

Test Report

No. AJD201300630

Date: FEB.20, 2013

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TATLIAN TRADING CO

BLK 803 KING GEORGE'S AVENUE #01-230 SINGAPORE

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

Sample Description: PVC BANNER

Test Requested:

To determine the flammability (building materials class B1) in accordance with DIN 4102-1 (May 1998) Fire behaviour of building materials and elements Part 1: Classification of building materials, Requirements and testing

Test Results: -- See attached sheet --

Conclusion:

The tested sample **meets** the low flammability requirements of class B1 of building materials under DIN 4102-1 (May 1998).

Test Period:

Sample Receiving Date : JAN.31, 2013

Test Performing Date : JAN.31, 2013 TO FEB.18, 2013

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



Allen Zou
Technical Supervisor

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I. Test conducted

This test was conducted as per DIN 4102-15:1990 DIN 4102-16:1998 and DIN 4102-1:1998 Clause 6.2.

Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials

II. Sample details

| | |
|-----------------|-----------------------------|
| Name | PVC Banner |
| Density / Color | 447g/m ² / White |
| Size of sample | 1000mmx190mm, 250mmx90mm |

Conditioning

Prior to testing, the sample was conditioned at least 14 days to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 6 %.

III. Test results

1) "Brandschacht" Test according to DIN 4102-15 &16

Exposed surface: The Front face

| Results of "Brandschacht" Test (part 1) | | | | |
|---|--|---------------------|-----------|------|
| Line No. | Unit | Test assemblies No. | | |
| | | Lengthwise | Widthwise | |
| 1 | Specimen fixings according to DIN 4102 part 15, table | / | 1 | 1 |
| 2 | Max. flame height above lower sample edge; | cm | 30 | 30 |
| 3 | Time ¹⁾ | min:s | 0:42 | 0:45 |
| 4 | <u>Melting/burning through</u> Time ¹⁾ | min:s | 0:06 | 0:06 |
| 5 | <u>Back of specimen</u> Flaming/glowing, Time ¹⁾ | min:s | 0:06 | 0:06 |
| 6 | Discolouring, Time ¹⁾ | min:s | 0:05 | 0:05 |
| 7 | <u>Burning droplets</u> Begin 1) | min:s | No | No |
| | <u>Amount</u> | / | / | / |
| 8 | Specimen material falling off in separate droplets | / | / | / |
| 9 | Specimen material falling off continuously | / | / | / |

To be continued...

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| Results of "Brandschacht" Test (part 2) | | | |
|---|---|---------------------|-----------|
| Line No. | Unit | Test assemblies No. | |
| | | Lengthwise | Widthwise |
| | <u>Burning parts</u> | No | No |
| 10 | Begin 1) | / | / |
| 11 | Parts of sample falling off separately | / | / |
| 12 | Parts of sample falling off continuously | / | / |
| 13 | Duration of continued combustion on mesh base (max.) | No | No |
| | <u>Burner flame impairment by dripping/falling material</u> | No | No |
| 14 | Time ¹⁾ | / | / |
| | <u>Premature ending of test</u> | / | / |
| 15 | End of burning at specimen ¹⁾ | / | / |
| 16 | Time when test terminated (if applicable) ¹⁾ | / | / |
| | <u>Burning after end of test</u> | No | No |
| 17 | Duration | / | / |
| 18 | Number of specimens | / | / |
| 19 | Front of specimen | / | / |
| 20 | Back of specimen | / | / |
| 21 | Height of flame | / | / |
| | <u>Glowing after end of test</u> | No | No |
| 22 | Duration | / | / |
| 23 | Number of specimens | / | / |
| 24 | Front of specimen | / | / |
| 25 | Back of specimen | / | / |
| 26 | Top half of specimen | / | / |
| 27 | Bottom half of specimen | / | / |

To be continued...

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| Results of "Brandschacht" Test (part 3) | | | | | |
|---|-------------------------------|---------------------|-------|-----------|-------|
| Line No. | Unit | Test assemblies No. | | | |
| | | Lengthwise | | Widthwise | |
| | <u>Residual length</u> | | | | |
| 28 | Single results | cm | 72 | 73 | 73 |
| | | | 72 | 71 | 74 |
| 29 | Average of the single results | cm | 72 | | 73.5 |
| | <u>Smoke temperature</u> | | | | |
| 30 | Max. of average | °C | 107 | | 108 |
| 31 | Time ¹⁾ | min:s | 10:00 | | 10:00 |

Note: ¹⁾ time from start of testing

2) Normal Flammability Test according to DIN 4102-1 Clause 6.2

Flame application: [☒] bottom edge ignition, [] surface ignition

[☒] Lengthwise (if applicable)

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|--------|----|----|----|----|
| Reaching the measuring mark within 20 seconds | No | No | No | No | No |
| Self extinguishing of the flame (s) | 15 | 15 | 15 | 15 | 15 |
| Max. flame height (cm) | 6 | 7 | 7 | 7 | 8 |
| End of afterflaming (s) | 15 | 15 | 15 | 15 | 15 |
| End of afterglowing (s) | 15 | 15 | 15 | 15 | 15 |
| Molten dripping | No | No | No | No | No |
| Smoke developments (visual impression) | Slight | | | | |

[☒] Widthwise (if applicable)

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|--------|----|----|----|----|
| Reaching the measuring mark within 20 seconds | No | No | No | No | No |
| Self extinguishing of the flame (s) | 15 | 15 | 15 | 15 | 15 |
| Max. flame height (cm) | 7 | 7 | 7 | 8 | 7 |
| End of afterflaming (s) | 15 | 15 | 15 | 15 | 15 |
| End of afterglowing (s) | 15 | 15 | 15 | 15 | 15 |
| Molten dripping | No | No | No | No | No |
| Smoke developments (visual impression) | Slight | | | | |

To be continued...

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All timings are from start of testing

Criteria for classification for Class B1 (DIN 4102-1 Clause 6.1.2)

All materials, except flooring, may be classed as B1 materials if they met,

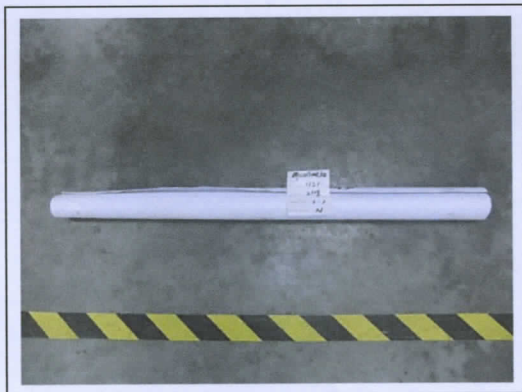
- a) Pass DIN 4102-16 "brandschacht" test if
 - 1) The mean value for the residual length of each specimen is at least 15 cm, and no individual values are lower than 0 cm;
 - 2) The mean effluent temperature does not exceed 200°C in any test;
 - 3) The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.
- b) Pass DIN 4102-1 Clause 6.2.3 Ignitability Test if,
For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

STATEMENTS:

This test report does not replace any mandatory certification of the product that may be required.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire and smoke hazard of the product in use.

Photo Appendix:



End of Report

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