

### WALER PRECISION MANUFACTURING SDN BHD

NO. 2 & 4, JALAN CANGGIH 1, TAMAN PERINDUSTRIAN CERMERLANG, 81800 ULU TIRAM, JOHOR

#### **Sample Description:** RESYSTA FIBER POLYMER COMPOSITE-B

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**SGS Ref. No.:** SHIN2405001092CM02

**Sample Receiving Date:** May 16, 2024

**Test Performing Date:** May 16, 2024 to May 28, 2024

#### **Test Requested:**

To determine the flame spread index (FSI) and smoke-developed index (SDI) of the sample's surface burning characteristics when it is subjected to the conditions of specified in ASTM E84-23d "Standard Test Method for Surface Burning Characteristics of Building Materials"

**Test Results:** -- See attached sheet --

Signed for and on behalf of  
Shunde Branch  
SGS-CSTC Co., Ltd.

Ada



Ada Liu  
Approved signatory



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**I. Test Conducted**

This test was conducted in accordance with ASTM E84-23d Standard Test Method for Surface Burning Characteristics of Building Materials.

**II. Introduction**

The method, designated as ASTM E84-23d, "Standard Method of Test for Surface Burning Characteristics of Building Materials", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results are expressed in terms of flame spread index (FSI) and smoke developed index (SDI).

The purpose of this test method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke developed index are reported. However, there is not necessarily a relationship between these two measurements.

**III. Test Procedure**

The tunnel is preheated to 65.6°C (150°F), as measured by the floor-embedded thermocouple located 7.09m (23.25 ft) downstream of the burner ports, and allowed to cool to 40.6°C (105°F), as measured by the floor-embedded thermocouple located 3.96m (13 ft) from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 7.32m (24 ft) long, 304.8mm (12 in) above the floor. The lid is then lowered into place.

Upon ignition of the gas burners, the flame spread distance is observed and recorded every 30 seconds. Flame spread distance versus time is plotted ignoring any flame front recessions. If the area under the curve (A) is less than or equal to 97.5 ft\*min, FSI = 0.515·A; if greater, FSI = 4900/(195-A).

The test results for smoke shall be plotted and the area under the curve shall be divided by the area under the curve for heptane, multiplied by 100, and rounded to the nearest multiple of five to establish a numerical smoke-developed index (SDI).

**IV. Conditioning**

Prior to testing, the sample was conditioned to a constant weight at a temperature of (23±2.8)°C (73.4±5)°F and at a relative humidity of (50±5)%.



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**Sample Details**

Sample description	Board
Sample size	2440mmx175mm
Thickness	Max: 20mm; Min: 3.5mm

**Exposed face:** Concave-convex surface

**Mounting methods:**

The specimen was supported during testing by 1/6' round metal rods placed at nominal 18 inch intervals across the width of the test chamber. Four samples form a row, totaling three rows.

**Test results:**

Flame Spread Index, FSI	Smoke-developed Index, SDI
15	400

**Rating:**

The National Fire Protection Association Life Safety Code 101, Chapter 10, Section 10.2.3 “Interior Wall and Ceiling Finish Classification”, has a means of classifying materials with respect to Flame Spread and Smoke Developed when tested in accordance with ASTM E84, UL 723 “Method of Test of Surface Burning Characteristics of Building Materials”.

International Building Code, Chapter 8, Interior Finishes, Section 803 “Wall and Ceiling Finishes”, was classified in accordance with ASTM E84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

**The classifications are as follows:**

Classification	Flame Spread Index, FSI	Smoke-developed Index, SDI
Class A	0-25	0-450
Class B	26-75	0-450
Class C	76-200	0-450

