

Reaction to fire classification report according to CEN/TS 45545-2

Introduction

SP has by request of Dansk Dekor-Laminat A/S performed fire tests according to ISO 5660 and ISO 5659-2. The purpose of the tests is basis for technical fire classification.

This classification report replaces SP classification report P902159D / rev 2, dated June 25, 2009.

Product description

The product, "Alunit type F", is fully described below.

According to the client:

Product called "Alunit type F", consisting of surface material of HPL laminate and a core of Aluminium and backing of coating. Nominal amount of coating 10 g/m². The product has a nominal thickness of ≤ 2.1 mm.

Test reports & test results in support of classification

This classification is based on test reports listed below:

Name of laboratory	Name of sponsor	Test report ref no	Accredited test method
SP	Dansk Dekor-Laminat A/S	P902159C / rev 2	ISO 5659-2
SP	Dansk Dekor-Laminat A/S	P902159	ISO 5660
SP	Dansk Dekor-Laminat A/S	F611944	ISO 5658-2

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Test results

Test method	Parameter	Number of tests	Results	
			Mean value (m)	Hazard level classification, Table 7, R1
ISO 5658-2 Lateral flame spread	CFE (kW/m ²)	3	46.6	HL3
ISO 5659-2 50 kW/m ²		3		
Specific optical density of smoke	D _s (4)		152	HL2
Cumulative value of specific optical densities in the first 4 min of the test	VOF ₄ (min)		364	HL2
Conventional Index of Toxicity	CIT _G		0.23	HL3
ISO 5660 Maximum average rate of heat emission	MARHE (kW/m ²)	3	37	HL3

Criteria

According to “Railway application – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components”, CEN/TS 45545-2, 2009.

To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to ISO 5658-2.

HL1

- Lateral flame spread (CFE) shall be minimum 20 kW/m².

HL2

- Lateral flame spread (CFE) shall be minimum 20 kW/m².

HL3

- Lateral flame spread (CFE) shall be minimum 20 kW/m².

To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to ISO 5660: heat flux 50 kW/m².

HL1

- Maximum average rate of heat emission (MARHE) no limit.

HL2

- Maximum average rate of heat emission (MARHE) does not exceed 90 kW/m².

HL3

- Maximum average rate of heat emission (MARHE) does not exceed 60 kW/m².

To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to EN ISO 5659-2: 50 kW/m² in the presence of pilot flame.

HL1

- Specific optical density of smoke ($D_s(4)$) does not exceed 600.
- Conventional Index of Toxicity (CIT_G) does not exceed 1.2.
- Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 1200 min.

HL2

- Specific optical density of smoke ($D_s(4)$) does not exceed 300.
- Conventional Index of Toxicity (CIT_G) does not exceed 0.9.
- Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 600 min.

HL3

- Specific optical density of smoke ($D_s(4)$) does not exceed 150.
- Conventional Index of Toxicity (CIT_G) does not exceed 0.75.
- Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 300 min.

Classification

The tested product called "Alunit type F", having a nominal thickness of ≤ 2.1 mm meets the technical fire requirements for R1, hazard level 2, according to the criteria mentioned above.

Reaction to fire classification: *R1, HL2*

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