REPORT

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Reference
8P02524-11

Isoflex AB
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Reaction to fire classification according to EN 45545-2

(1 appendix)

Introduction

This classification report defines the reaction to fire classification assigned to the product called “Moniflex” in accordance with EN 45545-2:2013+A1:2015. Test reports and test results in support of classification, together with the classification criteria, are presented in appendix 1.

Product description

According to the client: Thermal acoustic insulation called “Moniflex”, consisting of layers of pleated sheets of FR cellulose acetate. The product has a nominal thickness of 10 – 20 mm, a nominal density of 13 kg/m^3 and the colour is transparent. Detailed product description is filed at RISE.

According to the standard EN 45545-2, table 2, the product is defined as a “Listed Product” to which the following parameters apply:

Product No:	IN1A / IN1B / IN1C
Location:	Interior
Description:	Interiors
Product name:	Interior vertical surfaces / Interior horizontal downward-facing surfaces / Interior horizontal upward-facing surfaces
Requirement Set:	R1 / R10

Basis for classification

A complete series of tests have been performed on the thickness with the poorest results in each test method. Indicative single tests have been performed on the other thickness.

Classification

The product described above, in relation to its reaction to fire behaviour, is classified according to EN 45545-2:2013+A1:2015, Requirement Set R1; Hazard Levels HL1, HL2 and HL3.

According to Table 2 in EN 45545-2, product no. IN1C, compliance with the requirements of R1 is also considered to be compliant for the corresponding hazard level in R10.

Reaction to fire classification: R1; HL1/HL2/HL3

Reaction to fire classification: R10; HL1/HL2/HL3

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Field of application

This classification is valid for the following product parameters:

Nominal thickness: 10 – 20 mm.

Nominal density: 13 kg/m^3.

This classification is valid for the following end use conditions:

Substrates

- Steel sheet with nominal thickness ≥ 0.8 ± 0.2 mm.

Limitations

This classification document does not represent type approval or certification of the product.

The sample was delivered by the client. RISE Safety – Fire Research was not involved in the sampling procedure.

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Appendix

1. Basis for fire classification

Appendix 1

Basis for fire classification

1 Test reports & test results in support of classification

1.1 Test reports

This classification, according to EN 45545-2, is based on the test reports:

Laboratory	Sponsor	Test report no	Accredited test method
RISE	Isoflex AB	8P02524	ISO 5658-2
RISE	Isoflex AB	8P02524-1	ISO 5660-1
RISE	Isoflex AB	8P02524-2	EN ISO 5659-2+ EN 45545-2, annex C

1.2 Test results

Mean values of the test results are summarized:

Test method	*Number of tests*	Parameter	Results, mean value	Compliance with Requirement Set; Hazard Level
ISO 5658-2 (ref. 8P02524)	3			
Critical Flux at Extinguishment		CFE	42 kW/m^2	R1; HL1/HL2/HL3
ISO 5660-1: 50 kW/m^2 (ref. 8P02524-1)	3			
Maximum Average Rate of Heat Emission		MARHE	49 kW/m^2	R1; HL1/HL2/HL3
ISO 5659-2: 50 kW/m^2 without pilot burner (ref. 8P02524-2)	3			
Maximum specific optical density of smoke at 4 min		$D_s(4)$	102	R1; HL1/HL2/HL3
Cumulative value of specific optical density of smoke in the first 4 minutes		VOF_4	241	R1; HL1/HL2/HL3
Conventional index of toxicity, General products		CIT_G	0.04	R1; HL1/HL2/HL3

2 Reaction to Fire Classification

2.1 Reference for classification

According to EN 45545-2 “Railway applications – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components”, to meet the set of material requirements according to table 5, requirement set R1, the product must fulfil the classification criteria for each test method tested as described below.

2.2 Classification criteria

Classification criteria according to Requirement Set R1 are summarized as follows:

Test method	HL1	HL2	HL3
ISO 5658-2			
Critical Flux at Extinguishment, CFE (kW/m^2)	≥ 20	≥ 20	≥ 20
ISO 5660-1: 50 kW/m^2			
Maximum Average Rate of Heat Emission, MARHE (kW/m^2)	-	≤ 90	≤ 60
ISO 5659-2: 50 kW/m^2, without pilot flame			
Maximum specific optical density of smoke at 4 min, $D_s(4)$	≤ 600	≤ 300	≤ 150
Cumulative value of specific optical density of smoke in the first 4 minutes, VOF_4	≤ 1200	≤ 600	≤ 300
Conventional index of toxicity, General products, CIT_G	≤ 1.2	≤ 0.9	≤ 0.75