Technical Data Sheet
Version 3. 04/2023

Wear Resistant Putty (WR-2)

Description: A ceramic-filled epoxy putty with a smooth, low-friction finish.

Intended Use: For repairing flange faces, machine ways, valve seats and bodies, and tracing guides

Features:

Rebuilds and protects interfacing metal surfaces
Protects metal from bi-metallic corrosion
Repairs metals and concrete

Limitations: Suitability of product is determined by the end user for their application and process.
Not recommended for long term exposure to concentrated acids or to organic solvents

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	2,200 psi (15.2 MPa)	Adhesive Tensile Shear ASTM D 1002
Coefficient of Thermal Expansion (x10-6)	32 in/in.°F (57.6 cm/cm.°C)	Cure Shrinkage ASTM D 2566
Compressive Strength	9,800 psi (67.6 MPa)	Dielectric Strength, volts/mil ASTM D 149
Cured Shrinkage	0.0005 in/in (cm/cm)	Dielectric Constant ASTM D 150
Dielectric Constant	6.3	Modulus of Elasticity ASTM D 638
Dielectric Strength	400 volts/mil (16 Kv/mm)	Compressive Strength ASTM D 695
Flexural Strength	6,500 psi (44.8 MPa)	Cured Hardness Shore D ASTM D 2240
Hardness	85 Shore D	Coef. of Thermal Expansion ASTM D 696
Modulus of Elasticity	7.5 psi x10^5 (5.2 GPa)	Flexural Strength ASTM D 790
Solids by Volume	100%	Thermal Conductivity ASTM C 177
Temperature Resistance	Wet: 130°F (54°C); Dry: 250°F (121°C)	
Thermal Conductivity (x10-3)	1.67 cal/sec.cm.°C	

Uncured Properties @ 72°F (23°C)	
Color	Dark Grey
Coverage (1/4" / 6.35mm)	56 in2/lb (796.5 cm2/Kg)
Functional Cure	16 hrs
Mix Ratio by Volume	4:01
Mix Ratio by Weight	9:01
Mixed Viscosity	Putty
Pot Life @ 75°F (24°C)	45 min.
Recoat Time	2-4 hrs
Specific Gravity	15 lb/Gal (1.8 g/cm3)
Volume	13.9 in3/lb (0.502 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°C to 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: (25 lb., 30 lb., 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:

Spread mixed material on repair area and work firmly into substrate to ensure maximum surface contact. Wear Resistant Putty (WR-2) 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 Resistant Putty (WR-2) prior to application.

FOR VERTICAL SURFACE APPLICATIONS
Wear Resistant Putty (WR-2) can be troweled up to ¼" (6.35 mm) thick without sagging.

FOR MAXIMUM PHYSICAL PROPERTIES
Cure at room temperature for 2.5 hours, then heat cure for 4 hours @ 200°F (93°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 shortens functional cure and pot life.

Storage:

Shelf life 3 yrs from manufacture. See package label. Store at room temperature, 70 °F (21°C)

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	Very good	Phosphoric 10%	Very good
Ammonia	Very good	Potassium Hydroxide 20%	Very good
Cutting Oil	Very good	Sodium Chloride Brine	Very good
Gasoline (Unleaded)	Very good	Sodium Hydroxide 10%	Very good
Hydrochloric 10%	Very good	Sulfuric 10%	Very good
Kerosene	Very good	Sulfuric 50%	Poor
Methyl Ethyl Ketone	Poor	Trisodium Phosphate	Very good
Methylene Chloride	Poor	Xylene	Fair

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
11410	1 lb. (454 g) kit
11420	3 lb. (1.36 kg) kit

Contacts:

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