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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” described below in accordance with EN 45545-2:2020. 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/m³ 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 upwards-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, Requirement Set R1; Hazard Levels HL1 and HL2. R1 is also considered to be compliant for the corresponding hazard level in R10.

Reaction to fire classification: R1; HL1/HL2

Reaction to fire classification: R10; HL1/HL2

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Confidentiality level

C3 - Sensitive

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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/m³.

This classification is valid for the following end use conditions:

Substrates

- Steel sheet with nominal thickness $\geq 0.8 \pm 0.2$ mm.

Limitations

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

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

RISE Research Institutes of Sweden AB Fire and safety - Reaction to Fire Medium Scale Lab

Performed by



Susanne Blomqvist

Examined by



Anna Bergstrand

Appendix

1 Basis for 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	Client	Test report no	Issue date	Accredited test method
RISE	Isoflex AB	O100746-1175869	2023-03-15	ISO 5660-1
RISE	Isoflex AB	O100746-1175869-2	2023-03-23	ISO 5658-2
RISE	Isoflex AB	O100746-1175869-3	2023-03-29	EN ISO 5659-2 and EN 17084, Method 1

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
<i>ISO 5658-2</i> <i>(ref. O100746-1175869-2)</i>	3			
Critical Flux at Extinguishment		CFE	≥50 kW/m ²	R1; HL1/HL2/HL3
<i>ISO 5660-1: 50 kW/m²</i> <i>(ref. O100746-1175869)</i>	3			
Maximum Average Rate of Heat Emission		MARHE	66 kW/m ²	R1; HL1/HL2
<i>ISO 5659-2: 50 kW/m² without pilot burner</i> <i>(ref. O100746-1175869-3)</i>	3			
Maximum specific optical density of smoke at 4 min, D _s (4)		D _s (4)	53	R1; HL1/HL2/HL3
Cumulative value of specific optical density of smoke in the first 4 minutes		VOF4	148	R1; HL1/HL2/HL3
<i>EN 17084, method 1: 50 kW/m², without pilot burner</i> <i>(ref. O100746-1175869-3)</i>	3			
Conventional index of toxicity, General products		CIT _G	0.03	R1; HL1/HL2/HL3

Appendix 1

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:

<i>Test method</i>	HL1	HL2	HL3
<i>ISO 5658-2</i>			
Critical Flux at Extinguishment, CFE (kW/m ²)	≥ 20	≥ 20	≥ 20
<i>ISO 5660-1: 50 kW/m²</i>			
Maximum Average Rate of Heat Emission, MARHE (kW/m ²)	-	≤ 90	≤ 60
<i>ISO 5659-2: 50 kW/m², without pilot flame</i>			
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
<i>EN 17084, method 1: 50 kW/m², without pilot flame</i>			
Conventional index of toxicity, General products, CIT _G	≤ 1.2	≤ 0.9	≤ 0.75

Verification

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Main document

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