PROTECTA® FR GRAPHITE

TECHNICAL DATA SHEET

General Product Description

Protecta® FR Graphite is a high specification formulation designed to prevent the spread of fire, smoke and gases through openings in fire rated walls and floors. Protecta® FR Graphite expands when it is subjected to fire and closes openings around penetrations when any combustible or low temperature melting materials have burnt away.

Protecta® FR Graphite is designed to fire seal difficult services which traditional fire rated mastics do not achieve such as large plastic pipes.

Protecta® FR Graphite can be used with a suitable filling material, i.e. stone wool or Protecta® Backing material in order to ensure correct width to depth ratio and to reduce the shrinking of the sealant during curing. Minimum depth and maximum width of the joints are included in the installation instructions. Thermal activation takes place at 150°C when the material will expand (intumesce) to prevent the passage of fire and smoke for periods up to 4 hours.

Properties

- Classified in most constructions for plastic pipes and cables
- Easy to apply
- High sound insulation
- Low emissions - environmentally and user friendly
- Permanently flexible – will accommodate movement up to 12.5%
- No priming necessary for application to most materials; see the installation instructions for further details
- Suitable for most surfaces, included concrete, bricks, Leca, steel, wood, gypsum, glass, PVC and most non-porous surfaces.
- Hardens quickly, tack free after 1 hour
- The fire performance specification of the joint filler has been derived when the joint filler has been allowed to cure for 30 days
- Minimum 12 months storage time
- 30 years working life

Emission data (indoor air quality)

Compound	Emission rate after 3 days	Emission rate after 4 weeks
TVOC	41 µg/m^3	< 5 µg/m^3
TSVOC	n.d.	< 5 µg/m^3
VOC w/o NIK	n.d.	< 5 µg/m^3
R Value	n.d.	< 1
Formaldehyde	< 3 µg/m^3	n.d.
Acetaldehyde	< 3 µg/m^3	n.d.
Sum for+ace	< 0.002 ppm	n.d.
Carcinogenic	n.d.	n.d.
n.d. or < means not detected		

Protecta® FR Graphite complies with the requirements of GEV and the results correspond to the EMICODE emission class EC 1^{PLUS} which is the best possible environmental and indoor hygiene health protection mark. Tested by Eurofins Product Testing, report number G12871B.

Sound Insulation

Description	Sound reduction
Single sided seal ≥ 25mm depth	Rw 53 dB
Double sided seal ≥ 25mm depth	Rw > 53 dB

Protecta® FR Graphite has been tested at EXOVA BM Trada (UKAS accredited); according to EN ISO 10140-2:2010. Usage of any backing material is optional, due to the tests being conducted with sealant only.

Pipe end configurations

When testing pipes, one can choose not to cap (or close) the pipe, or cap the pipe inside the furnace, or outside the furnace, or on both sides. The configuration chosen depends on the intended application of the pipe and/or the installation environment. The code defining if a pipe is capped is stated after the fire classification. For instance EI 60 C/U which means the pipe was capped inside the furnace, and uncapped outside the furnace. The test configuration defines the approvals possible.

Our engineering judgment based on EN 1366-3:2009 are:

Intended use of pipe		Pipe end condition [4]
Rainwater pipe, plastic	At drainage	U/U [1]
	Not at drainage	C/C [2]
Drainage or sewage pipe, plastic	Ventilated drain	U/U [1]
	Unventilated drain	U/C [1]
	Drain w/water trap	U/C [1]
	Not at drainage	C/C [2]
Pipe in closed circuit (water, gas, air, electricity etc.)		C/C [2] [3]
Flue gas recovery system pipe, plastic		U/C [1]
Pipe with open ends and ≥ 50cm length on both sides, plastic		U/U [2]
Pipe supported by suspension system, metal	Fire rated support	C/U [1]
	Non-fire rated	U/C [1]
Waste disposal shaft pipe, metal		U/C [1]

[1] Stated in EN 1366-3:2009. [2] Polyseam' s judgment based on tests. [3] Metal pipes should have fire rated support. [4] U/U classified fire seals cover C/U, U/C and C/C. C/U classified fire seals cover U/C and C/C. U/C classified fire seals cover C/C.

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Condition	Ready for use, water based graphite filler
Specific gravity	1.50 – 1.60
pH	8.00 – 9.50
Flash point	None
Expansion rate	Approx. 1 : 25
Non-sticky	60 minutes
Film forming	30 minutes
Totally hardened	3 to 5 days depending on thickness and
Flexibility	Low to medium 12.5% according to ISO 11600
Durability/service	Class Z_2
Thermal conduct.	0.85 W/mK (+/- 3%) @ 20mm depth
Storage	12 months stored in unopened cartridges. To be stored in temperatures between 5 ˚C and 30 ˚C
Working life	30 years
Service temp.	-15 ˚C to +75 ˚C
Application temp.	+4 ˚C to +30 ˚C
Compatibility	Suitable for use with most materials, but should not be used In direct contact with bituminous
Limitations	Should not be used in permanently damp areas or in joints with excessive movement, joints at floor level or joints below the ground
Classification	CE-marked - Sealant for fire rated penetrations class EI 240
Colour	Dark grey (may grow darker during curing)
Packaging	Box containing 25 cartridges each 310 ml Box containing 12 foil packed each 600 ml Pallets 310 ml: 64 boxes per pallet equals 1600 pcs Pallets 600 ml: 91 boxes per pallet equals 1092 pcs