Unique Polymer Systems

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

## Unique Polymer Systems - Fluid Super Metal Resurfacing System




**UPS 'Fluid Super Metal Resurfacing System'** is a high performance synthetic metal compound specifically developed for resurfacing and reforming damaged metal machiney and equipment.

UPS 'Fluid Super Metal Resurfacing System' is based on a complex blend 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 'Fluid Super Metal Resurfacing System' can be applied to any damaged component and provides an excellent slip resistant surface in combination with a grip and is ideal for drive rollers and brake test rollers where grip is essential.

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 'Fluid Super Metal Resurfacing System' must be coated with UPS 'Release Agent'.

### MIXING

UPS 'Fluid Super Metal Resurfacing System' is a two pack product comprising a resin and hardener component which must be mixed together prior to use.

Two volumes of resin component and one volume hardener component should be transferred to a clean container. The two components should then be thoroughly mixed to produce a completely streak free material.

The mixed material should be used within 40 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 applied by stiff brush or squeegee to the prepared area as soon as possible after surface preparation, and certainly the same day to prevent flash rusting. If flash rusting does occur, the surface should be re-prepared.

On deeply pitted surfaces, the mixed UPS 'Fluid Super Metal Resurfacing System' must be worked into the surface to ensure complete 'wetting out' and prevention of air entrapment. When a two coat application of UPS 'Fluid Super Metal Resurfacing System' is specified, the second coat can be applied a minimum of 4 hours after the first application. The maximum overcoating time is 2 days at 20°C (68°F) if this time is exceeded, the surface of the UPS 'Fluid Super Metal Resurfacing System' should be lightly abraded prior to application of the second coat.

Where a slip resisting system is required, a grip should be scattered into freshly applied UPS 'Fluid Super Metal Resurfacing System'

On applications using formers treated with release agent, these formers can be removed as soon as the UPS 'Fluid Super Metal Resurfacing System' has initially set.

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

**Theoretical Coverage Rate**
1.88 m2/per 1kg unit at 250 microns dft
(20 ft2 per 1kg unit at 10 mils)

**Recommended Film Thickness**
Wet 250 microns (10 mils)
Dry 250 microns (10 mils)

## PHYSICAL CONSTANTS

| | | | |
|---|---|---|---|
| **Mixing Ratio** | Resin | Hardener | |
| | 2 | 1 | By Volume |
| | 5 | 1 | By Weight |

| | | |
|---|---|---|
| **Appearance** | Resin | Coloured Paste |
| | Hardener | Amber Liquid |

**Drying & Cure Times at 20°C**

| | |
|---|---|
| Usable Life | 40 minutes |
| Initial Set | 4 hours |
| Minimum Overcoating | 4 hours |
| Maximum Overcoating | 48 hours |
| Machining | 8 hours |
| Full Mechanical | 5 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).

**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**<br>ASTM D695 | 635kg/cm$^2$ (9000 psi) |
| **Flexural Strength**<br>ASTM D790 | 490kg/cm$^2$ (7000 psi) |
| **Tensile Shear Adhesion**<br>ASTM D1002 | 195kg/cm$^2$ (2800 psi)<br>(applied to blast cleaned steel) |
| **Heat Distortion**<br>ASTM D648 | 60°C (140°F) |
| **Corrosion Resistance**<br>ASTM B117 | 5000 hrs |
| **Hardness (Shore D)**<br>ASTM D2246 | 85 |

## HEALTH AND SAFETY

As long as normal good practice is observed UPS 'Fluid Super Metal Resurfacing System' can be safely used.

The use of protective gloves is advisable during use.

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

## PACKAGING

Supplied in 1.0 kg packs.

## FOR FURTHER INFORMATION PLEASE CONTACT



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