Technical Data Sheet
Version 4. 01/2025

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:
Industrial Use: Patching and repairing areas where welding or brazing would be undesirable or impossible
flowable epoxy is needed; duplicating or tracing masters; short run dies and molds

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:
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	2,800 psi (19.3 MPa)	Dielectric Constant ASTM D 150
Coefficient of Thermal Expansion (x10-6)	48 in/in.°F (86.4 cm/cm.°C)	Compressive Strength ASTM D 695
Compression Strength	8260 psi (57 MPa)	Cured Hardness Shore D ASTM D 2240
Cured Shrinkage	0.0006 in/in (cm/cm)	
Dielectric Constant	67.5	Cure Shrinkage ASTM D 2566
Dielectric Strength	30 volts/mil (1.2 kV/mm)	Modulus of Elasticity ASTM D 638
Flexural Strength	5600 psi (38.6 MPa)	Coef. of Thermal Expansion ASTM D 696
Hardness	85 Shore D	Adhesive Tensile Shear ASTM D 1002
Modulus of Elasticity	8.5 x10^5 psi (5.9 GPa)	Dielectric Strength, volts/mil ASTM D 149
Solids by Volume	100	Flexural Strength ASTM D 790
Temperature Resistance	Wet: 120°F (49°C); Dry: 250°F (121°C)	Thermal Conductivity ASTM C 177
Thermal Conductivity (x10-3)	1.37 cal/sec.cm.°C	

Uncured Properties @ 72°F (23°C)	
Color	Grey
Coverage (1/4" / 6.35 mm)	48 in2/lb (310 cm2/Kg)
Functional Cure	16 hrs
Mix Ratio by Volume	2.5:1
Mix Ratio by Weight	09:01
Mixed Viscosity	Putty
Pot Life @ 75F	45 min.
Recoat Time	2-4 hrs.
Specific Gravity	19.45 lb/Gal (2.33 g/cm3)
Specific Volume	11.9 in3/lb (0.43 cm3/g)

Surface Preparation:
1. Thoroughly clean the surface with Devcon® Cleaner Blend 300 or any appropriate non residual solvent cleaner eg. Acetone, MEK to remove all oil, grease and dirt.
2. Grit blast surface area following at least ISO 8501 SA 2 ½ (Very Thorough Blast Cleaning) and or SSPC-SP 10 (Near White Metal). When grit blasting is not possible the surface may be prepared following SSPC-SP 3 until at least "Condition A" is achieved.
The required surface profile depth is 3-5 mils (75-125µm).

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. The salt contaminamination level is recommended to not exceed 20mg/m² (2µg/cm²).

3. Clean surface again with Devcon® Cleaner Blend 300 or any appropriate non residual solvent cleaner eg. Acetone, MEK. To remove all traces of oil, grease, dust or other foreign substances from the substrate. Dust contamination level should not exceed Level 2 prior coating applications in accordance to ISO 8502-3.
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 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.
It's not recommended to apply the product when the temperature of the substrate is less than 5°F (3°C) above the Dewpoint, or the Relative Humidity is higher than 85%.

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

Mixing Instructions:
1. Add hardener to resin.
2. Mix thoroughly with spatula 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 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 prior to application.

FOR VERTICAL SURFACE APPLICATIONS
Titanium Putty can be troweled up to ½" thick without sagging. Chemical immersion is possible after 24 hours.

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.

MACHINING:
Allow material to cure for at least four hours before machining, but wait no longer than 24 hours as the material will wear the tools. Machine using these guidelines:

- 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:

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

Compliances:

Qualifies under MMM-A-1754 and 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 (25°C)

1,1,1-Trichloroethane	Very good
Ammonia	Very good
Cutting Oil	Very good
Gasoline (Unleaded)	Very good
Hydrochloric 10%	Very good
Kerosene	Very good
Methylene Chloride	Poor
Methyl Ethyl Ketone	Poor

Phosphoric 10%	Very good
Potassium Hydroxide 20%	Very good
Sodium Chloride Brine	Very good
Sodium Hydroxide 10%	Very good
Sulfuric 10%	Very good
Sulfuric 50%	Poor
Trisodium Phosphate	Very good
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:

EMEA	US
10112 - 500g	**10110 - 1lb**
10115 - 1Kg	**10120 - 4lb**

Contacts:

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