



### General Product Description

Protecta® EX Mortar is a dry white powder consisting of inorganic compounds and perlite.

When mixed with water, the compounds form a highly thermally insulating fire sealing compound to prevent the spread of fire and smoke through openings in fire rated walls and floors, including openings formed around building service penetrations.

Protecta® EX Mortar will also maintain the acoustic design performance in walls and floors.

Protecta® EX Mortar expands approx. 1% by hydraulic action during curing ensuring a very tight seal around the service penetrations and the surrounding opening apertures.

Protecta® EX Mortar is easy to sand or drill. The compound dries to an off-white colour which may be painted.



### Properties

- Classified in walls and floors of concrete, brick, gypsum etc.
- Suitable for cables, bundled cables, cable racks, cable trays, steel, copper, alupex, plastic pipes and air ventilation ducts
- Simple to apply leaving a very smooth finish
- High degree of mechanical resistance; the seal is load bearing without reinforcement
- No priming necessary prior to application in most building material substrates however metal services in contact with the seal must be corrosion protected
- Suitable for most surfaces, included concrete, bricks, Leca, steel, plastic etc, but not suitable to fitting of doors or in service openings that involve movement
- The product is certified for use in walls but it is recommended to use Protecta® FR Boards for these applications
- Fully set within 1 hour
- The fire performance specification of the compound has been derived when the seal has been left to cure for 1 month
- Nearly unlimited storage time

### Sound Insulation

Description	Sound reduction
Single sided cast ≥ 50 mm thick as linear seal	Rw 64 dB
Double sided cast ≥ 25 mm thick as linear seal	Rw 64 dB
Single sided cast ≥ 50 mm thick as large seal	Rw 48 dB
Double sided cast ≥ 25 mm thick as large seal	Rw 48 dB

Protecta® EX Mortar has been tested at BM Trada (UKAS accredited); according to EN ISO 10140-2:2010.

### Resistance to Fire

Construction	Description	Classification
Flexible walls comprise gypsum, masonry, aerated concrete or concrete	Up to 2400 mm wide by 1200 mm high blank seal with double sided 25mm Protecta® EX Mortar on 25mm cast board	EI 120 (E 120)
Rigid walls comprise masonry, aerated concrete or concrete, within walls or between the head of walls and the soffit of floor slabs	Up to 2400 mm wide by 1200 mm high blank seal with single sided 50mm Protecta® EX Mortar on 50mm cast board	EI 120 (E 180)
	Up to 2400 mm wide by 1200 mm high blank seal with single sided 100mm Protecta® EX Mortar	EI 240 (E 240)
Rigid floors comprise aerated concrete or concrete within floors or between floors and walls	Up to 2400 mm by 1200 mm blank seal with 50mm Protecta® EX Mortar on top of 50mm cast board	EI 180 (E 180)
	Up to 2400 mm by 1200 mm blank seal casted with 100mm Protecta® EX Mortar	EI 240 (E 240)

The cast board comprise stone wool with density ≥ 150kg/m³. Please read the Installation Instructions before usage.

### Additional Aperture Sizes in Floors

Under EN 1366-3 rules, results from tests in floors with a penetration seal length of minimum 1m apply to any length as long as perimeter length to seal area ratio is not smaller than that of the test specimen. The following aperture sizes are therefore allowed where 2400 x 1200 mm is described in this data sheet and in the installation instructions.

Maximum Aperture Sizes within Floors or between Floors and Walls
1200 mm width x 2400 mm length (tested)
1100 mm width x 2900 mm length
1000 mm width x 4000 mm length
900 mm width x 7000 mm length
≤ 800 mm width x ∞ (infinite) length



### Loadbearing Properties (floors)

Protecta® EX Mortar has been subject to concentrated load and impact tests in floors according to ETAG 026-2 and EOTA TR001 Clause 2. The tests were conducted on the **minimum allowed cast depth of 100mm**.

