ZZ ZAPP-ZIMMERMANN
INNOVATIVE BRANDSCHUTZSYSTEME

Fire Protection Foam ZZ 330

Technical data sheet

Trade name:	Fire Protection Foam ZZ 330 ZZ-Fire protection foam 2K NE
Description:	2-component polyurethane foam system stored in a cartridge, with halogen-free intumescent fire retardants.
Implementation areas:	Mixed penetration seal for rigid walls, rigid floors and flexible walls. Through penetration firestop system for electrical cables, telecommunication cables and optical fibre cables, electrical installation conduits, as well as flammable and non-flammable pipes. Through penetration firestop of installations in accordance with MLAR.
Approvals / certificates:	• European Technical Approval ETA-10/0431, OIB • European Technical Approval ETA-11/0206, OIB • EC Certificate of Conformity 0761-CPD-0208 • MLAR expert report (11352/2016) • Fire protection application no. 22490 (cables), VKF • Fire protection application no. 22494 (thermosplastic pipes), VKF • Fire protection application no. 22499 (copper pipes), VKF • Fire protection application no. 22500 (steel pipes), VKF
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
Work interruption*:	Approx. 50 seconds (at 22 °C material temperature and ambient temperature)
Cutability*:	After approx. 90 seconds (at 22 °C material temperature and ambient temperature)
Bulk density (material has fully reacted):	$\rho \geq 215$ kg/m³
Safety notices:	Please observe the safety data sheet.

* Changes depending on the material temperature and ambient temperature.

Fire Protection Foam ZZ 330

All of the following information refers to the fully reacted "Fire Protection Foam ZZ 330"

Behaviour in the event of fire:

Classification of the fire protection behaviour in accordance with 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.

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.

Air permeability:	$Q_{600} \leq 0.08$ m³/(h*m²) (no air permeability was measurable at a differential pressure of 600 Pa and a measurement accuracy of 0.01 m³/h) Test standard: EN 1026 (test specimen dimensions 350 x 350 x 200 [mm], tested without penetrating elements) $Q_{50} = 0.39$ m³/(h*m²) / $Q_{600} = 4.09$ m³/(h*m²) Test standard: EN 1026 (test specimen dimensions 360 x 360 x 144 [mm], tested without penetrating elements)
Resistance to static differential pressure:	$P_{max} = 10000$ Pa Test standard: In accordance with EN 12211 (test specimen dimensions 350 x 350 x 200 [mm], tested without penetrating elements) $P_{max} = 8800$ Pa Test standard: In accordance with EN 12211 (test specimen dimensions 360 x 360 x 144 [mm], tested without penetrating elements)

Fire Protection Foam ZZ 330

Thermal conductivity:

λ = 0.088 W/(m*K)
R = 0.279 m²*K/W
Test standard: DIN EN 12667

Airborne sound insulation:

$D_{n,e,w}(C;Ctr)$ = 62 (-1; -5) dB
$R_w(C;C_{tr})$ = 43 (-1; -5) dB
Test standard: EN ISO 717-1 (test specimen dimensions 350 x 350 x 144 [mm], tested without penetrating elements)

$D_{n,e,w}(C;Ctr)$ = 66 (-1; -6) dB
$R_w(C;C_{tr})$ = 47 (-1; -6) dB
Test standard: EN ISO 717-1 (test specimen dimensions 360 x 360 x 200 [mm], tested without penetrating elements)

Surface resistance:

$R_0 = 1.25 \times 10^9$ Ω
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

Approved in potentially explosive zones:

	0	1	2	20	21	22
earthed	✓	✓	✓	✓	✓	✓
unearthed	×	×	×	×	×	×

Fire Protection Foam ZZ 330

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/m³	≤ 10 mg/m³	✓
Carcinogens (EU Cat. 1A and 1B)	< 0.001 mg/m³	≤ 0.01 mg/m³	✓
Measurement after 28 days			
TVOC (C6 – C16)	0.064 mg/m³	≤ 1 mg/m³	✓
Σ SVOC (C16-C22)	0.011 mg/m³	≤ 0.1 mg/m³	✓
R (dimensionless)	0.18	≤ 1	✓
VOC without NIK	0.012 mg/m³	≤ 0.1 mg/m³	✓
Carcinogens	< 0.001 mg/m³	≤ 0.001 mg/m³	✓

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

Testing the fire protection properties under environmental influences

Tests were performed in accordance with the approval principles for materials that form an insulating layer, dated 11/24/2006 of the DIBt, and EOTA Guideline for European Technical Approval, ETAG no. 026-2, dated 01/01/2008.

Thermal stress:

Continuous contact or ambient temperature: ≤ 80 °C

Fire Protection Foam ZZ 330

Permissible ambient conditions:

In accordance with ETAG 026-2:	Use category Z_1 Fire-retardant sealing products for use in indoor areas with all moisture levels at temperatures ≥ 0 °C.

Occasional, brief spray water stress does not pose a problem. Overall, continuous wet conditions as well as standing water and pressing water must be avoided.

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 affected in a negative way upon contact with Fire Protection Foam ZZ 330.