



A brand of ITW Polymers Adhesives North America

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 to 100-110°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° (+/-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

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|-----------------------|-----------|-------------------------|-----------|
| 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 1-855-489-7262

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 Polymers Adhesives North America makes no representations or warranties of any kind concerning this data.

Order Information:

- 10120 4 lb.
- 10130 25 lb. - slower hardener (90 min. pot life)
- 10110 1 lb. kit