Interscience Fire Laboratory
Building 63
Haslar Marine Technology Park
Haslar Road, Gosport
Hampshire PO12 2AG
United Kingdom

Tel. : +44 (0) 20 8692 5050
Fax.: +44 (0) 20 8692 5155
Email: firetesting@intersciencecomms.co.uk

Test Report: ICL/H22/15292

ISO 5659-2: 2012
Plastics - Smoke generation - Part 2:
Determination of optical density by a single-chamber test

Test at 25kW/m^2 with pilot flame

Sponsored By
Sleeve It Limited.
Unit 36 Dolly waggon Way,
South Rings, Bamber Bridge, Preston, Lancashire, PR5 6EW.

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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.

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 3.4mm thick red silicone coated glass fibre sleeving

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 22nd June 2022.

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 26th July 2022.

5 Test Procedure

The test was performed 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 25kW/m^2 with pilot flame only.

The silicone coated face was exposed to the heating conditions of the test.

6 Test Results

The test results apply to the sample as received tested after conditioning. 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 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:-

25kW/m^2 in Flaming Mode				
Parameter	**Test 1**	**Test 2**	**Test 3**	Average
Ds at 1.5 mins	22.84	24.46	20.90	22.73
Ds at 4 mins	51.39	46.86	58.00	52.08
Ds Max (in 10mins)	78.58	77.75	84.02	80.12
Ds Max	98.14	105.39	109.62	104.38
Clear beam	60.31	41.78	45.41	49.17
Dsc	28.99	50.03	45.26	41.42
D Max Corrected	69.15	55.36	64.36	62.96
Time to max (Sec)	1201.00	1199.00	1197.00	1199.00
VOF4	**107.78**	**104.53**	**130.33**	114.22

Ds V time chart is given in Appendix 1.

7. Requirements

The following requirements are given in Table 5 of EN 45545-2 for R22.

Test Method	Parameter	Requirements	HL1	HL2	HL3
T10.03 EN ISO 5659-2: 25kWm^{-2}	D_s dimensionless	Maximum (10 minuts)	600	300	150

7 Conclusion

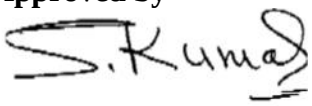
When tested in accordance with the procedure specified in ISO 5659-2 at 25kW/m^2 in the flaming mode the material shows a Ds max Value of 80.12

The material tested therefore satisfies the smoke emission requirements for hazard level HL1, HL2 and HL3 as specified in EN 45545-2 Table 5 R22.

Prepared by

C. B. Chong
Fire Scientist

Approved by



S. Kumar
Technical Manager

Date: 26th August 2022.

Appendix 1

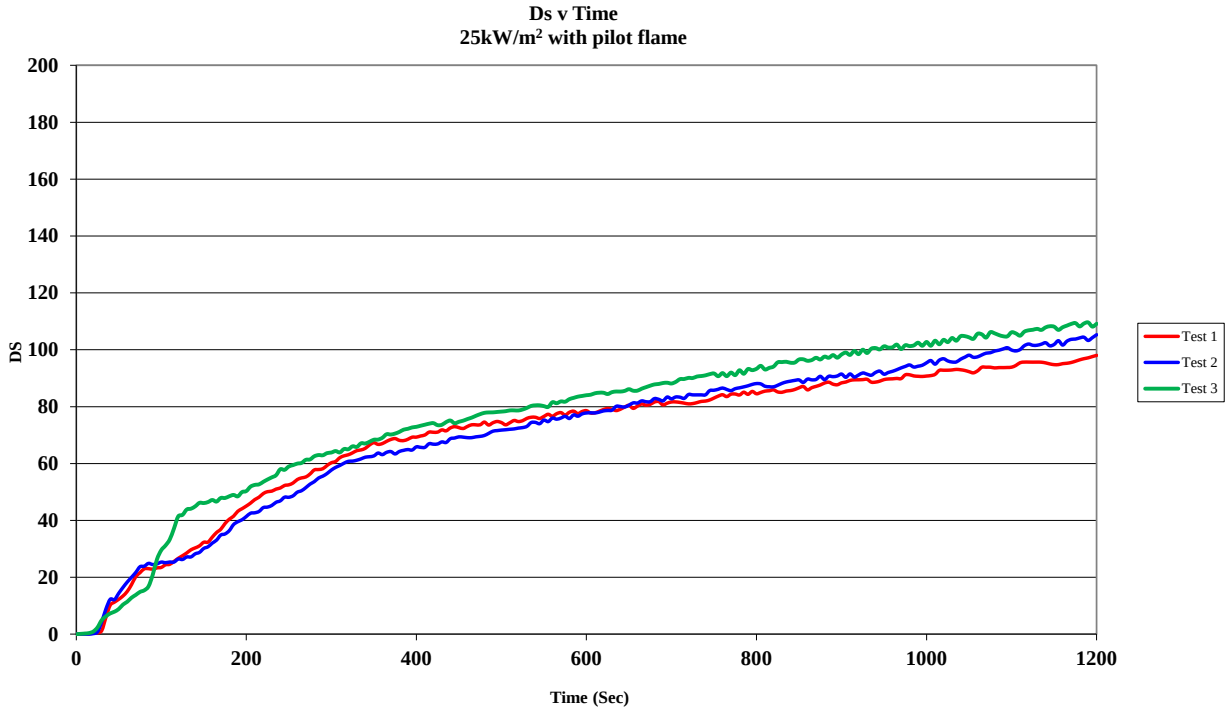


Fig 1: Ds v Time in Flaming mode