75+/-3.6oF) 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>														
		2615	2116	2242	2097	2147	1947	2148	2246	1974	2157	2169	185	1947	2615

End of Table 1

(Sheet 3 of 3)

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.