Technical Data Sheet
Version 4. 04/2023

Wear Guard™ High Temp.

Description: High-density, ceramic bead-filled epoxy system for maximum wear and abrasion resistance in high-temperature applications

Intended Use: Industrial Use: Repair scrubbers, ash handling systems, pipe elbows, screens, and chutes; recontour chippers, bins, hoppers, bunkers, separators, diester tables; protect exhausters, chutes, launderers, housing fans, crushers, and breakers.

Features:
Provides up to 30% better abrasion resistance than conventional wear compounds
Unmatched resistance to acids, bases, salts, and solvents
Services temperatures to 450°F (232°C)
Excellent adhesion to metal, ceramic, and concrete

Limitations: Suitability of product is determined by the end user for their application and process. Requires heat cure for maximum performance. See Application Instructions section

Typical Physical Properties:

Technical data should be considered representative or typical only and should not be used for specification purposes.

Cured 7 Days @ 75°F (24°C)	Typical Values	Standard Tests
Adhesive Tensile Shear	2,300 psi (15.9 MPa)	Compressive Strength ASTM D 695
Coefficient of Thermal Expansion (x10-6)	27 in/in.°F (48.6 cm/cm.°C)	Cured Hardness Shore D ASTM D 2240
Compressive Strength	13,200 psi (91 MPa)	Coef. of Thermal Expansion ASTM D 696
Cured Shrinkage	0.001 in/in (cm/cm)	Dielectric Constant ASTM D 150
Dielectric Constant	38	Flexural Strength ASTM D 790
Flexural Strength	8,220 psi (56.7 MPa)	Thermal Conductivity ASTM C 177
Hardness	87 Shore D	Cure Shrinkage ASTM D 2566
Solids by Volume	100	Adhesive Tensile Shear ASTM D 1002
Temperature Resistance	Wet: 150°F (66°C); Dry: 450°F (232°C)	Dielectric Strength, volts/mil ASTM D 149
Tensile Strength	4,600 psi (31.7 MPa)	Modulus of Elasticity ASTM D 638

Uncured Properties @ 72°F (23°C)	
Color	Grey
Coverage (1/4" / 6.35mm)	60 in2/lb (853 cm2/Kg)
Functional Cure	Heat Cure
Mix Ratio by Volume	6:1
Mix Ratio by Weight	13.7:1
Mixed Viscosity	Non-sag Putty
Pot Life @ 75F	120 min.
Recoat Time	2 - 4 hrs.
Specific Gravity	16.2 lb/Gal (1.94 g/cm3)
Specific Volume	14.3 in3/lb (0.52 cm3/g)

Surface Preparation:

1. Thoroughly clean the surface with Devcon® Cleaner Blend 300 to remove all oil, grease and dirt.
2. Grit blast surface area with 8-40 mesh grit, or grind with a coarse wheel or abrasive disc pad, to create increased surface area for better adhesion (Caution: An abrasive disc pad can only be used provided white metal is revealed). Desired profile is 3-5mil, including defined edges (do not "feather-edge" epoxy).
Note: For metals exposed to sea water or other salt solution, grit-blast and high-pressure-water-blast the area, then leave overnight to allow any salts in the metal to “sweat” to the surface. Repeat blasting to “sweat out” all soluble salts. Perform chloride contamination test to determine soluble salt content (should be no more than 40ppm).
3. Clean surface again with Devcon® Cleaner Blend 300 to remove all traces of oil, grease, dust or other foreign substances from the grit blasting.
4. Repair surface as soon as possible to eliminate any changes or surface contaminants.

WORKING CONDITIONS: Ideal application temperature is 55°F to 90°F (13-32°C). In cold working conditions, directly heat repair area to 100-110°F (38-43°C) prior to applying epoxy and maintain at this temperature during product cure to dry off any moisture, contamination or solvents, as well as to achieve maximum performance properties.

Mixing Instructions:

---- It is strongly recommended that full units be mixed, as ratios are pre-measured. ----

1. Add hardener to resin.
2. Mix thoroughly with screwdriver or similar tool (continuously scrape material away from sides and bottom of container) until a uniform, streak-free consistency is obtained.

INTERMEDIATE SIZES (1,2,3 lb. units): Place resin and hardener on a flat, disposable surface such as cardboard, plywood or plastic sheet. Use a trowel or wide-blade tool to mix the material as in Step 2 above.

LARGE SIZES: (24 lb. and 50 lb. buckets): Use a T-shaped mixing paddle or a propeller-type Jiffy Mixer Model ES on an electric drill. Thoroughly fold putty by vigorously moving paddle/propeller up and down until a homogenous mix of resin and hardener is attained.

Application Instructions:

ADDITIONAL SURFACE PREPARATION INFORMATION:
If grit blasting is not possible, and expandable metal cannot be used, apply Devcon Brushable Ceramic at 11-18 mils (280-460 microns) to prime the metal surface. Allow to cure for approximately 2 hours, or until a fingernail can almost depress the primed surface. Immediately apply Wear Guard™ High Temp 450 to the surface. DO NOT let the "prime coat" fully cure before applying Wear Guard™ High Temp 450.

Spread mixed material on repair area at a minimum thickness of ¼" (6.35 mm). Work firmly into substrate to ensure maximum surface contact. Wear Guard™ High Temp 450 fully cures in 16 hours, at which time it can be machined, drilled, or painted

FOR BRIDGING LARGE GAPS OR HOLES
Place fiberglass sheet, expanded metal, or mechanical fasteners between repair area and Wear Guard™ High Temp 450 prior to application.

FOR VERTICAL SURFACE APPLICATIONS
Wear Guard™ High Temp 450 can be troweled up to 3/4" (19 mm) thick without sagging.

FOR MAXIMUM PHYSICAL PROPERTIES
Cure at room temperature for 2.5 hours, then heat cure for 3 hours at 250°F to 300°F (121-149°C).

FOR ± 70°F (21°C) APPLICATIONS
Applying epoxy at temperatures below 70°F (21°C) lengthens functional cure and pot life times. Conversely, applying above 70°F (21°C) shortens functional cure and pot life.

Storage:

Shelf Life is approximately 2 years from date of manufacture when store at room temperature, 70 °F (21°C) and in their unopened original containers.

Compliances:

None

Chemical Resistance:

Chemical resistance is calculated with a 7 day, room temp. cure (30 days immersion) @ 75°F (24°C)

1,1,1-Trichloroethane	Excellent
Gasoline (Unleaded)	Excellent
Hydrochloric 10%	Excellent
Hydrochloric 36%	Excellent
Methanol	Fair
Ethanol	Fair
Methyl Ethyl Ketone	Poor
Methylene Chloride	Very good

Phosphoric 10%	Very good
Potassium Hydroxide 40%	Excellent
Sodium Hydroxide 50%	Excellent
Sodium Hypochlorite	Excellent
Sulfuric 10%	Excellent
Toluene	Excellent
Trisodium Phosphate	Excellent

Precautions:

FOR INDUSTRIAL USE ONLY: Please refer to the appropriate **S**afety **D**ata **S**heet prior to using this product.

Warranty:

ITW Performance Polymers will replace any material found to be defective. Because the storage, handling and application of this material is beyond our control, we can accept no liability for the results obtained.

Order Information:

Item No.	**Package Size**
11483	24 lb. (10.9 kg)

Contacts:

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