

ZZ[®] 383 Fire Protection Foam**Technical data sheet**

Trade name:	ZZ[®] 383 Fire Protection Foam
Description:	2-component polyurethane foam system stored in a cartridge, with halogen-free flame retardants; intumescent.
Implementation areas:	Cable or pipe penetration seal up to EI 30 for dividing walls in passenger and personnel areas. Through penetration fire protection system for electrical cables, telecommunication cables and optical fibre cables, electrical installation conduits, as well as flammable and non-flammable pipes (incl. the corresponding pipe insulation).
Product group:	IN16 – Interior seals EX12 – Exterior seals
Certificates:	<ul style="list-style-type: none">• Classification report no. 18/1864, Currenta• Test report no. 18/0715, ASTM E 162• Test report no. 18/0797, ASTM E 662
Requirement set:	R22, R23 according to EN 45545-2
Hazard level:	HL1, HL2, HL3
Colour:	Red-brown
Content:	380 ml
Transport / storage:	Dry and only in the original packaging
Storage temperature:	5 °C to 30 °C
Storage stability:	12 months at 23 °C/ 50 % rel. humidity, See imprint on cartridge for expiry date
Application temperature:	15 °C to 30 °C, recommended: 20 °C to 25 °C
Foam yield*:	Up to 2.1 litres
Setting time:	approx. 50 s (at 22 °C material temperature and ambient temperature)
Cutability*:	after approx. 90 seconds (at 22 °C material temperature and ambient temperature)

* Changes depending on the material temperature and ambient temperature.

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Bulk density (material has fully reacted): $\rho \geq 215 \text{ kg/m}^3$

Safety notices: Please observe the safety data sheet.

All of the following information refers to the fully reacted "Fire Protection Foam ZZ 383"

Behaviour in the event of fire

Classification of the fire behaviour according to DIN EN 13501-1: Class E

Expansion pressure: No expansion pressure measurable

Foaming factor: 1.6x to 4.5x
Tested on samples at 450 °C for more than 25 minutes with superimposed load. The foaming factor is a laboratory characteristic value. The foaming behaviour in installed status depends on the existing boundary conditions.

Smoke generation according to EN ISO 5659-2: $D_s \text{ max (-)} = 51$

Burning behaviour (Oxygen index) according to ISO 4589-2: $OI = 52.6 \%$

Conventional index of toxicity according to NF X 70-100-1 /-2: $CIT_{NLP} = 0,35$

Surface flammability according to ASTM E 162: Flame spread index $I_s = 11.1$

Specific optical density of smoke according to ASTM E 662:	<u>Non-flaming mode</u>	<u>Flaming mode</u>
	$D_s (1.5) (-) = 34$	$D_s (1.5) (-) = 32$
$D_s (4.0) (-) = 71$	$D_s (4.0) (-) = 95$	

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Physical construction material / product characteristics

The following specifications do not represent guaranteed product characteristics. They must, therefore, be regarded exclusively as information intended to serve as guideline values.

Thermal conductivity: $\lambda = 0.088 \text{ W/(m}^*\text{K)}$
 $R = 0.279 \text{ m}^2*\text{K/W}$
 Test standard: DIN EN 12667

Surface resistance: $R_0 = 1.25 \times 10^9 \Omega$
 Test standards: DIN EN 60079-0 (VDE 0170-1):2013-04 Section 7.4 including application of note 2 of Section 7.4.2, IEC 60079-0:2011 and modified + Cor.:2012, EN 60079-0:2012, EN 80079-36 and TRGS 727:2016-07-29

Hygiene, health and environmental protection

Indoor air hygiene Requirements of AgBB Scheme 2015 are fulfilled
 Test standards: prEN 16516, ISO 16000-3, ISO 16000-6, ISO 16000-9

Test lab: eco-INSTITUT Germany GmbH, Cologne
 Date: 22/08/2017

	Result	Requirement	Requirements fulfilled
Emission rating			
Measurement after 3 days			
TVOC (C6 – C16)	0.21 mg/m ³	≤ 10 mg/m ³	✓
Carcinogens (EU Cat. 1A and 1B)	< 0.001 mg/m ³	≤ 0.01 mg/m ³	✓
Measurement after 28 days			
TVOC (C6 – C16)	0.064 mg/m ³	≤ 1 mg/m ³	✓
Σ SVOC (C16-C22)	0.011 mg/m ³	≤ 0.1 mg/m ³	✓
R (dimensionless)	0.18	≤ 1	✓
VOC without NIK	0.012 mg/m ³	≤ 0.1 mg/m ³	✓
Carcinogens	< 0.001 mg/m ³	≤ 0.001 mg/m ³	✓

VOC emission class **A+** in accordance with French decree no. 2011-321
 Test standards: ISO 16000-3, ISO 16000-6, ISO 16000-9, ISO 16000-11, ISO 16017-1

ZZ[®] 383 Fire Protection Foam**Other product characteristics****Influence of coating materials and chemicals**

The following paints and occasional, brief influence of chemicals do not cause any change in the technical fire protection properties:

Coating materials:	Dispersion paint, alkyd resin paint, polyurethane acrylic lacquer, epoxy resin lacquer
Solvent/oil:	Trichloroethylene, xylene, acetone, white spirit, butyl acetate, butanol, domestic fuel oil
Gaseous chemicals:	Brief storage over concentrated ammonia solution
Comment:	Environmental conditions with high humidity levels and/or some coating materials and chemicals can cause minor lightening of the colour.

Contact with metals and plastics

The surface consistency of aluminium, stainless steel, galvanised steel and plastics made of polyethylene and polyvinyl chloride is not negatively affected upon contact with "Fire Protection Foam ZZ 383".

All the information in this leaflet is based on current technical knowledge and experience. Details on processing and application must be checked on a project-by-project basis due to the variety of possible influences.
If the application for which our products are used is subject to a government agency approval obligation, then the user is responsible for obtaining this approval. We would be pleased to respond to any enquires you might have.
The information in this document and declarations of Karl Zimmermann GmbH in conjunction with this document do not constitute any assumption of a guarantee. Guarantee declarations require the separate, express written declaration of Karl Zimmermann GmbH.
The conditions specified in this data sheet represent the characteristics of the delivery object, they do not represent any specific values. Specific values must be separately determined on a case-by-case basis.
We reserve the right to adapt the product to technical progress and to new developments.
In all other aspects we refer to our general terms and conditions.