

Classification report No.: 14720 / 54149

Date: 08.02.2022

BASF SE  
Brandschutztechnik  
E-CPB/EG - A521  
D-67056 Ludwigshafen

**Classification according to**

**DIN EN 45545 Part 2 : 2016-02**

**Railway applications - Fire protection of railway vehicles - Part 2: Requirements for fire behaviour of materials and components**

Client:

Bocchiotti S.p.A.

Via del Valtorta 45

20127 MILANO  
ITALY

The results refer exclusively to the tested samples.

As an accredited Test Laboratory, the BASF SE Fire Safety Technology Test Centre is authorized to conduct fire tests in accordance with DIN EN ISO/IEC 17025 : 2018.

DAkkS-Register-No.: D-PL-14121-07-00



Deutsche  
Akkreditierungsstelle  
D-PL-14121-07-00

# BASF – Fire Safety Technology

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Receipt of order: 24.11.2021

### 1. **Material:** (information supplied by client)

PC/ABS

Colour:

End use application: Cable trunkings

### 2. **Summary of results and classification:**

Standard: DIN EN 45545-2:2016-02		Set of requirements: R22, R23			
14720 / 54277 Thickness: 1,5 mm	EN ISO 4589-2	LOI	28,6	[% O2]	HL2
14720 / 54033 Thickness: 2,7 mm	EN ISO 4589-2	LOI	31,6	[% O2]	HL2
14720 / 54034 Thickness: 1,5 mm	EN ISO 5659-2 25 kW/m <sup>2</sup> (pilot flame)	Ds (max)	28,2		HL3
14720 / 54035 Thickness: 2,7 mm	EN ISO 5659-2 25 kW/m <sup>2</sup> (Pilotflamme)	Ds (max)	34,4		HL3
14720 / 54036	NF X 70-100-1/-2 600 °C	CIT (NLP)	0,28		HL3
<b>Final classification:</b>		<b>HL2</b>			

#### **Remarks:**

Valid for thickness range from 1,5 mm to 2,7 mm

**Any conclusions we draw about the fire safety of the materials we test are based exclusively on the results of the test under the conditions described. The extent to which such conclusions can be applied to non-tested material under non-standard conditions is the sole responsibility of the customer and is done so at his own risk. - Decision rule acc. to DIN EN ISO/IEC 17025: Wherever statements of conformity are made, no measurement uncertainty is taken into account.**

BASF-Fire Safety Technology

Ludwigshafen, 08.02.2022

Dr. Houssin  
Head of Laboratory

  
Kaiser  
Technician

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### 3. **Material:**

#### **Information supplied by client**

PC/ABS  
Cable trunkings / Slotted panel trunkings

#### **Additional details from test laboratory**

Colour: light grey

Colour:

End use application: Cable trunkings

Exposed surface: Smooth side

### 4. **Remarks:**

Specimen tested as received (no sampling by test laboratory).

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### 5. Requirements acc. to DIN EN 45545-2:2016-02 (equivalent to EN 45545-2:2013 + A1:2015)

Method	Standard / irradiance level	Param.	Einheit	Anford.	HL1	HL2	HL3
Requirement set: <b>R1</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	20 a)	20 a)	20 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	---	90	60
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max	600	300	150
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max	1200	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R2</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	13 a)	13 a)	13 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	--- a)	--- a)	90
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max	600	300	150
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max	1200	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R3</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	13 a)	13 a)	13 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	--- a)	--- a)	--- a)
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max		480	240
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max		960	480
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R4</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	13	13	13
T05	EN 11925-2 30s flame application	Flame spread	mm	Max	150 (in 60 s)	150 (in 60 s)	150 (in 60 s)
T05	EN 11925-2 30s flame application	Flaming droplets			0	0	0
T11.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R5</b>							
T05	EN ISO 11925-2 30s flame application	Flame spread	mm	Max	150 (in 60 s)	150 (in 60 s)	150 (in 60 s)
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	50	50	50
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	300	250	200
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75

