

**ZZ® 281 Fire Protection Mat****Technical data sheet**

<b>Trade name:</b>	<b>ZZ® 281 Fire Protection Mat</b>
<b>Material:</b>	<b>ZZ® 18-A Fire Protection Foam</b> ZZ-Fire protection foam BDS-N, variant A
<b>Description:</b>	Soft-elastic intumescent polyurethane foam with halogen-free flame retardants; does not exhibit any appreciable expansion pressure.
<b>Implementation areas:</b>	As a moulded component (3D moulded component, toroidal sealing ring, panel, blank) for use as a sealing system for cable and pipe penetrations, joint seals, small surface insulation.
<b>Product group:</b>	IN16 – Interior seals EX12 – Exterior seals
<b>Certificates:</b>	<ul style="list-style-type: none"><li>• Classification report no. 19/0434, Currenta</li><li>• Test report no. 17/0798</li><li>• Test report no. 17/0910</li></ul>
<b>Requirement set:</b>	R22, R23 according to EN 45545-2
<b>Hazard level:</b>	HL1, HL2, HL3
<b>Colour:</b>	Red-brown
<b>Transport / storage:</b>	Dry and only in the original packaging
<b>Storage temperature:</b>	5 °C to 30 °C
<b>Bulk density:</b>	$\rho \geq 180 \text{ kg/m}^3$ to $750 \text{ kg/m}^3$
<b>Safety notices:</b>	Contains melamine (SVHC; CAS 108-78-1, EC no. 203-615-4) > 0.1% (Please note the safety data sheet).

**ZZ® 281 Fire Protection Mat****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:** $D_s \text{ max } (-) = 57$ **Burning behaviour (Oxygen index) according to ISO 4589-2:** $OI = 69.9 \%$ **Conventional index of toxicity according to NF X 70-100-1 /-2:** $CIT_{NLP} = 0,30$ **Surface flammability according to ASTM E 162:**Flame spread index  $I_s = 14.2$ **Specific optical density of smoke according to ASTM E 662:**Non-flaming mode $D_s (1.5) (-) = 34$  $D_s (4.0) (-) = 80$ Flaming mode $D_s (1.5) (-) = 36$  $D_s (4.0) (-) = 84$ **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:** $\lambda = 0.103 \text{ W/(m}^{\circ}\text{K)}$ 

Test standard: DIN EN 12667

**Surface resistance:** $R_0 = 2.39 \times 10^9 \Omega$ 

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

## ZZ® 281 Fire Protection Mat

### 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: 25/08/2017

	Result	Requirement	Requirements fulfilled
<b>Emission rating</b>			
<b>Measurement after 3 days</b>			
TVOC (C6 – C16)	0.008 mg/m <sup>3</sup>	≤ 10 mg/m <sup>3</sup>	✓
Carcinogens (EU Cat. 1A and 1B)	< 0.001 mg/m <sup>3</sup>	≤ 0.01 mg/m <sup>3</sup>	✓
<b>Measurement after 28 days</b>			
TVOC (C6 – C16)	0.014 mg/m <sup>3</sup>	≤ 1 mg/m <sup>3</sup>	✓
Σ SVOC (C16-C22)	< 0.005 mg/m <sup>3</sup>	≤ 0.1 mg/m <sup>3</sup>	✓
R (dimensionless)	0.02	≤ 1	✓
VOC without NIK	< 0.005 mg/m <sup>3</sup>	≤ 0.1 mg/m <sup>3</sup>	✓
Carcinogens	< 0.001 mg/m <sup>3</sup>	≤ 0.001 mg/m <sup>3</sup>	✓

#### 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

#### Microbial metabolisation:

Inert / fungistatic / bacteriostatic

Test standard: DIN EN ISO 846

## **ZZ® 281 Fire Protection Mat**

### **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 18-A".

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.