

TEST REPORT

No. : XMML111104823

Date : Dec. 16, 2011

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JILIN HABOD NEW MATERIALS TECHNOLOGY CO., LTD.
NO.252 JIANGJUN ROAD, JINGYU COUNTY JILIN PROVINCE, CHINA

The following sample(s) was/ were submitted and identified on behalf of the client as:

Sample Name : WPC PRODUCTS
SGS Ref No. : GZMR111126188, KV-11-11105X
Test Performed : Selected test(s) as requested by applicant
Date of Receipt : Nov. 14, 2011
Test Period : Nov. 14, 2011 to Dec. 15, 2011

Test result(s) : Please refer to the following page(s)

*****To be continued*****

Signed for and on behalf of
SGS-CSTC Ltd.



Joy Zhang
Quality Supervisor

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Test Information:

Sample description: Wood plastic composite product

No.	Test item	Test method	Test condition	Result
1	Tension strength parallel to the L direction	With reference to ASTM D7031-11 Section 5.6 and ASTM D4761-11	Specimens: 700×73×11.1mm Testing speed: 5mm/min Grip separation: 400mm	14.3MPa
2	Mechanical fastener holding test	With reference to ASTM D7031-11 Section 5.11 and ASTM D1037-06a Section 16	Specimens: 152×73×11.1mm Testing speed: 1.5mm/min Diameter of screw: 4.2mm Penetrate into depth: 11.1mm	1827N
3	Impact resistance	ASTM D7031-11 Section 5.12 and ASTM D4495-00(2005)	Specimen thickness: 11.1mm Mass of the falling weight: 10lb Diameter of the falling weight: 25mm	Mean failure energy: 56J
4	Specific gravity	ASTM D7031-11 Section 5.14 and ASTM D792-08 Method B	Absolute alcohol, 23±0.5℃	1.255
5	Moisture content	ASTM D7031-11 Section 5.15 and ASTM D4442-07 Method A	Drying condition: 103±2℃ Specimen: 153×73×11.1mm	0.45% (see note 1)
6	Taber abrasion	With reference to ASTM D7031-11 Section 5.17, ASTM D4060-10 and client's requirement	Wheel: CS-10 Load: 250g/wheel (total 500g) Cycles: 5000	Weight loss: 87mg
				Appearance after test: Visible abrasion trace
7	Moisture absorption	ASTM D7031-11 Section 5.19 and ASTM D1037-06a Section 23 Method B	Specimen: 152×73×11.1mm Submersion condition: 20±1℃, 24h, horizontal submersion	0.45% (see note 2)
8	Flexural strength	ASTM D7031-11 Section 5.5 and ASTM D6109-10 Method A	Specimen: 550×146×26.3mm Testing speed: 12.4mm/min Span: 420mm	26.4MPa
9	Flexural stiffness			3070MPa

*****To be continued*****

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No.	Test item	Test method	Test condition	Result
10	Flexural strength after freeze-thaw	ASTM D7031-11 Section 5.5, Section 5.20 and ASTM D6109-10 Method A	Freeze-thaw condition: ① underwater, 23±2°C, 24h, ② -29°C, 24h, ③ 23±2°C, 24h ①②③ as 1 cycle, total 3 cycles.	26.3MPa
11	Flexural stiffness after freeze-thaw		Specimen: 550×146×26.3mm Testing speed: 12.4mm/min Span: 420mm	3000MPa
12	Creep-Recovery	ASTM D7031-04 Section 5.10.1 and client's requirement	Specimens: 310×73×11.1mm Applied load: 300N Span: 201mm	82%(see note 3)
13	Coefficient of linear thermal expansion	Ref. ASTM D696 - 08 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer.	Test temperature range: Ramp 10°C/min from -30°C to 30°C Purge gas: Nitrogen (N ₂), Purity 99.995%, Flow rate 50ml/min. Measurement Direction: In length	-30°C~30°C : 44.05×10 ⁻⁶ (1/°C)
14	Static coefficients of friction	ASTM D 2394-05(2011)	Temperature: 20 ± 3°C Relative humidity: 65±5% Separation rate: 1.27 mm/min	0.21 (see note 4)
15	Sliding coefficients of friction		Temperature: 20 ± 3°C Relative humidity: 65±5% Separation rate: 51 mm/min	0.16 (see note 4)

Note: 1. Moisture content, % = (Original weight – Over-dry weight)/ Over-dry weight×100.

2. Moisture absorption, % = (Wet weight –Original weight)/ Original weight×100.

3. The applied load was 25% of the maximum flexural force.

4. And the results were calculated by the formulae below:

a) The load required to move the sliding unit divided by the mass of the sliding unit (approximately 25 lb(111N) is the static coefficients of friction.

b) The mean forces of sliding friction divided by the mass of the sliding unit (approximately 25 lb(111N) is the sliding coefficients of friction.

5. Test item 1~13 were carried out by a SGS laboratory. Test item 14~15 were carried out by external laboratory assessed as competent.