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Method	Standard / irradiance level	Param.	Einheit	Anford.	HL1	HL2	HL3
<b>Requirement set: R6</b>							
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	90	90	60
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max	600	300	150
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max	1200	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
<b>Requirement set: R7</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	20 a)	20 a)	20 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	--- a)	90	60
T10.04	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> max		Max	---	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	---	1,8	1,5
<b>Requirement set: R8</b>							
T04	EN ISO 9239-1	CFE	kW/m <sup>2</sup>	Min	4,5	6	8
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	---	50	50
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	---	600	300
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	---	1,8	1,5
<b>Requirement set: R9</b>							
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	90	90	60
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	---	600	300
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	---	1,8	1,5
<b>Requirement set: R10</b>							
T04	EN ISO 9239-1	CFE	kW/m <sup>2</sup>		4,5	6	8
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	---	---	---
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	600	300	150
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
<b>Requirement set: R11</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	30 a)	30 a)	30 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	90	90	60
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max	600	300	150
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max	1200	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75

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Method	Standard / irradiance level	Param.	Einheit	Anford.	HL1	HL2	HL3
Requirement set: <b>R12</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	40 a)	40 a)	40 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	60	60	60
T10.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (4)		Max	600	300	150
T10.02	EN ISO 5659-2, 50 kW/m <sup>2</sup>	VOF4		Max	1200	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R13</b>							
T14	EN 13501	Eurokl.		Min	A1	A1	A1
Requirement set: <b>R14 – R16: Not performed by BASF → no requirements listed</b>							
Requirement set: <b>R17</b>							
T02	ISO 5658-2	CFE	kW/m <sup>2</sup>	Min	13 a)	13 a)	13 a)
T03.01	ISO 5660-1, 50 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	--- a)	90	60
T10.04	EN ISO 5659-2, 50 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	---	600	300
T11.01	EN ISO 5659-2, 50 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	---	1,8	1,5
Requirement set: <b>R18 b)</b>							
T06	ISO 9705	MARHE	kW	Max	75	50	20
T06	ISO 9705	RHR Peak	kW	Max	350	350	350
Requirement set: <b>R19</b>							
T03.02	ISO 5660-1, 25kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	75	50	50
Requirement set: <b>R20</b>							
T07	EN ISO 12952-3/-4	Afterflame time	Sek	Max	10	10	10
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	50	50	50
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	200	200	200
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	0,75	0,75	0,75
Requirement set: <b>R21</b>							
T03.02	ISO 5660-1, 25 kW/m <sup>2</sup>	MARHE	kW/m <sup>2</sup>	Max	75	50	50
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	300	300	200
T11.02	EN ISO 5659-2, 25 kW/m <sup>2</sup>	CIT <sub>G</sub>		Max	1,2	0,9	0,75

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Method	Standard / irradiance level	Param.	Einheit	Anford.	HL1	HL2	HL3
Requirement set: <b>R22</b>							
T01	EN ISO 4589-2	LOI	%Oxygen	Min	28	28	32
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	600	300	150
T12	NF X 70-100-1/-2 (600°C)	CIT <sub>NLP</sub>		Max	1,2	0,9	0,75
Requirement set: <b>R23</b>							
T01	EN ISO 4589-2	LOI	%Oxygen	Min	28	28	32
T10.03	EN ISO 5659-2, 25 kW/m <sup>2</sup>	D <sub>s</sub> (max)		Max	---	600	300
T12	NF X 70-100-1/-2 (600°C)	CIT <sub>NLP</sub>		Max	---	1,8	1,5
Requirement set: <b>R24</b>							
T01	EN ISO 4589-2	LOI	%Oxygen	Min	28	28	32
Requirement set: <b>R25</b>							
T16	EN 60695-2-11	Glow wire	°C	Min	850	850	850
Requirement set: <b>R26</b>							
T17	EN 60695-11-10	Vert. Small flame test		Min	V0	V0	V0

a) If flaming droplets/particles are reported according to 5.3.7 during the test ISO 5658-2, or for the special case of materials which do not ignite in ISO 5658-2 and are additionally reported as unclassifiable, the following requirements shall be added:

Test to the requirements of EN ISO 11925-2 with 30 s flame application.

The acceptance criteria are:

- flame spread < 150 mm within 60 s;
- no burning droplets / particles.

b) - during the test, the flame spread shall not reach the edges of the seat surface or the backrest;

- during the test, the flame height above the highest point of the seat surface shall not exceed 1000 mm;
- if the peak heat release values are too high for test equipment safety, then the product is not compliant.

