

PLASTIC STEEL PUTTY (A)

Steel-Filled Epoxy Putty

Description:

Plastic Steel Putty (A) is 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
- Repair of worn or fatigued metals
- Patching of castings
- Rebuilding pump and valve bodies
- Rebuilding bearing journals and races

Product features:

- **Applies easily to vertical surfaces**
- **Bonds to aluminium, steel and many other metals, as well as concrete**
- **Machinable to metallic finish**
- **Makes repairs that are non-rusting**
- **Resistant to chemicals and most acids, bases, solvents and alkalis**

Chemical Resistance:

(Chemical resistance is calculated with a 7 day, room temperature cure (30 days immersion) @ 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
Petrol (unleaded)	Very good	Sodium Hydroxide 10%	Very good
Hydrochloric 10%	Very good	Sulphuric 10%	Very good
Methyl Ethyl Ketone	Poor	Sulphuric 50%	Poor
Methylene Chloride	Poor	Trisodium Phosphate	Very good
Kerosene	Very Good	Xylene	Fair

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.

TEST METHOD

Colour	Grey	
Mix Ratio (Resin to Hardener)	Weight 9:1	
	Volume 2.5:1	
Mixed Viscosity	Putty	
Work Time of 500gms minutes @ 24°C	45	
Cure Time	16 hours	
Recoat Time	10 – 12 hours	
% Solids by Volume	100	
Specific Volume	430cm ³ /kg	
Specific Gravity	2.33 gm/cm ³	
Cure Shrinkage	0.0006 cm/cm	ASTM D2566
Hardness Shore D	85	ASTM D2240
Adhesive Tensile Shear	19.3 MPa	ASTM D1002
Tensile Strength	22.2 MPa	ASTM D638
Compressive Strength	57 MPa	ASTM D695
Modulus of Elasticity	1896 MPa	ASTM D695

AUSTRALIA

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Co-efficient of Thermal Expansion	86 x 10 ⁻⁶ °C ⁻¹	ASTM D696
Thermal Conductivity	1.37 x 10 ⁻³ cal.cm/sec/cm ² .°C	ASTM C177
Dielectric Strength	1181 volts/mm	ASTM D149
Dielectric Constant	67.5	ASTM D150
Flexural Strength	38.6 MPa	ASTM D790
Maximum Operating Temperature	Wet 49°C Dry: 120°C	
Coverage (per coat)	860cm ² /kg @ 5mm	

Surface Preparation:

Proper surface preparation is essential to the success of any epoxy application. In all cases the surface should be clean, dry, free from oils, and rough.

1. Remove all oils, dirt and grease by means of a strong cleaner/degreaser (Devcon® Surface Cleaner is suitable for this process).
2. Roughen the surface by grit blasting (8-40 mesh grit) or grinding. A 75-125 micron profile is desired for most applications, 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. All abrasive preparation should be followed by another cleaning to remove any remnants from that process.
4. Repair surface as soon as possible to eliminate any changes or surface contaminants.

Mixing Instructions:

Ideal application temperature is 13°C - 32°C. Under cold conditions, heating the repair area to 38°C - 43°C is recommended to dry off any moisture, contamination, or solvents, as well as to assist epoxy in achieving maximum adhesion properties.

Mix Ratio – Resin to hardener: Weight 9:1, Volume 2.5:1

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

1. Add hardener to resin.
2. Mix thoroughly with a putty knife or similar tool (continuously scrape material away from sides and bottom of container) until a uniform, streak free consistency is obtained.

Application Instructions:

Spread mixed material over the repair area and work firmly into the 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 fibreglass 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 trowelled up to 6mm thick without sagging.

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For Maximum Physical Properties

Cure at room temperature for 2 ½ hours, then heat cure for 4 hours @ 100°C.

For +24°C Applications

Applying epoxy at temperatures below 24°C lengthens functional cure and pot life times. Conversely, applying above 24°C shortens functional cure and pot life.

Machining

Allow material to cure for at least 16 hours before machining

- Lathe speed 46 m/minute
- Cut: Dry
- Tools: Carbide top rake 6° (+/- 2°) – Side/front 8° (+/- 2°)
- Feed rate (rough): Travel speed 0.50 mm Rough cut 0.50 mm – 1.5 mm/rev
- Feed rate (finishing): Travel speed 0.25 mm Finish cut 0.25 mm/rev
- Polishing: Use 400 to 650 emery paper wet. Material should polish to a 25-50 micron finish

Storage:

Store in dry conditions between 10°C and 40°C, away from sources of heat and naked flames. Protect from frost. When stored in original sealed containers, the minimum shelf life is five years.

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 & Fluids and Devcon makes no representations or warranties of any kind concerning this data.

Order Information:

500gm kit	D10110
1.5kg kit	D10120

Health & Safety Information:

For Health & Safety Information, refer to Safety Data sheet available from ITW Polymers & Fluids upon request on our website www.devcon.com.au or www.devcon.co.nz

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