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For application guidance please refer to the Installation Instructions.

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.

Properties

- Classified in walls and floors of concrete, brick, gypsum etc.
- Suitable for cables, bundled cables, cable racks, cable trays, steel-, copper-, alupex-, composite-, plastic pipes and air ventilation ducts
- Simple to apply leaving a smooth finish
- High degree of mechanical resistance; the seal is load bearing without reinforcement
- Tested for air permeability with excellent resistance to pressure
- 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
- Fast drying, 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



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 $\geq 150\text{kg/m}^3$. 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 |

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 Warringtonfire (UKAS accredited); according to EN ISO 10140-2:2010.

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)

| Regulation or Protocol | Conclusion |
|---|------------------------|
| French VOC Regulation | Pass/A+ |
| Italian Regulation (public procurement) | Pass |
| German AgBB (2021)/ABG (2022) | Pass |
| Belgian Regulation | Pass |
| EMICODE | Pass/EC 1 PLUS |
| Blue Angel (DE-UZ 123) | Pass |
| BREEAM-International | Pass/Exemplary Level |
| BREEAM UK | Pass/Exemplary Level |
| BREEAM NL | Pass/Exemplary Level |
| BREEAM-NOR | Pass/Exemplary Level |
| Finnish M1 Classification | Pass/M1 |
| SINTEF | Pass |
| Byggarubedömningen | Pass |
| DICL | Pass/Emission Class 1 |
| ECOproduct | Pass/Very Low Emitting |
| WELL (EU) | Pass |
| LEED-EU (v4.1) BETA | Pass |

Protecta® EX Mortar has been tested by Normec Product Testing; reports available upon request.

Air Permeability

| Positive Pressure (Pa) | Leakage (m³/h) | Negative Pressure (Pa) | Leakage (m³/h) |
|------------------------|----------------|------------------------|----------------|
| 25 | 0.00 | 25 | 0.00 |
| 50 | 0.00 | 50 | 0.00 |
| 100 | 0.00 | 100 | 0.00 |
| 200 | 0.01 | 200 | 0.00 |
| 300 | 0.02 | 300 | 0.01 |
| 450 | 0.03 | 450 | 0.03 |
| 600 | 0.04 | 600 | 0.05 |

Protecta® EX Mortar has been tested at Warringtonfire Testing and Certification Ltd (UKAS accredited); according to EN 1026: 2016.



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 1366-3:2022 are:

| Intended use of pipe | Pipe end condition ³⁾ | |
|---|----------------------------------|-------------------|
| Rainwater pipe, plastic | At drainage | U/U ¹⁾ |
| | Not at drainage | C/C ²⁾ |
| Drainage or sewage pipe, plastic | Ventilated drain | C/U ¹⁾ |
| | Unventilated drain | U/C ²⁾ |
| | Drain w/water trap | U/C ¹⁾ |
| | Not at drainage | C/C ²⁾ |
| Metal or plastic pipe in closed system (water, gas, air etc.) | C/C ¹⁾ | |
| Metal pipe in ventilated system (sewage etc.) | U/C ¹⁾ | |
| Flue gas recovery system pipe, plastic | U/C ¹⁾ | |
| Pipe with open ends and ≥ 50cm length on both sides, plastic | U/U ²⁾ | |
| Waste disposal shaft pipe, metal | U/C ²⁾ | |

¹⁾ Suggested in EN 1366-3:2022. ²⁾ Polyseam's judgment based on tests.

³⁾ 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.

Test Standards

This Technical Data Sheet and the Installation Instructions are based on the product's ETA and UKTA issued in accordance with regulation (EU) No 305/2011 on the basis of EAD 350454-00-1104, September 2017, tested to EN 1366-1, -3, -4 & -12 in conjunction with EN 1363-1. The product hold the following approval marks; CE-mark for Europe, UKCA-mark for UK, UL-EU Certificate Internationally, UAE Certificate of Compliance & AS assessments for Australia and New Zealand.

Technical Data

| | |
|--------------------------------|--|
| Condition | Powder ready for mixing with water |
| Product consumption at 2:1 mix | Approx. 3.25 bags per m ² @ 50mm depth Approx. 6.5 bags per m ² @ 100mm depth |
| Dry density | About 900 kg/m ³ after full cure |
| Flash point | None |
| Reaction to fire | Class A1 |
| Air permeability | Air, smoke and gas tight tested to EN 1026: 2016 |
| Hardened | Less than 1 hour depending on the local climate |
| Totally hardened | Up to 30 days depending on thickness and temp. |
| Flexibility | None |
| Compressive strength | 24 hours: 6-7 N/mm ² . 28 days: 14-15.5 N/mm ² . |
| Durability/service | Class Z ₂ - Intended for use in internal conditions with humidity classes other than Z ₁ , excluding temperatures below 0 °C (for higher classes please refer to Protecta Waterproofing) |
| Thermal conduct. | 0.051 W/mK |
| Working life | 30 years |
| Application temp. | +5 to +50 °C |
| Curing temp. (30 days) | 0 to +50 °C |
| Service temp. after cure | 0 to +80 °C, or down to -30 °C with Protecta Waterproofing |
| Shelf life and storage | 18 months if stored in unopened bags or pails between 5 °C and 30 °C and in dry conditions. Damp and humid conditions will affect the shelf life. Curing times may increase after 12 months |
| 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 (without Protecta Waterproofing), or in moving joints. Must be protected against frost during cure |
| Classification | CE/UKCA-marked – Fire seal for fire rated openings and penetrations class EI 240 |
| Colour | Off-white. May be coated with paints; allow at least 4 weeks cure before painting |
| Packaging | Bags of 20 litres / 15 kg Pails of 10 litres / 7.5 kg Bags: 63 on the pallet, equals approx. 945 kg Pails: 72 on the pallet, equals approx. 540 kg |