Material and Engineering Laboratory-Taipei

TEST REPORT

REPORT NO.：HV-18-06844A
PAGE： 1 OF 10
REPORT DATE：Mar. 12, 2019

TSAI-LIENG INDUSTRIAL CO., LTD.
NO. 20-6, SHULINKOU, TAMSUI DIST., NEW TAIPEI CITY 251, TAIWAN(R.O.C.)

Product Name:	PVC Plastic Wood Lumber
Product Type:	PVC Co-Extrusion Plastic Wood Lumber
Supplier:	TSAI-LIENG INDUSTRIAL CO., LTD.
Product Submitted By:	TSAI-LIENG INDUSTRIAL CO., LTD.
Date of Receive:	DECEMBER 28, 2018
Date of Testing:	DECEMBER 28, 2018 ~ JANUARY 25, 2019
Remark:	1. The information mentioned in the above section is provided by Client (Exclude Date of Sample Received and Date of Testing) 2. The following report content marks # is provided by Client

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The laboratory tests according to the test requests and samples provided by client, and the results are as follows:

Test Required：

1. Acid Resistance
2. Alkali Resistance
3. Flexural Properties
4. Tensile Properties
5. Charpy Impact Strength
6. Water Absorption
7. Length Swelling Due to Absorption Test
8. Pull-Through Test
9. Flammability Test
10. Heavy Metal Analysis

Test Method： Please see attached sheets

Test Result： Please see attached sheets

Signed for and on behalf of SGS Taiwan Ltd.

The value of required specifications are for reference only.
Conformity judgement is the Applicant's final verdict.

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1. Acid Resistance

Test Method：

Ref. to CNS 2215(2012) Particleboards

Test Condition：

Test reagent： 20% H_2SO_4

Test Result：

Test Item(s)	Test Result(s)
Acid Resistance	There is no abnormality, even immersed in acid.

2. Alkali Resistance

Test Method：

Ref. to CNS 2215(2012) Particleboards

Test Condition：

Test reagent： 20% NaOH

Test Result：

Test Item(s)	Test Result(s)
Alkali Resistance	There is no abnormality, even immersed in alkali.

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3. Flexural Properties

Test Equipment：

Name	Brand	Model
150mm Digimatic Caliper	Mitutoyo	500-196-30
50kN Universal Material Testing Machine	INSTRON	5969

Test Method：

ASTM D790-17 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

Test Condition：

Test Procedure： Procedure A

Test Result：

Test Item(s)	Test Result(s)
Flexural Strength (kgf/cm^2)	202.7
Flexural Modulus (kgf/cm^2)	11636.9

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4. Tensile Properties

Test Equipment：

Name	Brand	Model
150mm Digimatic Caliper	Mitutoyo	500-196-30
50kN Universal Material Testing Machine	INSTRON	5969

Test Method：

ASTM D638-14 Standard Test Method for Tensile Properties of Plastics

Test Condition：

Test specimen： Type I
Rate of Speed： 5 mm/min

Test Result：

Test Item(s)	Test Result(s)
Tensile Strength (kgf/cm^2)	121

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5. Charpy Impact Strength

Test Equipment：

Name	Brand	Model
Cantilever Beam Impactor	CEAST	6957

Test Method：

CNS 5846(1992) Method of Charpy Impact Test for Rigid Plastics

Test Condition：

Test specimen： Type I，Unnotched
The capacity of the pendulum： 1 J
Impact direction： Edgewise Impact

Test Result：

Test Item(s)	Test Result(s)
Charpy Impact Strength (kJ/m^2)	3.50

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6. Water Absorption

Test Equipment：

Name	Brand	Model
Analytical Balance	METTLER	XS 204

Test Method：

CNS 9907(2017) Hard fiberboards

Test Result：

Test Item(s)	Test Result(s)
Water Absorption (%)	0.96

7. Length Swelling Due to Absorption Test

Test Method：

CNS 9907(2017) Hard fiberboards

Test Result：

Test Item(s)	Test Result(s)
Length Swelling Due to Absorption Test(%)	0.03

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8. Pull-Through Test

Test Equipment：

Name	Brand	Model
Universal Testing Machine	Chun Yen	CY6040A4

Test Method：

Ref. to ASTM D1037-12 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials

Test Condition：

Pull-Through Depth： 3.5 cm

Test Result：

Test Item(s)	Test Result(s)
Pull-Through Test (kgf)	387.3

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9. Flammability Test

Test Equipment：

Name	Brand	Model
Meker's Burner	SUGA	FL-45MC

Test Method：

CNS 7614(1994) Method of Test for Flammability of Thin Matericals

Test Condition：

Test Procedure： Method A

Sample average thickness：18.3 mm

Test Result：

Test Item(s)	Test Result(s)	#CNS 7614(1994) Anti-flaming Grade 1	#CNS 7614(1994) Anti-flaming Grade 2	#CNS 7614(1994) Anti-flaming Grade 3
Flames heating time (sec)	10	-	-	-
Remaining flame time (sec)	0.0	≦1	≦5	≦5
Embers time (sec)	0.0	≦60	≦60	≦60
Length of carbonization (cm)	4.1	≦5	≦10	≦15

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10. Heavy Metal Analysis

Test Result：

Test Item(s)	Unit	Method	MDL	Result
Soluble Antimony (Sb)	mg/kg	With reference to EN 71 PART 3: 1994 (A1: 2000 / AC:2002) (EN 71-3 & BS 5665-3 are identical), analysis was performed by ICP-AES. (#)	5	N.D.
Soluble Arsenic (As)	mg/kg		2.5	N.D.
Soluble Barium (Ba)	mg/kg		10	N.D.
Soluble Cadmium (Cd)	mg/kg		5	N.D.
Soluble Chromium (Cr)	mg/kg		5	N.D.
Soluble Lead (Pb)	mg/kg		5	N.D.
Soluble Mercury (Hg)	mg/kg		5	N.D.
Soluble Selenium (Se)	mg/kg		5	N.D.

Note：1. mg/kg = ppm；0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. (#): The applicant was informed that the test method had been repealed since July 20, 2013.It was requested to conduct the test by the applicant's assignment.

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TEST REPORT

Sample Photo：

Test Sample

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