Devcon®

TECHNICAL DATA

# ALUMINIUM PUTTY (F)

## *Aluminium-Filled Epoxy Putty*

### Description

**Aluminium Putty (A)** is an aluminium-filled epoxy putty for dependable non-rusting repairs to aluminium castings, machinery, and equipment widely used in HVAC applications.

### Areas of application

- Applications requiring an aluminium, non-rusting finish
- Repair and rebuilding of aluminium parts and equipment
- Patching of aluminium castings
- Making jigs, dies and holding fixtures

### Features

- Can be machined, drilled or tapped using conventional metalworking tools
- Bonds to aluminium, steel and many other metals, as well as concrete
- Fills voids or pores in castings
- Makes repairs that are non-rusting
- Qualified under Mil. Spec. DOD-C-24176B

### Chemical Resistance

(Chemical resistance is calculated with a 7 day, room temperature cure (30 days immersion) @ 24℃)

| | | | |
|---|---|---|---|
| 1,1,1 Trichloroethane | Very good | Methylene Chloride | Poor |
| Ammonia | Very good | Phosphoric 10% | Very good |
| Cutting Oil | Very good | Sodium Chloride Brine | Very good |
| Petrol (Unleaded) | Very good | Sodium Hydroxide 10% | Fair |
| Hydrochloric 10% | Very good | Sulphuric 10% | Very good |
| Kerosene | Very good | Sulphuric 50% | Poor |
| Methanol | Fair | Trisodium Phosphate | Very Good |
| Methyl Ethyl Ketone | Poor | Xylene | Fair |



Last Modified August 2007

## Limitations

Not recommended for long term exposure to concentrated acids and organic solvents.

## Technical Data

**Typical Physical Properties: Cured 7 days @ 24ºC**

| | | Test Method |
|---|---|---|
| Colour | Aluminium | |
| Mix Ratio (Resin to Hardener) | Weight 9:1<br>Volume 4:1 | |
| Mixed Viscosity | Putty | |
| Work Time of 500gms minutes @ 24℃ | 60 | |
| Cure Time | 16 hours | |
| Recoat Time | 10-12 hours | |
| % Solids by Volume | 100 | |
| Specific Volume | 632$cm^3$/kg | |
| Specific Gravity | 1.58 $gm/cm^3$ | |
| Cure Shrinkage | 0.0008 cm/cm | ASTM D2566 |
| Hardness Shore D | 85 | ASTM D2240 |
| Adhesive Tensile Shear | 17.9 MPa | ASTM D1002 |
| Tensile Strength | 22.2 MPa | ASTM D638 |
| Compressive Strength | 58 MPa | ASTM D695 |
| Modulus of Elasticity | 1784 MPa | ASTM D695 |
| Co-efficient of Thermal Expansion | 51 x 10-6 ℃-1 | AS TM D696 |
| Thermal Conductivity | 1.73 x 10-3 cal.cm/sec/$cm^2$.℃ | ASTM C177 |
| Dielectric Strength | 3937 volts/mm | ASTM D149 |
| Dielectric Constant | 21.4 | ASTM D150 |
| Flexural Strength | 46.6 MPa | ASTM D790 |
| Maximum Operating Temperature | Wet: 49℃, Dry: 120℃ | |
| Coverage (per coat) | 1264 $cm^2$/kg @ 5mm | |

## Directions for use

## 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

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

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Unit 2, 38 Trugood Drive
East Tamaki 2013, Auckland
Phone (09) 272 1945 Fax (09) 273 6489

**Mix Ratio – Resin to hardener: Weight 9:1, Volume 4:1**

------ 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

Spread mixed material over the repair area and work firmly into the substrate to ensure maximum surface contact. Aluminium Putty (F) 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 Aluminium Putty (F) prior to application.

### For Vertical Surface Applications

Aluminium Putty (F) can be trowelled up to 6mm thick without sagging.

### For Maximum Physical Properties

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

### For ±24℃ Applications

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

### Machining

Allow material to cure for at least 16 hour before machining

- Lathe speed 46 m/minute
- Cut: Dry
- Tools: Carbide top rake 6º (+/- 2º) – Side/front 8º (+/- 2º)
- 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

## Compliances

Qualifies under DOD-C-24176B, Type II

## Storage and Shelf Life

Store in dry conditions between 10℃ and 40℃, away from sources of heat and naked flames. Protect from frost. When stored in original sealed containers, the minimum shelf life is five (5) years.

## Packaging

**Aluminium Putty (F)** is available in a 500gm kit.

## Ordering Information:

| | |
|---|---|
| 500 gm Kit | #D10610 |

## Health & Safety Information

The product is non-hazardous. A Material Safety Data Sheet is available from the ITW Polymers & Fluids Technical Department upon request or available on our website www.itw-devcon.com.au .

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