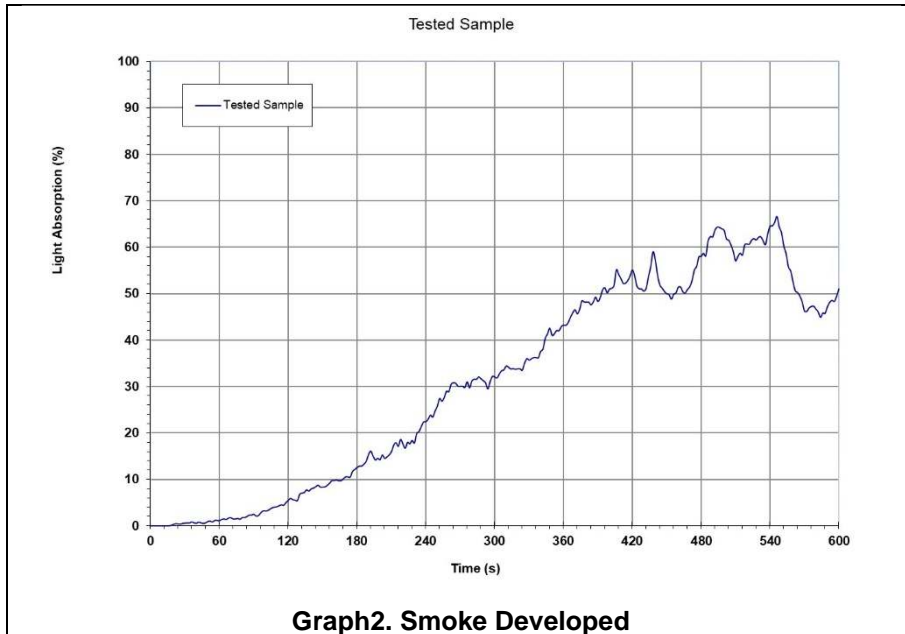
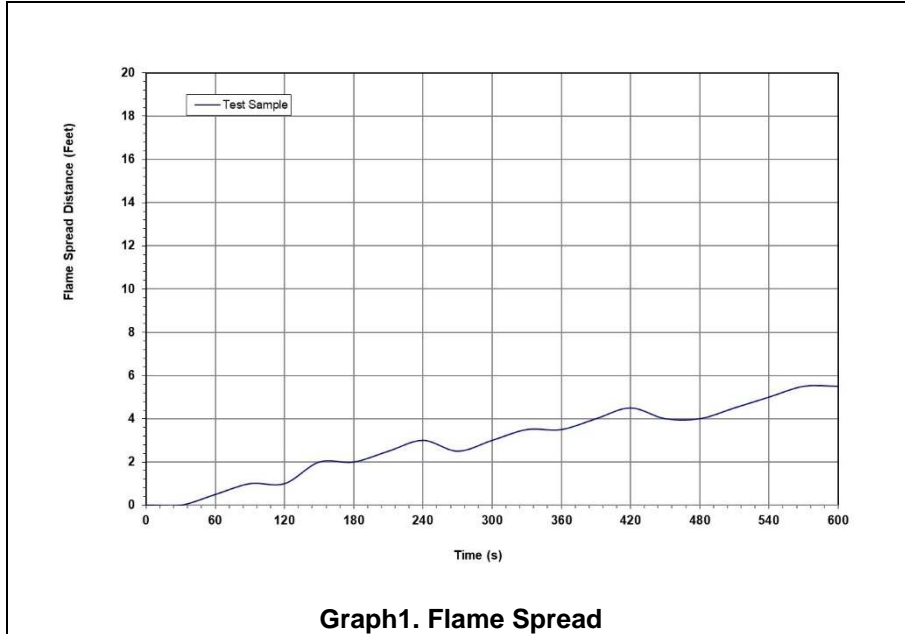
Since the tested sample received a Flame Spread Index 15 and a Smoke-developed Index 400, it **would meet** the requirements of **Class A** interior Wall & Ceiling Finish Category.



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**Graphical Results:**



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**Observations**

Time to ignition (sec)	41
Time to Max. FS (sec)	565
Maximum FS (feet)	5.5
Observations	Flaming Debris

**Warning:**

The use of supporting materials on the underside of the test specimen has the ability to lower the flame spread index from those which might be obtained if the specimen could be tested without such support. These test results do not necessarily relate to indices obtained by testing materials without such support. Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.

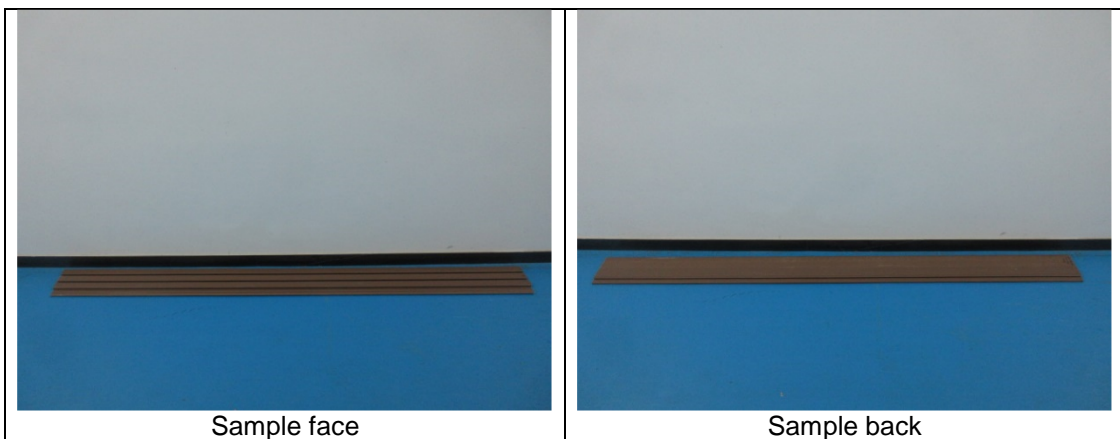
The test results relate only to the specimens of the product in the form in which were tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product, which is supplied or used, is fully represented by the specimens, which were tested.

**Statement:**

This declaration of conformity is only based on the result of this laboratory activity, the impact of the uncertainty of the results was not included.

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**Photo Appendix:**



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\*\*\*End of Report\*\*\*



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