According to the loading limits in the table below, reinforcement is not necessary, however it is highly recommended that the edges of the aperture are brushed free of any dust or loose particles and that any contamination is washed away using clean water. Moistening the edges well before casting will improve adhesion. Protecta® EX Mortar should not be cast in surface treated concrete. The mortar must be mixed to a thick but fluid mass at a rate of approx. 2 parts of powder to 1 part water. Maximum loadbearing performance will be achieved 28 days after casting. Test results:

Test in 1500x1000mm frame	Results
Soft body impact, serviceability	500Nm
Soft body impact, safety in use	700Nm
Hard body impact, serviceability	6 Nm
Hard body impact, safety in use	10 Nm
Concentrated load to ETAG 26-2	15 kN

### Curing Times

Application	Temperature	Cure time
For filler 3.5 to 1 mix	0 °C	19 minutes
	10 °C	18 minutes
	20 °C	17 minutes
	30 °C	16 minutes
	40 °C	15 minutes
For casting 2 to 1 mix	0 °C	40 minutes
	10 °C	35 minutes
	20 °C	30 minutes
	30 °C	25 minutes
	40 °C	20 minutes

Protecta® EX Mortar was mixed with an electric mixer for 90 seconds with a 100mm diameter paddle. Note the greater the shear/agitation generated in the mixing process the quicker the mortar will set. Protecta® EX Mortar is designed to be a quick curing system for professional installers where fast application times is of the highest importance. For slower cure, a retardant can be added to the dry mortar powder (sold separately).

### Emission Data (indoor air quality)

Compound	Emission rate after 3 days	Emission rate after 4 weeks
TVOC	12 µg/m <sup>3</sup>	< 5 µg/m <sup>3</sup>
TSVOC	n.d.	< 5 µg/m <sup>3</sup>
VOC w/o NIK	n.d.	< 5 µg/m <sup>3</sup>
R Value	n.d.	< 1
Formaldehyde	7.1 µg/m <sup>3</sup>	n.d.
Acetaldehyde	< 3 µg/m <sup>3</sup>	n.d.
Sum for+ace	< 0.006 ppm	n.d.
Carcinogenic	< 1 µg/m <sup>3</sup>	< 1 µg/m <sup>3</sup>
n.d. or < means not detected		

Protecta® EX Mortar complies with the requirements of GEV and the results correspond to the EMICODE emission class EC 1<sup>PLUS</sup> which is the best possible environmental and indoor hygiene health protection mark. Tested by Eurofins Product Testing, report number G12874B.

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

<sup>1)</sup> Suggested in EN 1366-3:2009. <sup>2)</sup> Polyseam's judgment based on tests.

<sup>3)</sup> Metal pipes should have fire rated support. <sup>4)</sup> 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.

### Technical Data

Condition	Powder ready for mixing with water
Product consumption at 2:1 mix	Approx. 3.42 bags per m <sup>2</sup> @ 50mm depth Approx. 6.83 bags per m <sup>2</sup> @ 100mm depth
Dry density	About 900 kg/m <sup>3</sup> after full cure
Flash point	None
Reaction to fire	Class A1 according to EN 13501-1
Hardened	Less than 1 hour depending on the local climate
Totally hardened	Up to 30 days depending on thickness and temp.
Flexibility	None
Durability/service	Class Z <sub>2</sub>
Thermal conduct.	0.051 W/mK
Working life	30 years
Storage	No particular limit for unopened bags in dry places with storage temperatures between 5 °C and 30 °C
Compatibility	Suitable for use with most materials, but should not be used in direct contact with metals that may corrode
Limitations	Should not be used in permanently damp areas or in moving joints
Classification	CE-marked – Fire seal for fire rated openings and penetrations class EI 240
Colour	Off white
Packaging	Bags of 20 litres Pails of 10 litres Bags: 63 on the pallet, equals approx. 800 kg Pails: 72 on the pallet, equals approx. 500 kg