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**Test Report No: ICL/H19/10687**

**ISO 5658-2: 2006 / Amd 1:2011**  
**Reaction-to-fire tests – Spread of flame –**  
**Part 2: Lateral spread on building and transport**  
**products in vertical configuration**

**Sponsored By**

SMU Powder Coatings  
AkzoNobel Center  
Christian Neefestraat 2  
1077 WW Amsterdam  
The Netherlands

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### **1. Purpose of Test**

To determine the performance of a specimen of a sheet product when it is subjected to the conditions of test specified in ISO 5658-2: 2006/ Amd 1:2011 Reaction-to-fire tests – Spread of flame – Part 2: Lateral spread on building and transport products in vertical configuration.

The results are used to determine compliance with the criteria given in EN 45545-2 Table 5 R 1.

### **2. Scope of Test**

ISO 5658-2: 2006/ Amd 1:2011 Reaction-to-fire tests – Spread of flame – Part 2: Lateral spread on building and transport products in vertical configuration, details a test procedure to determine the measurement of lateral spread of flame along the surface of a specimen of a product orientated in the vertical position. It provides data suitable for comparing the performance of essentially flat materials, composites or assemblies that are used primarily as the exposed surfaces of walls in buildings and transport vehicles, such as ships and trains.

### **3. Description of Test Specimen**

The description of the product given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

The product was a 1.2mm thick metal sheet coated with a grey coating referenced “Interpon Polyester”

The sponsor of the test has not supplied additional information relating to the paint system and method of application.

The specimens were received on 21<sup>st</sup> February 2019

#### 4. Conditioning of Test Specimens

The test specimens were conditioned to constant mass at a temperature of  $23 \pm 2^\circ\text{C}$  and a relative humidity of  $50 \pm 5\%$ .

#### 5. Date of Test

The test was performed on 8<sup>th</sup> March 2019.

#### 6. Test Procedure

The test was performed in accordance with the procedure specified in ISO 5658-2: 2006/ Amd 1:2011 and this report should be read in conjunction with that Standard.

#### 7. Conditions of test

One face was exposed to the heating conditions of the test, with an impinging propane pilot flame.

#### 8. Test Results

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

The test results relate only to the specimens of the product in the form in which they 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. Uncertainty measurement has not been taken into account when presenting the test results.

The average of the three specimens tested is given below:

#### Derived Fire Characteristics

Critical flux at extinguishment, CFE ( $\text{kW}/\text{m}^2$ ):	40.31
Heat of sustained burning $Q_{\text{sb}}$ ( $\text{MJ}/\text{m}^2$ ):	1.52
Flaming droplets / flaming ash :	None

:

The data recorded in individual tests is given in pages 5.

## 9 Requirements

The following requirements are given in Table 5 of EN 45545-2 for R1

Test Method	Parameter	Requirements	HL1	HL2	HL3
T02 ISO 5658-2	<i>CFE</i> kWm-2	Minimum	20 a	20 a	20 a

a If flaming droplets/particles are reported according to 5.3.7 during the test ISO 5658-2, or for the special case of materials which do not ignite in ISO 5658-2 and are additionally reported as unclassifiable, the following requirements shall be added:

Test to the requirements of EN ISO 11925-2 with 30 s flame application.

The acceptance requirements are:

- flame spread < 150 mm within 60 s;
- no burning droplets/particles.

## 10. Conclusion

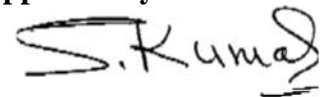
The average CFE value of three specimens tested was calculated to be 40.31kW/m<sup>2</sup> and therefore satisfies the CFE requirement given in EN 45545-2 Table 5 R 1for HL1, HL2 and HL 3.

**Prepared by**



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**Approved by**



**S. Kumar**  
Technical Manager

**Date of Issue: 28<sup>th</sup> March 2019.**

**Individual rake data from each specimen run**

**Table 1**

	<b>Run 1</b>	<b>Run 2</b>	<b>Run 3</b>	<b>Average</b>
Time (min, s) to	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>
ignition:	43	29	30	34
<b>station 50mm:</b>	53	30	31	38
<b>station 100mm:</b>	63	35	34	44
<b>station 150mm:</b>	0	49	40	30
<b>station 200mm:</b>	0	57	45	34
<b>station 250mm:</b>	0	0	61	20
<b>station 300mm:</b>	0	0	93	31
<b>station 350mm:</b>	0	0	0	0
<b>station 400mm:</b>	0	0	0	0
<b>station 450mm:</b>	0	0	0	0
<b>station 500mm:</b>	0	0	0	0
<b>station 550mm:</b>	0	0	0	0
<b>station 600mm:</b>	0	0	0	0
<b>station 650mm:</b>	0	0	0	0
<b>station 700mm:</b>	0	0	0	0
<b>station 750mm:</b>	0	0	0	0
<b>Flaming out time:</b>	75	92	105	91
<b>Flaming droplets:</b>	0	0	0	0
<b>Final travel (mm)</b>	100	200	300	200
<b>Length of the test (Sec)</b>	675	692	705	691

**Table 2**

<b>Parameter</b>	<b>Run 1</b>	<b>Run 2</b>	<b>Run 3</b>	<b>Average</b>
Length of test (s)	675	692	705	691
Critical flux at extinguishment, CFE (kW/m <sup>2</sup> )	48.50	41.92	30.51	40.31
Heat for sustained burning, Q <sub>sb</sub> (MJ/m <sup>2</sup> )	0.00	2.33	2.22	1.52