TITANIUM PUTTY PRODUCT BULLETIN

Product Description

A high performance, titanium reinforced epoxy engineered for making critical repairs to machinery and precision parts.

Features and benefits

- Temperature resistance to 176°C
- Excellent chemical resistance
- Compression strength of 124 MPa
- Qualifies under mil spec DOD-C-24176B
- Non-rusting, machinable to a metallic finish

Recommended Applications

- Restore bearing housings and scored shafts
- Rebuild wear rings, hydraulic rams and valves
- Repair equipment and parts that require a machined finish

Typical Physical Properties: Cured 7 days @ 24ºC

Colour	Grey
Mixed Viscosity	Putty
% Solids by Volume	100
Cured Density	2.36 gm / cc
Cured Shrinkage ASTM D2566	0. 00 10 cm/cm
Specific Volume	422 cm^3 / kg
Pot life at 24°C (0.5kg mass)	21 minutes
Compressive Strength ASTM D695	129.8 MPa
Adhesive Tensile Shear ASTM D1002	13.8 MPa
Cured Hardness Shore D ASTM D2240	87D
Dielectric Strength, volts / mm ASTM D149	2205
Coverage	843 cm^2 / kg @ 5mm
Temperature Resistance	Wet 66°C Dry 177°C

Chemical Resistance: 7 days room temperature cure (30 days immersion at 24°C)

5% Bleach (Sodium Hyprochlorite)	E	10% Phosphoric Acid	VG
5% Trisodium Phosphate	E	40% Phosphoric Acid	F
10% Sulphuric Acid	E	10% Sodium Hydroxide	E
50% Sulphuric Acid	F	50% Sodium Hydroxide	E
10% Hydrochloric Acid	E	5% Alum (Aluminium Sulfate)	E
10% Nitric Acid	E	Ferric Chloride	E
40% Nitric Acid	U	10% Acetic Acid	U

KEY: E = Excellent, VG = Very Good F = Fair U = Unsatisfactory

Epoxies are very good in water, saturated salt solution, leaded gasoline, mineral spirits, ASTM #3 oil and propylene glycol. Epoxies are generally not recommended for long term exposure to concentrated acids and organic solvents.

PLEASE CONSULT TECHNICAL SERVICE FOR OTHER CHEMICALS

Surface Preparation

Proper surface preparation is essential to a successful application. The following procedures should be considered.

- First, degrease the surface by using anyone of Devcon Cleaner Blend 300 #19510. All oil, grease, and dirt must be removed before applying any epoxy material.
- All surfaces must be roughened ideally by grit blasting (8-40 mesh grit), or by grinding with a coarse wheel or abrasive disc pad. An abrasive disc may be used provided white metal is revealed. This creates increased surface area for better adhesion. A 75-125 micron profile is desired for an application. Do not “feather edge” epoxy material. Epoxy material must be “locked” in by defined edges and a good 75-125 micron profile.
- Metal that has been handling sea water or other salt solutions should be grit blasted and high pressure water blasted and left overnight to allow any salts in the metal to “sweat” to the surface, repeat blasting to “sweat out” all the soluble salts. A test for chloride contamination should be performed prior to any epoxy application. The maximum soluble salts left on the substrate should be no more than 40 ppm (parts per million).
- All abrasive preparation should be followed by chemical cleaning with Devcon Cleaner Blend 300. This will help to remove all traces of sandblasting grit, oil, grease, dust or other foreign substances.
- Under cold working conditions, heating the repair area to 38-43°C immediately before applying any of Devcon’s metal filled epoxy is recommended. This procedure dries off any moisture, and assists the epoxy in achieving maximum adhesion to the substrate.
- All prepared surfaces should be repaired as soon as possible, to eliminate any changes or surface contaminants.

Mixing Mix Ratio – Resin to Hardener: Weight 4.3:1, Volume 3.0:1
Add hardener to resin. Mix thoroughly with a screwdriver or similar tool until a uniform, streak-free consistency is obtained, about 4 minutes. Be sure to mix material from bottom and sides of container. It is strongly recommended that full can units be mixed.

Application
For best results, product should be kept and applied at room temperature. Titanium Putty can be applied when temperatures are between 13°C and 32°C. When temperatures are below 21°C, cure and pot life will be longer, and above room temperature, cure and pot life will be shorter. Spread Titanium Putty over prepared surface with applicator (enclosed) or putty knife. Press firmly to ensure maximum surface contact and avoid entrapping air. To bridge large gaps or holes use fibreglass, expanded metal or other mechanical fasteners.

Machining
Allow Titanium Putty to cure at least 4 hours. Machine the piece immediately after the putty is cured. If you wait more than 24 hours the material will wear your tools. Machine using these guidelines:

- Lathe Speed: 150ft/minute
- Cut: Dry
- Tools: Carbide or high speed steel bits
- Feed rates: Rough @ 1/2” – 3” @ .020 cut/rev Finishing @ 1/2” @ .0101 cut/rev
- Polishing: Use 400 to 650 emery paper wet to polish surface. It should polish to a 25-50 micron finish

Cure

- Working time is 21 minutes @ 24°C
- Functional (75%) cure is achieved in 16 hours @ 24°C
- A thick 1/4” section of Titanium Putty can be machined after 2 1/2 hours and can be immersed in chemicals after 24 hours. Sections less than 1/4” will require a slightly longer cure.
- For maximum physical properties, Titanium Putty can be heat cured for 4 hours at 200°F after curing at room temperature for 2 1/2 hours.

PRECAUTION

For complete safe and handling information, please refer to the appropriate Material Safety Data Sheets prior to using this product.

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.
ORDERING INFORMATION

Stock No.	Unit Size
10760	1 lb

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