



Brunel Close, Park Farm
Wellingborough
Northants
NN8 6QX
01933 675299
01933 670800
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TITANIUM PUTTY

PRODUCT DATA SHEET

A high performance alloy reinforced epoxy putty engineered to make precision repairs to critical stress bearing equipment. It is used to protect new or repaired surfaces from cavitation, erosion and corrosion.

FEATURES

- Excellent wear and abrasion resistance
- High compressive strength
- Non rusting
- Machinable after 2-4 hours allowing precision repairs
- Excellent chemical resistance
- Excellent temperature resistance of up to 177°C
- Returns essential equipment to service in just hours
- Makes durable, long-lasting repairs

RECOMMENDED APPLICATIONS

- Repairing worn pumps
- Repairing scored shafts
- Rebuilding wear rings
- Rebuilding pump impellers
- Rebuilding butterfly and gate valves
- Protecting wear plates
- Rebuilding tube sheets
- Preventing cavitation to condenser water boxes
- Repairing hydraulic rams
- Refitting keyways
- Restoring bearing housings
- Levelling and chocking critical equipment

PRODUCT DATA:

Typical Properties

Colour.....	Grey
Pot Life @ 21°C.....	21 minutes
Mixed Consistency.....	Putty
Adhesive Tensile Shear.....	14N/mm ²
Compressive Strength.....	130N/mm ²
Operating Temperature.....	177°C
Cured Hardness Shore D.....	87
Cured Density.....	2.36gm/cc
Specific Volume.....	424cm ³ /kg
Coverage, cm ² /kg @ 6.35mm.....	660
Dielectric Strength, volts/mil.....	56
Chemical Strength.....	wt. 4.3:1
Mix Ratio.....	vol. 3:1



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Chemical Resistance 7 days room temperature cure (30 days immersion @ 21°C)

10% Phosphoric Acid	Fair	5% Bleach (Sodium Hypochlorite)	Excellent
5% Trisodium Phosphate	Excellent	40% Phosphoric Acid	Very Good
10% Sulphuric Acid	Excellent	10% Sodium Hydroxide	Excellent
50% Sulphuric Acid	Very Good	50% Sodium Hydroxide	Excellent
10% Hydrochloric Acid	Excellent	5% Alum (Aluminium Sulphate)	Excellent
10% Nitric Acid	Very Good	Ferric Chloride	Excellent
40% Nitric Acid	Unsatisfactory	10% Acetic Acid	Unsatisfactory

Please consult ITW Devcon for other chemicals.

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.

APPLICATION INFORMATION

General Surface Preparation:

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

- All surfaces must be dry, clean and rough.
- If surface is oily or greasy, use Devcon Fast Cleaner 2000 Spray/Cleaner Blend 300 to degrease the surface.
- Remove all paint, rust and grime from the surface by abrasive blasting or other mechanical techniques.
- Aluminium repairs: Oxidation of aluminium surfaces will reduce the adhesion of an epoxy to a surface. This film must be removed before repairing the surface, by mechanical means such as grit-blasting or chemical means.
- Provide a "profile" on the metal surface by roughening the surface. This should be done 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. Do not 'feather edge' epoxy materials. Epoxy material must be 'locked in' by defined edges and a good 3 - 5 mil 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 may be required 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 p.p.m. (parts per million).
- Chemical cleaning with Devcon Fast Cleaner 2000 Spray/Cleaner Blend 300 should follow all abrasive preparation. 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°C - 43° C immediately before applying any of Devcon's Metal-filled Epoxies is recommended. This procedure dries off any moisture, contamination or solvents and assists the epoxy in achieving maximum adhesion to the substrate.
- Always try to make the repair as soon as possible after cleaning the substrate, to avoid oxidation or flash rusting. If this is not practical, a general application of FL-10 Primer will keep metal surfaces from flash rusting.
- Note: Large surface areas or equipment subjected to thermal shock, impact or constant vibration should have expanded metal tack welded to the surface. The expanded metal should be solvent wiped, grit blasted and solvent wiped again to remove oil, grease and dust. The expanded metal should be raised at least 1.6mm off the surface to ensure that Titanium Putty will get in between and under the expanded metal.



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Mixing: Mix ratio - Weight: 4.3:1 Volume: 3:1

Titanium Putty is formulated to be a dense mix that can be applied easily to overhead and vertical surfaces without running or sagging. Add the hardener to resin and mix thoroughly on a mixing board using a spatula. Do not mix in the containers.

Application:

For best results, product should be kept and applied at room temperature. Devcon Titanium Putty can be applied when temperatures are between 15°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. Using a putty knife, trowel or spatula, a very light coat should be applied to "wet out" the surface, allowing for 100% contact and further thickness buildup. Then continue to build up a desired thickness. Titanium Putty can be trowelled to a smooth finish with water or by warming the trowel with a torch and lightly trowelling over the uncured wear system.

Cure:

Titanium Putty cures functionally in about 4 hours at 21°C at 12.5mm thick. Working time is 21 minutes @ 21°C. The full cure may be increased by applying external heat to 65°C for 2-3 hours. This can be done with a hot box, heat lamps or other heat source. Never expose this system to a direct flame.

SHELF LIFE

A shelf life of three years from date of manufacture can be expected when stored at room temperature (22°C) in their original containers.

PRECAUTION

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

ORDERING INFORMATION:

<u>Stock No</u>	<u>Unit size</u>
10761	Titanium Putty 500g
10765	Titanium Putty 1Kg
15980	Primer FL-10 112g
19510	Cleaner Blend 300 250ml
19550	Fast Cleaner 2000 Spray 500ml

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

For technical assistance please call 01933 675299