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Test Report: ICL/H18/10681

ISO 5659-2: 2012

Plastics - Smoke generation - Part 2:

Determination of optical density by a single-chamber test

Test at 50kW/m² without pilot flame

Sponsored By

SMU Powder Coatings
AkzoNobel Center
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1 Introduction

EN 45545-2 calls up tests in accordance with the procedures specified in ISO 5659-2 at one heat flux specified in EN 45545-2. There is an additional requirement to calculate and report VOF₄ value.

The principle of the test method of ISO 5659-2 is to expose a material to specified thermal conditions of pyrolysis and combustion in a continuous procedure. The change in optical density of the smoke produced when dispersed within a fixed volume of air is recorded throughout the period of test. The resulting smoke density/time curve is used to calculate the smoke index.

The test method provides a means for the comparative assessment of products, however, it does not model a real fire situation and the results cannot therefore be used to describe the fire hazard of materials under actual fire conditions.

2 Description of Test Specimens

The description of the specimens 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 coated metal sheet coated with a black coating referenced "Interpon Easy Clean (EC)"

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

The sponsor of the test did not supply further details relating to the composition of the material that was tested.

3 Conditioning of Specimens

The specimens were received on 21st February 2019
The specimens were conditioned to the requirements of ISO 5659-2: 2012, i.e. conditioned to constant mass at 23 ± 3 °C and 50 ± 5% RH, before testing.

4 Date of Test

The tests were performed on 14th March 2019.

5 Test Procedure

The test was performed in the non- flaming mode at 50kW/m² in accordance with the procedure specified in ISO 5659-2:2012 and this report should be read in conjunction with that Standard.

Specimens were tested at 50kW/m² without pilot flame only.

6 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 smoke 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 will therefore invalidate the test results. It is the responsibility of the supplier of the product to ensure that the product, which is supplied, is identical with the specimens, which were tested. Uncertainty measurement has not been taken into account when presenting the test results.

The results of tests carried out can be summarised as follows:-

50kW/m² in Non-Flaming Mode				
Parameter	Test 1	Test 2	Test 3	Average
Ds at 1.5 mins	14.56	17.88	26.56	19.67
Ds at 4 mins	89.48	77.61	39.70	68.93
Ds Max (in 10mins)	105.70	81.79	44.63	77.37
Ds Max	105.80	81.91	0.00	62.57
Clear beam	83.92	91.65	0.00	58.53
Dsc	10.05	5.00	0.00	5.02
D Max Corrected	95.75	76.91	0.00	57.55
Time to max (Sec)	392.00	331.00	0.00	241.00
VOF4	151.23	145.23	87.61	128.02

Ds V time chart is given in Appendix 1.

7 Requirements

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

Test Method	Parameter	Requirements	HL1	HL2	HL3
T10.01 EN ISO 5659-2: 50kWm ⁻²	D _{s(4)} dimensionless	Maximum	600	300	150
T10.02 EN ISO 5659-2: 50kWm ⁻²	VOF ₄ min	Maximum	1200	600	300

8 Conclusion

When tested in accordance with the procedure specified in ISO 5659-2 at 50kW/m² in the non-flaming mode the material shows a D_s (4) Value of 68.93 and VOF₄ value of 128.02

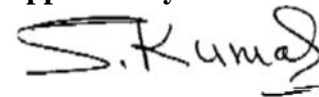
The material tested therefore satisfies the smoke emission requirements given in EN 45545-2 Table 5 R 1 for HL1, HL2 and HL3.

Prepared by



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Approved by



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Date: 28th March 2019.

Appendix 1

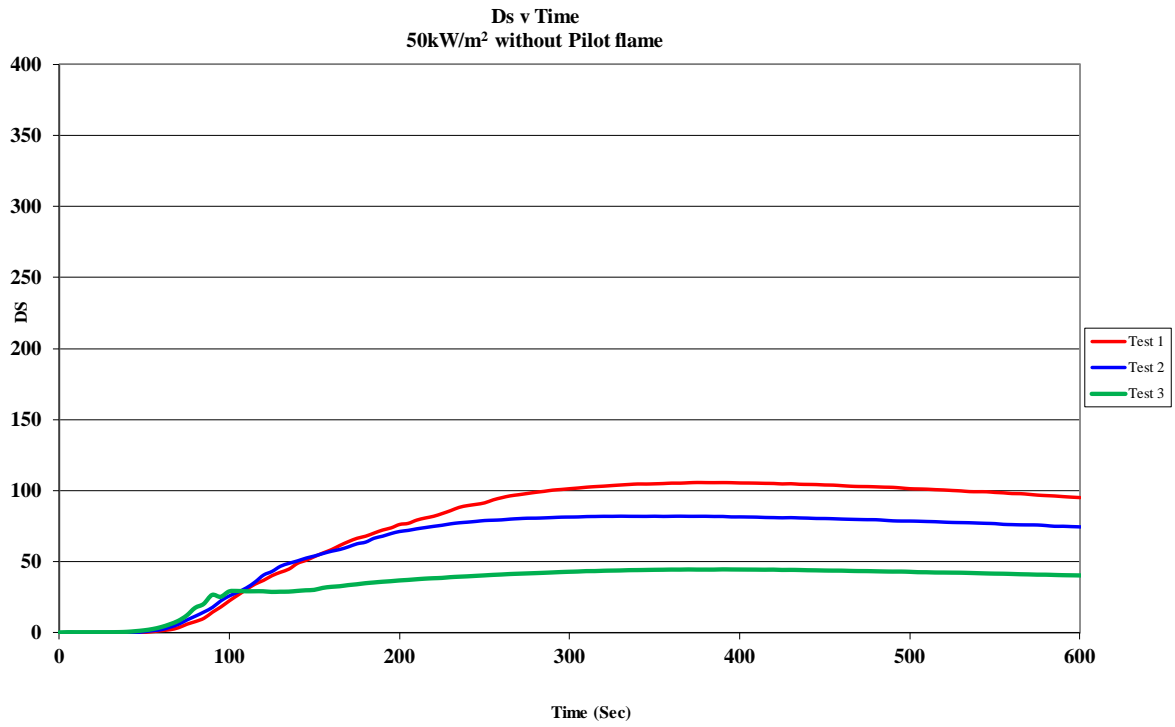


Fig 1: Ds v Time chart