Devcon®

Technical Data Sheet

6/25/2004

Bronze Putty

Description: Bronze-filled epoxy for repairing, rebuilding, and maintaining bronze parts and equipment

Intended Use: Repair, rebuild, and maintain marine propellers, shafts, trays, chutes, gate valves, and pump wear rings

Product features:
Resistant to chemicals and most acids, bases, solvents, and alkalis
Machinable to metallic finish
Bonds to ferrous and non-ferrous metals

Limitations: Not recommended for long-term exposure to concentrated acids and 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

Color	Bronze
Mix Ratio by Volume	3:1
Mix Ratio by Weight	9:1
% Solids by Volume	100
Pot Life @ 75F	35 min.
Specific Volume	12.4 in.(3)/lb.
Cured Shrinkage	0.0010 in./in.
Specific Gravity	2.23 gm/cc
Temperature Resistance	Wet: 120°F; Dry: 250°F
Coverage/lb	50 sq.in./lb. @ 1/4"
Cured Hardness	85D
Dielectric Strength	25 volts/mil
Dielectric Constant	75.0
Adhesive Tensile Shear	2,680 psi
Compressive Strength	8,540 psi
Modulus of Elasticity	8.0 psi x 10(5) in.
Flexural Strength	6,180 psi
Coefficient of Thermal Expansion	33[(in)/(in) x °F)] x 10(-6)
Thermal Conductivity	1.57 [(cal x cm)/(sec x cm(2) x °C)] x 10(-3)
Cure Time	16 hrs
Recoat Time	10-12 hrs
Mixed Viscosity	Putty

TESTS CONDUCTED

Compressive Strength ASTM D 695
Cured Hardness Shore D ASTM D 2240
Coef. of Thermal Expansion ASTM D 696
Flexural Strength ASTM D 790
Thermal Conductivity ASTM C 177
Adhesive Tensile Shear ASTM D 1002
Cure Shrinkage ASTM D 2566
Dielectric Strength, volts/mil ASTM D 149
Dielectric Constant ASTM D 150
Modulus of Elasticity ASTM D 638

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 mesh 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 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. In cold working conditions, heat repair area to 100-110°F immediately prior to applying epoxy to dry off any moisture, contamination, or solvents, as well as to assist epoxy in achieving maximum adhesion 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. Bronze Putty will fully cure 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 Bronze Putty prior to application.

FOR VERTICAL SURFACE APPLICATIONS
Bronze Putty can be troweled up to ¼" thick without sagging.

FOR MAXIMUM PHYSICAL PROPERTIES
Cure at room temperature for 2.5 hours, then heat cure for 4 hours @ 200°F.

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

MACHINING:
Allow material to cure for at least four hours before machining.

- Lathe speed: 150 ft/min
- Cut: Dry
- Tools: Carbide Top Rake 6° (+/-2°) – Side/Front 8°F (+/-2°)
- Feed Rate (rough): Travel speed .020 Rough cut .020 - .060
- Feed Rate (finishing): Travel speed .010 Finish cut .010
- Polishing: Use 400-650 grit emery paper wet. Material should polish to a 25-50 micro inch.

Storage:

Store at room temperature.

Compliances:

None

Chemical Resistance:

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

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:

Please refer to the appropriate material safety data sheet (MSDS) prior to using this product.

For technical assistance, please call 1-800-933-8266

FOR INDUSTRIAL USE ONLY

Warranty:

Devcon 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.

Disclaimer:

All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Devcon makes no representations or warranties of any kind concerning this data.

Order Information:

10260 1 lb.