*****To be continued*****

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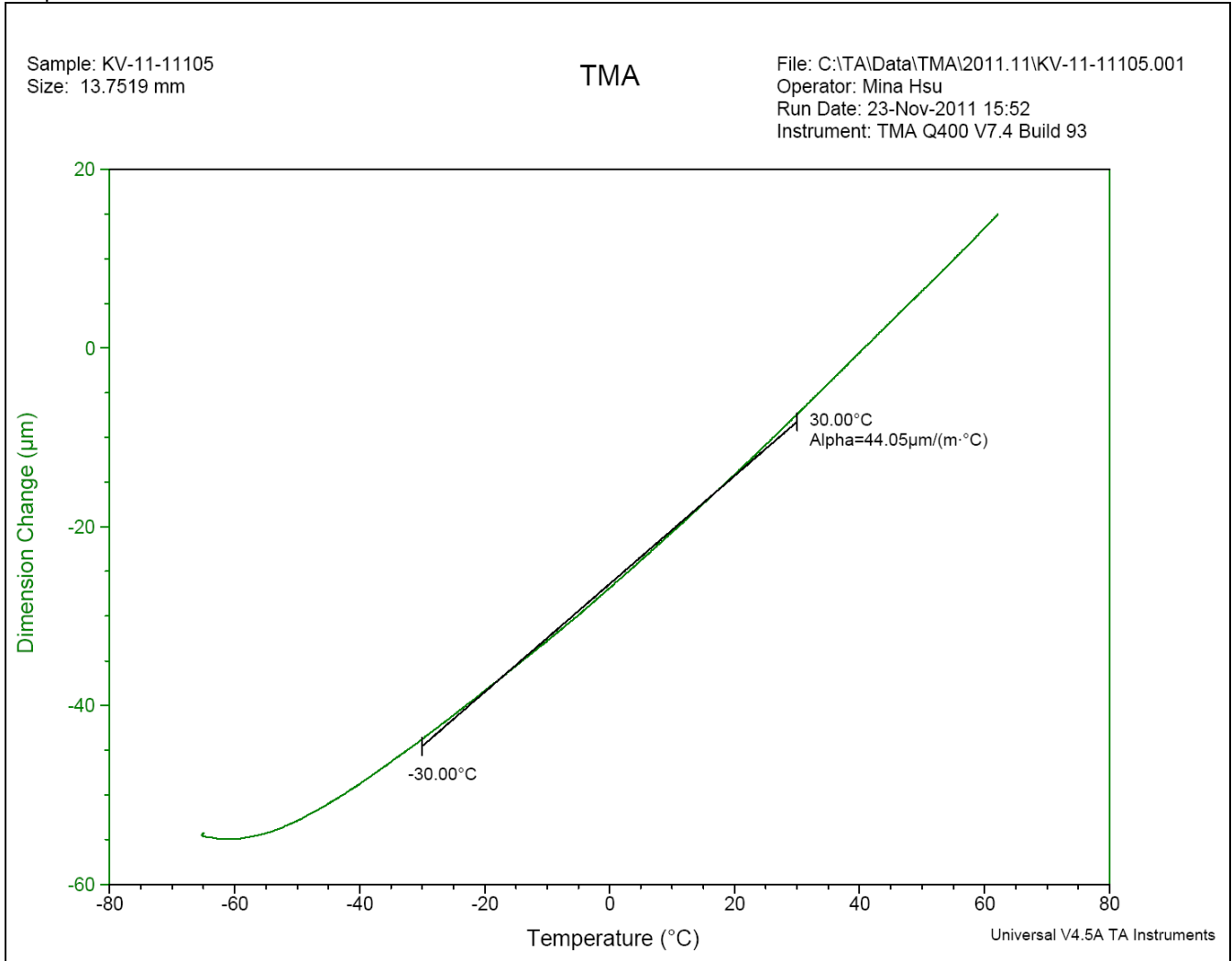
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Spectrum for test item 13:



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Photo:



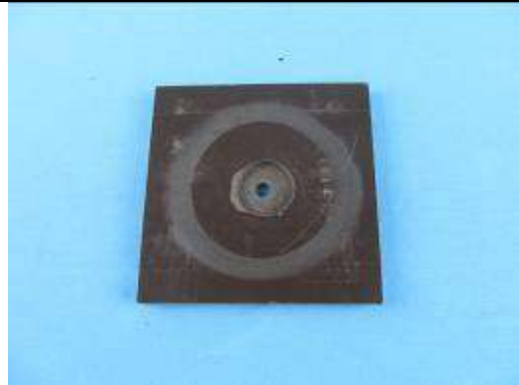
Sample for test item 1~5, 7 and 12~15



Sample for test item 8~11



Sample for test item 6



Sample for test item 6-After test



Screw(supplied by SGS)

SGS authenticate the photo(s) on original report only

*****End of report*****

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