Technical Data Sheet

4/2/2019

Plastic Steel Putty (A)

Description: A steel-filled epoxy putty that cures at room temperature and is designed for filling, rebuilding, and bonding metal surfaces.

Intended Use: Patching and repairing areas where welding or brazing would be undesirable or impossible

Product features:
Applies easily to vertical surfaces
Machinable to metallic finish
Bonds to aluminum, concrete, and many other metals
Resistant to chemicals and most acids, bases, solvents, and alkalis

Limitations: 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	
Adhesive Tensile Shear	2800 psi
Coefficient of Thermal Expansion	48 [(in)/(in) x °F)] x 10(-6)
Color	Grey
Compressive Strength	8260 psi
Coverage/lb	48 sq. in @ 1/4 in.
Cured Hardness	85D
Cured Shrinkage	0.0006 in./in.
Dielectric Constant	67.5
Dielectric Strength	30 volts/mil
Flexural Strength	5600 psi
Functional Cure	16 hrs
Mix Ratio by Volume	2.5:1
Mix Ratio by Weight	9:1
Mixed Viscosity	Putty
Modulus of Elasticity	8.5 x 10(5) psi
Pot Life @ 75F	45 min.
Recoat Time	2-4 hrs
Solids by Volume	100
Specific Gravity	2.33 gm/cc
Specific Volume	11.9 in.(3)/lb.
Temperature Resistance	Wet: 120°F; Dry: 250°F
Thermal Conductivity	1.37[cal/(secxcmx°C)]x10(-3)

TESTS CONDUCTED

Cure Shrinkage ASTM D 2566
Adhesive Tensile Shear ASTM D 1002
Dielectric Strength, volts/mil ASTM D 149
Dielectric Constant ASTM D 150
Flexural Strength ASTM D 790
Compressive Strength ASTM D 695
Cured Hardness Shore D ASTM D 2240
Coef. of Thermal Expansion ASTM D 696
Thermal Conductivity ASTM C 177
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 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. In cold working conditions, directly heat repair area to100-110°F 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. Plastic Steel® Putty (A) 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 Plastic Steel® Putty (A) prior to application.

FOR VERTICAL SURFACE APPLICATIONS
Plastic Steel® Putty (A) 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 16 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, 70 °F.

Compliances:

Qualifies under MIL-PRF-24176C, supersedes DOD-C-24176B SH, Type 1. Accepted for use in U.S. meat and poultry plants

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 safety data sheet (SDS) prior to using this product.
For technical assistance, please call 1-855-489-7262
FOR INDUSTRIAL USE ONLY

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.

Disclaimer:

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

Order Information:

10120 4 lb.
10130 25 lb.
10110 1 lb. kit