PROTECTA® FR ADHESIVE

TECHNICAL DATA SHEET

General Product Description

Protecta® FR Adhesive contains a water based inorganic polymer and filler, and is designed to withstand temperatures greater than 1,200 °C whilst still providing a strong bond. It is supplied as a ready to use thixotropic paste which exhibits excellent early grab and rapid bond strength.

After curing the product forms a cement with a permanent bond giving excellent adhesion in service.

Protecta® FR Adhesive can be used both as an adhesive and as a filler, with multiple usages where bonding or sealing very hot surfaces is required, or sustaining a seal or a bond within a fire situation without detachment.

Properties

- Ideal for bonding mineral fibre boards to metals, timber and concrete, adding an extra layer of protection against heat transfer
- Ideal for sealing joints on stoves, flues, grates and central heating boilers
- Ideal for sealing annular gaps on high surface temperature pipes
- Ideal for sealing and repairing small cracks and holes in car exhausts systems - stops noise and gas emission leaks
- Suitable for most surfaces, including stone, brick, concrete, cement, plaster, timber, metals, stone wool, glass, paper, vitreous and ceramic surfaces and all inorganic materials (on plastics and painted surfaces, adhesion should be tested)
- Instant grab with no need for additional support in most applications
- High bond strength when cured
- Designed to withstand temperatures above 1,200 °C
- Seals and repairs systems in situ
- Prevents escape of dangerous exhaust fumes from joints and repairs
- Ready to use and easy to apply
- Fast setting - air cures to a hard finish especially when heated, tack free in approx. 1 hour, good bond in 4 hours and full cure in 48 hours
- Slump resistant
- Shock and vibration resistant during service
- No priming necessary for application to most materials
- The fire performance specification of a bond has been derived when the adhesive has been let to cure for only 48 hours
- Product is practically odourless and VOC free
- Alkaline - does not attack acid sensitive substrates
- 24 months storage time (under correct conditions)
- 30 years working life (under correct conditions)

Limitations

- Not intended for application on substrates that can exude certain oils and plasticizers or solvents
- Not suitable for food contact or medical applications
- Cannot be subject to sub-zero temperatures before setting (48 hours)
- Cannot be subjected directly to water or moisture after cure

Resistance to Fire; Structural Steel

Substrate	Insulation product	Classification
Steel I & H beams and columns, and rectangular or circular hollow columns	Mineral fibre stone wool boards or pipe sections ≤ 6.4 kg/m² (e.g. 40mm thick at 160 kg/m³)	R 120 *)

*) Limited by the approval of the mineral fibre boards used. Tested with 20 - 40mm thick mineral fibre stone wool at 160 kg/m³. Tests with the FR Adhesive outperformed comparison tests with mechanical fixings on identical steel sections, suggesting the adhesive adds to the fire resistance compared to mechanical fixing methods.

For I and H beams and columns, steel profiles should be boxed in using noggins which are made out of the same insulation product. A small piece is cut and friction fitted into the two flanges against the web. A 100mm wide piece is friction fitted between flanges against the first piece creating a T-shape finishing flush with the edges of the flanges. Adhesive is applied to the 100mm noggin piece for the protection board to adhere to. The maximum distance between flanges is 400mm, if above, the insulation product should follow the profile.

Resistance to Fire; Concrete Floors

Substrate	Insulation product	Classification
Concrete floors with no minimum space requirements to reinforcement bars	Mineral fibre stone wool boards ≤ 3.0 kg/m² (e.g. 20mm thick at 150 kg/m³)	R 120 *)
Concrete floors with minimum 10mm distance to reinforcement bars		R 180 *)

*) Limited by the approval of the mineral fibre boards used. Tested with 20mm thick mineral fibre stone wool at 150 kg/m³. Tested to an ad-hoc version of EN 13381-3. Test report WF 532027 is available upon request.

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General Application Instructions

1. All surfaces must be clean and sound, free from dirt, grease and other contamination that can prevent full bond strength being achieved. Remove any rust by abrading metal surfaces with a wire brush. Loose particles should be cleaned away before applying the Protecta® FR Adhesive.
2. Apply Protecta® FR Adhesive to the prepared surfaces evenly ensuring good contact. A damp cloth or sponge may be used to remove excess. A little water may be used to smooth the surface if necessary.
3. As the Protecta® FR Adhesive hardens it will form a gas tight seal. Heat will accelerate the cure time.
4. Tools and any excess uncured material may be cleaned with water. Close container after use to preserve unused product.

Additional Instructions Bonding Mineral Fibres

1. Mineral fibre boards have a degree of loose fibres on the board surfaces, and to secure a good bond, it is recommended to apply a thin coating of Protecta® FR Adhesive diluted with 10% water with a plasterers float to the boards on the areas that will be bonded to the substrate. All excess adhesive must be removed.
2. Leave to skin and dry (this will normally be less than 30 minutes depending on atmospheric conditions).
3. Apply adhesive to the substrate with 5 x 5mm toothed trowel leaving a uniform continuous toothed bed of Protecta® FR Adhesive. Do not allow to skin.
4. Place the board on the bed of adhesive. Once in place give the board a side to side movement to aid suction and contact to the adhesive.
5. Fill any gaps between boards using Protecta® FR Adhesive contained in a sealant cartridge using a nozzle with the appropriate sized opening.
6. All tools should be kept clean during and after each application; it is advised to keep tools in a bucket of clean water to prevent the adhesive setting on the tools.

These instructions should be used in conjunction with the approvals and instructions for the mineral fibre boards selected for the project.

Health and Safety

Keep container tightly closed when not in use. Use the product in a well-ventilated area. Avoid contact with the eyes and skin. Wash the material from the skin while still wet using water. Material in contact with eyes should be washed out immediately with water. Seek medical advice if discomfort persists. More detailed information can be found in the relevant Protecta® Safety Data Sheet.

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
BREEEAM NL	Pass/Exemplary Level
BREEAM-NOR	Pass/Exemplary Level
Finnish M1 Classification	Pass/M1
SINTEF	Pass
Byggvarubedömningen	Pass
DICL	Pass/Emission Class 1
ECOproduct	Pass/Very Low Emitting
WELL (EU)	Pass
LEED-EU (v4.1) BETA	Pass

Protecta® FR Adhesive has been tested by Normec Product Testing; reports available upon request.

Technical Data

Condition	Ready for use paste
Cure system	Water loss, hardens in air and especially at raised temps.
Specific gravity	1.7 - 1.9
Flash point	None
Colour	Beige
Odour	Barely perceptible odour
Evaporation rate	Negligible
Solubility in water	Soluble
Viscosity	Viscous
pH	11.0
Solids content (%w/w)	> 70 %
Flexibility	None
Tack free	Approx. 60 minutes
Film forming	Approx. 10 minutes
Totally hardened	12 to 48 hours depending on temperature
Application temp.	+ 5 °C to + 30 °C (during application and curing)
Service temperature	- 50 °C to + 1,200 °C (avoid condensation on product)
Shelf life & storage	Up to 24 months if stored in unopened containers under cool dry conditions between 10 °C and 30 °C
Working life	Minimum 30 years if protected from water/moisture contact
Packaging	Box containing 25 cartridges each 310 ml Pails containing 10 ltr Pallets 310 ml: 64 boxes per pallet equals 1600 pcs

Technical Data Sheet to ETA 21/0694