# HEAT RESISTANT FLAKE LINING
# epigen XD005FL

epigen
Performance Resins & Composite Systems

TECHNICAL BULLETIN

Based on the high performance, solventless, EPIGEN XD005, this polymer lining incorporates glass flake for increased resistance to transmission of vapour. Already meeting the highest standards of elevated temperature service, chemical resistance and corrosion protection, the glass flake improves abrasion resistance and offers addition service properties where unique requirements exist.

XD005FL is primarily a barrier coating or lining suited to treatment of steel, concrete and brick in applications where temperatures may exceed 150 Celsius or the substrate requires protection from hot chemicals.

Extremely high cross linking density gives XD005FL the ability to resist a range of organic solvents including ketones and chlorinated aromatics . Also highly favoured where the lining is required to protect against hot highly corrosive acids.

## TYPICAL APPLICATIONS

| | |
|---|---|
| Ducting Systems | Exhaust Stacks |
| Heat Exchangers | Scrubbers |
| Pipelines | Valves & Pumps |

**FEATURES**

Glass Flake inclusion

- improved resistance to vapour permeation
- improved abrasion resistance

Highly erosion resistant polymer system

Application DFT up to 2000 micron in the one coat

Free of all solvents - zero VOC

Engineered for high mechanical strength

Resistant to organic solvents, acid and alkali

Versatility in application - can be used with GF

HDT 150 Celsius - Practical service beyond 200 Celsius

Can be blended with aggregate for trowel to 15mm

## PROFILE

| | |
|---|---|
| Ratio by weight | 5 parts “A” to 1 part “B” |
| Pot Life minutes @ 24°C | 60 |
| Mixed consistency @ 24°C | Flowable Liquid |
| Specific gravity when mixed | 1.5 |
| Kg/m$^2$ for 500 micron | 0.75 |
| Tack free time @ 24°C | 200 minutes |

## TYPICAL CURED PROPERTIES

| | |
|---|---|
| Compressive strength ASTM D695, Mpa | >110 |
| Tensile strength ASTM D638, Mpa | >30 |
| Flexural strength ASTM D790, Mpa | >50 |
| Hardness, Shore D | 90 |
| Dielectric constant ASTM D150 (150KHz) | 3.0 |
| Maximum exposure temperature, ° C | 240* |
| Heat deflection temperature ASTM D648, ° C | 150 |
| Coeff of Lin Thermal Exp / ° C ($10^{-6}$ m/m K) | 22 |

* Thermal degradation temperature. This does not necessarily represent the ultimate maximum permissable temperature.

Flue Gas Desulfurization Systems ASTM D5499 - 94 : Passes, No cracking, checking, flaking or other surface disturbances observed

Acid Resistance of Polymer Lining ASTM D6137 - 97 : Passes, No cracking, flaking observed. Colour change to approx 50 micron

This information is supplied as an indicative reference only. Caution should be used where direct comparisons are to be made.

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## SURFACE PREPARATION

Methods for substrate preparation may include chemical means such as etching, abrasive blasting techniques. A method that provides satisfactory anchor is required. Specialist advice is available from Peerless Industrial Systems to ensure the correct preparation procedure is employed for specific applications.

## APPLICATION

Mixing of product should be carried out using slow speed mixers and completed by adding to the part "A", the part "B". Ensure the mix is homogenus and free from lumps. Avoid air entrainment.

XD005FL can be applied either by airless spray, brush or roller. Since it does not contain solvents, application by spray allows the application of high film thickness in single process, and ensures that all material purchased actually contributes to the final DFT. XD005FL is of higher viscosity than conventional solvent containing coatings and application may require more specialised practices but is generally compensated for by the speed of application.

**XD005FL** is a functional, industrial finish and is not developed for asthetic properties such as high gloss and colour, appearance is not particularly important.

**Note : Re-application or second coat application over cured XD-005 should only be carried out after abrading back the existing application.**

## MORTAR PREPARATION

On concrete and brick surfaces, XD005FL mixed with aggregate can achieve over 10mm thick protection. Extensive work has resulted in the recommendation of dried silica sand in the range 0.6mm - 1.2mm. This is also referred to as 16/30 mesh size.

To make the application, prime the surface with a very thin coat of XD005FL and then proceed to apply a mortar based on 1 part XD005FL to 2 parts silica sand.

POSTCURE

To acheive full cross linking density and maximum performance, applied product should be allowed to become "tack free" before applying heat cure.

Heat curing may be carried out by:
(a) Post gel at 50°C for 6 - 8 hours.
(b) Followed by post cure for 6 - 8 hours at 120°C.
Step (b) can be carried out by insitu curing. Excessive heat should be avoided during the gel stage to protect against sag and curtaining. Tests have shown that at an air temperature of 50°C and DFT of 500 micron, this product will gel satisfactorily without excessive sagging.

Protection should be taken against air encapsulation in final product, and carbamate formation. Consult with the manufacturer for more information.

## CHEMICAL RESISTANCE

Tested at 21°C. Samples cured for 10 days at 25°C. Curing at elevated temperatures will improve chemical resistance.

1 = Continuous or long term immersion
2 = Short term immersion
3 = Splash and spills
4 = Avoid contact

| | | | |
|---|---|---|---|
| Acetic Acid, 10 % | 2 | Acetone | 1 |
| Acetic Acid, Glacial | 2 | Ammonium Chloride | 1 |
| Hydrochloric Acid, 5 % | 1 | Beer | 1 |
| Hydrochloric Acid, 10 % | 1 | Dichloromethane | 2 |
| Hydrochloric Acid, conc | 1 | Diesel Fuel | 1 |
| Nitric Acid, 5 % | 2 | Isopropyl Alcohol | 1 |
| Nitric Acid, 10 % | 2 | Kerosene | 1 |
| Phosphoric Acid, 5 % | 1 | Petrol | 1 |
| Phosphoric Acid, 20 % | 1 | Salt Water | 1 |
| Sulfuric Acid, 5 % | 1 | Sewage | 1 |
| Sulfuric Acid, 20 % | 1 | Skydrol | 1 |
| Ammonium Hydroxide, 5 % | 1 | Sodium Cyanide | 1 |
| Ammonium Hydroxide, 20 % | 1 | Sodium Hypochlorite | 1 |
| Potassium Hydroxide, 5 % | 1 | Toluene | 2 |
| Potassium Hydroxide, 20 % | 1 | Trichloroethane | 1 |
| Sodium Hydroxide, 5 % | 1 | Wine | 1 |
| Sodium Hydroxide, 20 % | 1 | Xylene | 1 |

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## CURE

Variations in cure may arise due to the amount of material being applied, the thickness of material being applied, the surface temperature, and the product temperature. The cure may be increased by heating product or by leaving mixed material stand for 15 minutes before use. The cure may be decreased by cooling the product before mixing.


***EPIGEN*** **PRODUCTS**
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