



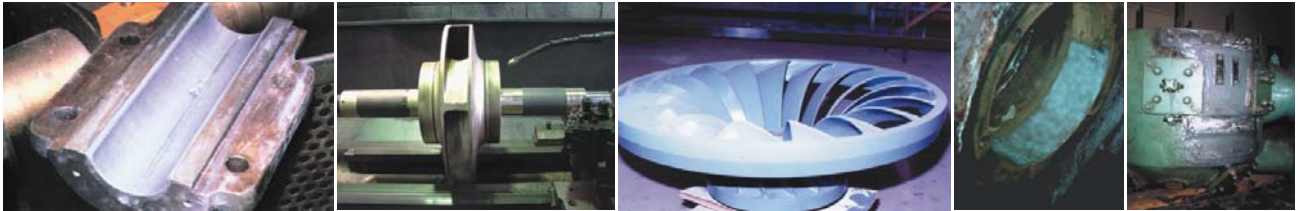
UniquePolymerSystems.com

The Engineer's Choice

... for Solutions

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

## Unique Polymer Systems – Super Metal Rebuilding System



**UPS 'Super Metal Rebuilding System'** is a high performance multi purpose synthetic metal repair compound specifically developed for metal repairs requiring good mechanical strength combined with easy machining properties.

**UPS 'Super Metal Rebuilding System'** is formulated on a complex range of epoxy resins combined with a polyamino curing system reinforced with a phosphor steel alloy to enhance the corrosion and chemical resistance of the whole system.

**UPS 'Super Metal Rebuilding System'** can be applied to any damaged component in one easy application and is ideal for repairing worn shafts, oversized bearing housings, cracked cases and blocks, damaged flanges, sloppy keyways and scored rams.

**Before proceeding, please read the following information carefully to ensure that the correct application procedure is fully understood.**

### SURFACE PREPARATION

Heavy contamination due to oil or grease must first be removed using **UPS 'Cleaner'**.

All loose material, rust and surface contaminants, including existing coatings, must be removed and the surface roughened by using an angle grinder, needle gun or abrasive blasting. Where grinding or needle gunning is used, the surface should be cross-scored to improve adhesion. Care must be taken, when angle grinding, to avoid polishing rather than roughening metal surfaces.

Where possible, abrasive blasting is the preferred surface preparation, especially in fluid flow repairs.

Surfaces should finally be carefully degreased using **UPS 'Cleaner'**.

Cloths should be frequently changed to avoid spreading contamination. On deeply pitted surfaces or porous castings, **UPS 'Cleaner'** should be worked into the surface by brush and washed off using excess cleaner.

Parts (for example, threads or bearing surfaces) which must remain in position during application but must not adhere to **UPS 'Super Metal Rebuilding System'**

must be coated with **UPS 'Release Agent'** prior to application of the **UPS 'Super Metal Rebuilding System'**

### MIXING

**UPS 'Super Metal Rebuilding System'** is a two component solvent free material comprising resin and hardener components which must be mixed together prior to use.

Measure 3 volumes of resin component and 1 volume hardener component onto a clean mixing board or other suitable surface. The two components should then be thoroughly mixed until completely streak free.

The mixed material should be used within 25 minutes of mixing at 20°C (68°F). This time will be reduced at higher temperatures and extended at lower temperatures.

### APPLICATION

The mixed material should be pressed firmly onto the prepared area, working the material into any cracks and surface defects.

When **UPS 'Super Metal Rebuilding System'** is being used to bond two surfaces together, both surfaces should be coated with the material. The two pieces should then be pressed firmly together and clamped in position until the product has set, any excess material squeezed out should be scraped away before the **UPS 'Super Metal Rebuilding System'** begins to cure.

When a reinforcing tape is being used to strengthen the repairs the tape should either be impregnated with **UPS 'Super Metal Rebuilding System'**, or the tape should be laid over the **UPS 'Super Metal Rebuilding System'** surface and stippled into the material before it cures, then additional **UPS 'Super Metal Rebuilding System'** applied over the surface.

In areas where a second layer of **UPS 'Super Metal rebuilding System'** is required this application must be carried out within the initial set time for the first layer, if this is not possible surfaces will require thorough abrasion or abrasion blasting prior to any subsequent material being applied.

# TECHNICAL DATASHEET UPS105

## Unique Polymer Systems – Super Metal Rebuilding System

Once the **UPS 'Super Metal Rebuilding System'** has reached 'initial set' the material can be separated from the surfaces treated with **UPS 'Release Agent'**.

Once **UPS 'Super Metal Rebuilding System'** has cured for a minimum of 2 hours at 20°C (68°F), sanding, grinding and machining etc. can be carried out using standard engineering practice.

When machining **UPS 'Super Metal Rebuilding System'** a typical Lathe set up would be:

<b>Surface Cutting Speed</b>	200 ft/minute	
<b>Feed Rate</b>	(roughing)	50 thou/rev
	(finishing)	10 thou/rev

All equipment must be cleaned IMMEDIATELY after use, with **UPS 'Cleaner'**.

**Volume Capacity**  
410cc (25cu ins) per kilo

### PHYSICAL CONSTANTS

<b>Mixing Ratio</b>	Resin	Hardener
3	1 By Volume	
5	1 By Weight	

**Appearance** Resin Black Paste  
Hardener Light Grey Paste

<b>Drying &amp; Cure Times at 20°C</b>	
Usable Life	25 minutes
Initial Set	60 minutes
Machining	2 hours
Full Mechanical	3 days

**Volume Solids** 100%

**V.O.C.** Nil

**Shelf Life** Use within 5 years of purchase. Store in original sealed containers at temperatures between 5°C (40°F) and 30°C (86°F).

**Food Contact** Meets USDA requirements for incidental food contact.

Meets FDA requirements CFR 21.175.300 for food contact.

### Operating Temperature

Maximum Continuous	
Dry Heat	250°C (480°F) 120°C (248°F)
Wet Heat	120°C (248°F) 70°C (158°F)

### PHYSICAL PROPERTIES

**Compressive Strength** 1090kg/cm (15500 psi)  
ASTM D 695

**Corrosion Resistance** 5000 hours  
ASTM B117

**Flexural Strength** 700kg/cm (10000 psi)  
ASTM D 790

**Hardness (Rockwell R)** 100  
ASTM D785

**Heat Distortion** 90°C (195°F)  
ASTM D648 (Post Cured 24 hrs at 100°C/212°F)

**Nuclear Decontamination** Excellent  
BS4247 Part 1

**Tensile Shear Adhesion** 175kg/cm (2500 psi)  
ASTM D1002 (Grit Blasted Steel)

### HEALTH AND SAFETY

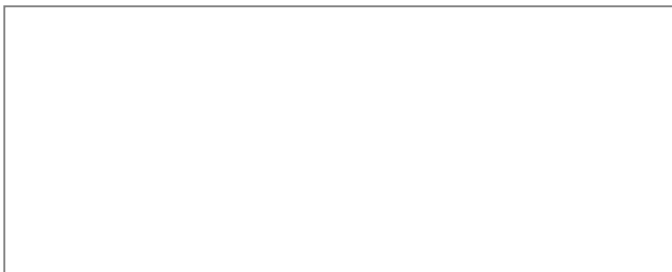
As long as normal good practice is observed **UPS 'Super Metal Rebuilding System'** can be safely used. Protective gloves should be worn during use.

A fully detailed Material Safety Data Sheet is either included with the material or is available on request.

### PACKAGING

Supplied in 1kg packs

### FOR FURTHER INFORMATION PLEASE CONTACT



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