MACHINABLE ABRASION RESISTANT COMPOSITE epigen 806MG

epigen
Performance Resins & Composite Systems

TECHNICAL BULLETIN

A two component polymer composite based on a fine grading of ceramic particles dispersed in an epoxy resin creating an extremely abrasion resistant material which when mixed according to directions, cures at room temperature to form a tough, smooth, inert material possessing excellent wear resistance properties and adhering strongly to suitably treated metal, concrete and other substances.

The polymer composite comprises fine grading of sintered ceramic of extreme hardness and abrasion resistance. The polymer binder cures to form an infusible material possessing excellent wear resistance.

The surface finish may be laid as a thin film with 3mm recommended to be the minimum. It is acceptable to apply high builds in most situations since the thicker the application the longer the life. Application to inverted surfaces can be easily carried out with minimal sag.

TYPICAL APPLICATIONS

Flanges	Bearing Faces
Pump Bowls	Slurry Lines
Chutes & Bins	Pipe Elbows
Screens	Valves

INDUSTRY TYPES IN USE

Iron Ore,	Coal Mining,	Diamond,
Copper,	Nickel,	Gold,
Manganese,	Dredging,	Power Generation,
Quarrying,	WWTP,	Engineering

FEATURES

- Excellent resistance to sliding abrasion
- Fine grade for increased smoothness and slip
- Tough polymer with high adhesive strength
- Long pot life for ease of use
- Free of all solvents - zero VOC
- Engineered for high mechanical strength
- Versatility in application
- Cures under cold adverse conditions
- Very easy application in any orientation
- Recoatable with minimal preparation

PROFILE

Colour	Dark Grey
Ratio by weight	2 “A” to 1 “B”
	2 kg Component “A”
	1 kg Component “B”
Pot Life minutes @ 20°C	50
Mixed consistency @ 20°C	Trowellable Paste
Specific gravity when mixed	2.0
Coverage, /m² @ 10mm	20.0kg

TYPICAL CURED PROPERTIES

Compressive strength ASTM D695, Mpa	>60
Tensile strength ASTM D638, Mpa	25
Flexural strength ASTM D790, Mpa	28
Hardness, Shore D	>90
Elongation ASTM D638, %	0.2
Thermal conductivity ASTM C177, Kcal/m.hroC	0.6
Maximum exposure temperature, ° C	125
Heat deflection temperature ASTM D648, ° C	80
Thin Film Gel @ 10mm, Minutes	150
Thin Film Set @ 10mm, Minutes	240
Ultimate cure time to Service @ 10mm, Hours	170
Thin Film Gel @ 20mm, Minutes	110
Thin Film Set @ 20mm, Minutes	180
Ultimate cure time to Service @ 20mm, Hours	96

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

MACHINABLE ABRASION RESISTANT COATING epigen 806MG

SURFACE PREPARATION

In line with all cases where good adhesion is expected, the substrate should be reasonably clean and free from loose particles. Methods for substrate preparation include abrasive blasting, etching, grinding or scarifying. The technique best suited depends on the substrate, the service conditions, and practical considerations. 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 or spatulas, and completed by adding to the component "A", the component "B". Ensure the mix is homogenous and free from lumps.
Application can be carried out by applying mixed compound directly to the desired area or component with gloved hands or by tools such as paint scrapers, putty knives or flat steel trowels, the latter mainly for large horizontal areas. Application can be carried out with relative ease whether in either vertical or horizontal configurations.
806MG may be finished smooth and flat with the aid of water.

RECOMMENDED MACHINING PRACTICES

Although a variety of methods exist for machining Epigen Ceramic Composites, most depend on the individuals own findings and inhouse systems available. The following should only be construed as the starting point guide.

Allow 24 hours before machining, best finishes are acheived after 3 days cure.

Maximum machinable finish is 2mm.

Acheivable tolerance is 0.03mm.

Use PCD, PCBN, or PSD tooling for optimum tool life and performance.

Tooling should be selected relative to substrate.

Cut from centre of Composite to parent metal where possible.

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	2
Acetic Acid, Glacial	2	Ammonium Chloride	1
Hydrochloric Acid, 5 %	1	Beer	1
Hydrochloric Acid, 10 %	1	Dichloromethane	3
Hydrochloric Acid, conc	2	Diesel Fuel	1
Nitric Acid, 5 %	2	Isopropyl Alcohol	1
Nitric Acid, 10 %	3	Kerosene	1
Phosphoric Acid, 5 %	1	Petrol	1
Phosphoric Acid, 20 %	2	Salt Water	1
Sulfuric Acid, 5 %	2	Sewage	1
Sulfuric Acid, 20 %	2	Skydrol	1
Ammonium Hydroxide, 5 %	1	Sodium Cyanide	1
Ammonium Hydroxide, 20 %	1	Sodium Hypochlorite	2
Potassium Hydroxide, 5 %	1	Toluene	2
Potassium Hydroxide, 20 %	1	Trichloroethane	2
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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0806MG:2005/Oct
rev02,2011Sept