EQUIPMENT FOUNDATION SYSTEMS

ITW Polymer Technologies

Super Alloy Titanium Repair Compound

Technical Bulletin # 820K

Product Description

SUPER ALLOY Titanium Repair Compound is the latest in high technology, high bond strength repair systems. The SUPER ALLOY system was conceived through a program utilizing "state-of-the-art" computer science and systematic evaluations. Long, intensive studies resulted in SUPER ALLOY'S specific formulation providing industry with a fast, permanent repair to equipment that might otherwise require costly "downtime." The SUPER ALLOY system is the ideal solution to joining such dissimilar metals as iron, steel, aluminum, tungsten carbide, brass, zinc, and zinc alloys without the problems of galvanic corrosion.

Use & Benefits

- SUPER ALLOY adheres tenaciously to properly prepared surfaces.
- SUPER ALLOY's advanced capabilities allow expedient repairs of castings, blocks, foundations, shafts and other equipment without the use of heat, pressure or special tools. The material hardens to a rigid metallic mass which permits drilling, tapping, or machining with ordinary metalworking tools.
- Super ALLOY creates an integral bond, maintaining a high level of resistance to impact, abrasion, chemicals and high temperature.

Surface Preparations

Roughen" an area slightly larger than the damaged area by abrasive blasting. An 8-40 mesh grit size is best. When conditions do not allow abrasive blasting, a grinding wheel may be used. Wash the abraded surface with Impax IXT-59 or similar solvent to remove all dust, grit and grease. Be careful not to touch the area with bare hands once the area is solvent washed. NOTE: SUPER ALLOY should be applied to the repair area immediately upon completion of surface preparation to prevent oxidation of un-coated metal.

Application Instructions

Place three parts resin and one part hardener by volume on a clean SUPER ALLOY mat and mix thoroughly. Mix only as long as is necessary to obtain a uniform, streak-free color. NOTE: Mix only as much as can be used in 15-20 minutes.

We advise repairing only non-stress cracks that resulted from impact due to foreign objects or freezing. DO NOT use SUPER ALLOY to repair cracks caused by metal fatigue. Terminate the crack by drilling holes at each end. Diameter of the holes should be 4.8mm (3/16") plus the width of the crack. If the crack exceeds 150mm (6") in length, holes should be drilled every 75mm (3"). Force SUPER ALLOY into the crack and then apply more metallic paste over the entire prepared surface at a nominal thickness 6mm (1/4").

Small holes or severely pitted metal may be repaired by filling the affected area and then fairing out over the edges. To repair large holes, first apply a temporary backing plate (an extra SUPER ALLOY mat works well) to the inside of the damaged area. Fill the void with SUPER ALLOY until the material is slightly above the finished surface. Allow to cure for two hours. Apply final layer of SUPER ALLOY to the entire area at a nominal thickness of 6mm (1/4") to 9.5mm (3/8"). Allow repair area to cure for 18 hours at 22°C (72°F).

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Physical Properties

COMPRESSIVE STRENGTH	1,070 kp/cm2 (15,200 psi)	ASTM C-695
LINEAR SHRINKAGE	0.001 in/in. (0.001 mm/mm)	ASTM D-2566
COEFFICIENT OF LINEAR THERMAL EXPANSION	40.1 x 10^{-6} /C° (22.3 x 10^{-6} /F°)	ASTM D-698
FLEXURAL STRENGTH	542 kp/cm2 (7,700 psi)	ASTM C-790
ADHESIVE TENSILE SHEAR STRENGTH	140 kp/cm2 (2,000 psi)	ASTM D-1002
HARDNESS	Shore D = 87	ASTM D-1076
ABRASION RESISTANCE	20 mg/1000 cycles Average 5000 cycles	Federal Test standard 406 method 1091
SERVICE TEMPERATURE	Up to 250°F (121°C)	

Product Information

COLOR	Resin > Silver / Hardener > Gray = Gray after mixing
COVERAGE	190 cc (12 cu.in.)
MIX RATIO	3-1 resin to hard. by vol; 4.3-1 resin to hard. by wt.
APPLICATION TEMPERATURE	13°C (55°F) to 35°C (95°F)
CURE TIME (approximate)	18 hours @ 22°C (72°F)
POT LIFE	25 minutes @ 22°C (72°F)
CLEAN UP	IMPAX IXT-59 Epoxy Solvent or equivalent
UNIT PACKAGING	Resin (NH): 151 cc (5 oz) in a 12 oz plastic jar Hardener (NH): 38 cc (1.3 oz) in a 4 oz plastic jar
UNIT WEIGHT	Resin: 372 g (0.82 lbs) Hardener: 86 kg (0.09 lbs)
SHIPPING WEIGHT	816 g (1.8 lbs)
SHELF LIFE	2 years

Physical properties can be improved by heating the repair area "after" hardening at room temperature. Recommended method is to apply heat for two hours at 65°C (150°F).

Reference

For detailed information on shaft repairs, refer to SUPER PRODUCTS Repair Procedure #832. For detailed information on other repairs, contact ITW Polymer Technologies.

Date

09/2005

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