

# HEAT RESISTANT ADHESIVE

## epigen XD003

**epigen**  
Performance Resins &  
Composite Systems

### TECHNICAL BULLETIN

A high performance, solventless, two component polymer adhesive designed to meet the highest standards of elevated temperature service, chemical resistance, and corrosion protection. Characterised by superior toughness and durability, suitable for most extreme adhesive applications including ceramic wear tile bedding and grouting applications. It can be sanded or machined to shape and tolerances.

Extremely high cross linking density affords XD003 the ability to resist a range of organic solvents including ketones and chlorinated aromatics. Also highly favoured where the adhesive is required to address hot highly corrosive acids.

The surface finish may be laid as a thin film. It is better to apply high builds in most situations since the thicker the application the more effective the support and cure.

#### TYPICAL APPLICATIONS

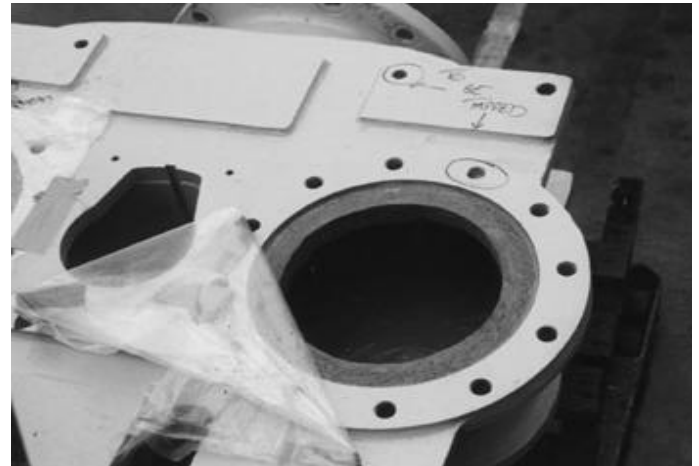
Adhering Metal to Metal	Repairing Exhaust Stacks
Faring Tanks & Vessels	Flanges
Bearing Faces	Pipelines & Valves

#### FEATURES

- Suitable on steel to void fill or fair surfaces
- Non sag viscosity for easy installation
- Free of all solvents - zero VOC
- Engineered for high mechanical strength
- Resistant to organic solvents
- HDT 150 Celsius - Practical service beyond 200 Celsius
- Outstanding resistance to chemicals & acids
- Tough polymer with high adhesive strength

**Epigen XD003** is supplied as a two part kit comprising component "A" resin, and component "B" curative. The entire kit is supplied in a pre weighed convenient size to make on site activities easier.

Peerless Industrial Systems can provide information on specific applications based on industry acceptable practices or historical results.



#### PROFILE

Ratio by weight	4 parts "A" to 1 part "B"
Pot Life minutes @ 20°C	30
Mixed consistency @ 24°C	Paste
Specific gravity when mixed	1.4
Coverage, /m <sup>2</sup> @ 10mm	14.0kg
Tack free time @ 24°C @ 10mm	180 minutes

#### TYPICAL CURED PROPERTIES

Compressive strength ASTM D695, Mpa	>100
Tensile strength ASTM D638, Mpa	>25
Flexural strength ASTM D790, Mpa	>30
Hardness, Shore D	>90
Elongation ASTM D638, %	1.2
Thermal conductivity ASTM C177, Kcal/m.hroC	0.6
Maximum exposure temperature, °C	240*
Heat deflection temperature ASTM D648, °C	150
Thin Film Gel @ 10mm, Minutes	180
Thin Film Set @ 10mm, Minutes	240
Ambient cure time to Service @ 10mm, Hours	36
Thin Film Gel @ 20mm, Minutes	120
Thin Film Set @ 20mm, Minutes	180
Ambient cure time to Service @ 20mm, Hours	24

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

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

### SURFACE PREPARATION

Methods for substrate preparation may include chemical means such as washing & etching, or but the preferred methods are those traditional mechanical techniques such as abrasive blasting. Caution should be maintained in selecting a technique that provides satisfactory anchor for the lining.

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 spatula or by slow speed blender, and completed by adding to the component "A", component "B". Ensure the mixed XD003 is homogenous and free from lumps. The final colour shall be even grey without streaks.

#### Bedding:

In all cases, the depth nominally 2mm minimum should be used to ensure sufficient adhesive is in place and afford reasonable compressive strength. There is no maximum thickness requirement. No primer is required to facilitate adhesion unless the surface is loose or friable. In cool environments, pre warm the product before use.

#### Adhesive Applications:

Apply a thin coat of Epigen XD003 to both surfaces before bringing the two together. Do not use where a flexible or resilient glue line is required. Recommended where a tough and strong, or heavy shock resistant material is required (eg: Ceramic Tiles to Steel on chutes, steel onto steel, concrete onto steel). Preheat the material before use to achieve best cure rate and strength when cold.

**Note : Re-application or second coat application over cured XD003 should only be carried out after abrading back the existing application.**

### POSTCURE

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

Heat curing can be carried out by:

- Post gel at 50°C for 6 - 8 hours using heat lamps, or oven bake.
- Followed by post cure for 6 - 8 hours at 120°C.

Heat Cure may be carried out insitu but low load and some support of the fittings may be required. In the case of bedding or adhesion, load such as spring or compression may result in extrusion of the XD003, since during heat cure a period of low tensile strength is exhibited.

XD003:1979/Mar  
rev04,2011/Nov

### 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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**EVERY EFFORT SHOULD BE MADE TO PROTECT AGAINST CARBAMATE FORMATION DURING APPLICATION IF RECOATING. CONSULT WITH THE MANUFACTURER FOR MORE DETAILS.**

### 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

MANUFACTURED BY

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