

SUPER ALLOY[®] TITANIUM REPAIR COMPOUND

Technical Bulletin 820J

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 which 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.

PERFORMANCE DATA

- 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 PREPARATION

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. Wire brushing is acceptable for very small repairs. Solvent wash the abraded surface 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 uncoated metal.

APPLICATION

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.

Small holes or severely pitted metal may be repaired by filling the affected area and then fairing out over the edges. We advise repairing only non-stress cracks which 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").

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).

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

ITW PHILADELPHIA RESINS

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TECHNICAL INFORMATION

COLOR:	Resin - Silver Hardener - Gray (Gray after mixing)	
PACKAGING:	0.5 kg (1 lb) unit 5.4 kg (12 lb.) unit	
COVERAGE:	378 cc/kg (10.5 cu.in./lb.)	
MIX RATIO:	3 to 1 by volume 4.3 to 1 by weight	
WORKING TIME:	25 minutes @ 22°C (72°F)	
ADHESIVE TENSILE SHEAR STRENGTH:	140 kp/cm ² (2,000 psi)	ASTM D-1002
FLEXURAL STRENGTH:	542 kp/cm ² (7,700 psi)	ASTM D-790
COMPRESSIVE STRENGTH:	1,070 kp/cm ² (15,200 psi)	ASTM D-695
HARDNESS:	Shore D = 87	ASTM D-1706
ABRASION RESISTANCE:	20 mg/1000 cycles Average 5000 cycles	Federal Test method standard 406 method 1091
COEFFICIENT OF THERMAL EXPANSION:	40.1 x 10 ⁻⁶ /C° (22.3 x 10 ⁻⁶ /F°)	
RESISTANCE:	250°F (121°C)	
CURE TIME:	18 hours @ 22°C (72°F)	
LINEAR SHRINKAGE:	0.001 in/in. (0.001 mm/mm)	ASTM D-2566

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

June, 00