

Technical Bulletin # 473

Product Description

SUPER ALLOY Titanium Repair Compound is a state of the art, high technology, high bond strength repair systems. The SUPER ALLOY system was conceived through a program utilizing computer science and systematic evaluations. Long, intensive studies resulted in SUPER ALLOY'S specific formulation that provides 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 3/16" (4.8mm) plus the width of the crack. If the crack exceeds 150mm (6") in length, holes should be drilled every 3" (75mm).

Force SUPER ALLOY into the crack and then apply more metallic paste over the entire prepared surface at a nominal thickness of 1/4" (6mm).

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 3/8" (6mm to 9.5mm). Allow repair area to cure for 18 hours at 72°F (22°C).

Technical Information

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

Date

07/2006

General: Every reasonable effort is made to insure the technical information and recommendations on these data pages are true and accurate to the best of our knowledge at the date of issuance. However, this information is subject to change without notice. Prior versions of this publication are invalid with the release of this version. Products and information are intended for use by qualified applicators that have the required background, technical knowledge, and equipment to perform said tasks in a satisfactory manner. Consult your local distributor for product availability, additional product information, and technical support.

Warranty: ITW Polymer Technologies, a division of Illinois Tool Works Inc., warrants that its products meet their printed specifications. This is the sole warranty. This warranty expires one year after product shipment.

Warranty Claims: If any product fails to meet the above, ITW Polymer Technologies will, at its option, either replace the product or refund the purchase price. ITW Polymer Technologies will have no other liability for breach of warranty, negligence, or otherwise. All warranty claims must be made in writing within one year of the date of shipment. No other claims will be considered.

Disclaimer: ITW Polymer Technologies makes no other warranty, expressed or implied, and specifically disclaims any warranty of merchantability or fitness for a particular purpose.

Suggestions concerning the use of products are not warranties. The purchaser assumes the responsibility for determining suitability of products and appropriate use. ITW Polymer Technologies' sole liability, for breach of warranty, negligence or otherwise, shall be the replacement of product or refund of the purchase price, at ITW Polymer Technologies' election. Under no circumstances shall ITW Polymer Technologies be liable for any indirect, incidental or consequential damages.

Modification of Warranty: No distributor or sales representative has the authority to change the above provisions. No change in the above provisions will be valid unless in writing and signed by an officer or the Technical Director of ITW Polymer Technologies. No term of any purchase order shall serve to modify any provision of this document.

Mediation and Arbitration: If any dispute arises relating to products or product warranties, either the purchaser or ITW Polymer Technologies may a) initiate mediation under the then current Center for Public Resources (CPR) Model Procedure for Mediation of Business Disputes, or b) initiate a non-binding arbitration under the rules of the American Arbitration Association for the resolution of commercial disputes.