



Unique Polymer Systems

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

### Unique Polymer Systems - 'High Temperature Ceramic Carbide Compound'



UPS 'High Temperature Ceramic Carbide Compound' is a high performance fluid grade engineering resurfacing compound specifically developed for high temperature immersion conditions and is ideal for resurfacing pumps, impellers, valves, tube sheets, water boxes, heat exchangers.

UPS 'High Temperature Ceramic Carbide Compound' is based on a complex blend of phenolic epoxy resins and a special polyamino-amide curing system reinforced with carbide and ceramic particles to produce a coating with a high level of temperature, abrasion and adhesion properties combined with optimum physical and mechanical strength.

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

#### SURFACE PREPARATION

All dirt and loose material should be scraped away. Oil and grease should be removed with UPS 'Cleaner'. Surfaces should then be abrasive blast cleaned to a minimum Sa2½ BS7079 Part A1 1989 or equivalent with a minimum blast profile of 75 microns (3 mil) corresponding to 'Medium' in BS7079 Part C3/ ISO8503/1. All loose abrasive dust and debris must be blown clear or vacuum cleaned away.

Existing steel surfaces which have corroded in a chemical environment may be contaminated by soluble iron salts within corrosion pits. To prepare these surfaces it is recommended that one of the following treatments be carried out prior to final dry abrasive blasting to the specified standard.

- a) Blasting with a mixture of clean water and abrasive.
- b) Initial dry blast cleaning to remove corrosion and surface coatings followed by high pressure clean water jetting (minimum 1000 psi/66 bar).

On sections of repairs which are not required to bond to the UPS 'High Temperature Ceramic Carbide Compound' these surfaces should be treated with UPS Release 'Agent'.

#### MIXING

UPS 'High Temperature Ceramic Carbide Compound' is a two component solvent free product supplied as a resin component and an hardener component which must be mixed together prior to use.

Mix the entire contents of the resin and hardener containers.

Alternatively measure four volumes of resin component and one volume of hardener into a clean container. The two components should be thoroughly mixed until completely streak free.

The mixed material should be used within 60 minutes of mixing at 68°F. This time will be reduced at higher temperatures and extended at lower temperatures.

#### APPLICATION

The mixed material should be applied to the prepared area using a clean brush or squeegee. Application should be carried out as soon as possible after surface preparation is complete, and certainly the same day, otherwise flash blasting will be necessary before application.

Where necessary a reinforcing tape should be stippled in to the mixed product and further material applied over the tape, ensuring the edges of the tape are overlapped.

Machining of UPS 'High Temperature Ceramic Carbide Compound' will cause excessive tool wear so care should be taken to finish the repair to the required size or

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dimensions. Formers treated with UPS 'Release Agent' can be used to minimise machining.

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

### Theoretical Coverage Rate

0.80 m<sup>2</sup> / kilo at 750 microns dft (8.50 ft<sup>2</sup> per kilo at 30 mils)

**Volume Capacity** 555cc (38.1 cu ins) per kilo

### Recommended Film Thickness

Wet 750 microns (30 mils)

Dry 750 microns (30 mils)

### PHYSICAL CONSTANTS

Mixing Ratio	Resin	Hardener	
	100	12	By volume
	4	1	By Weight

Appearance	Resin	Hardener
	Dark Grey/Black Paste	Amber Liquid

### Drying & Cure times at 20°C (68°F)

Usable Life	60 minutes
Initial Set	6 hours
Minimum Overcoating	6 hours
Maximum Overcoating	24 hours

**Volume Solids** 100%

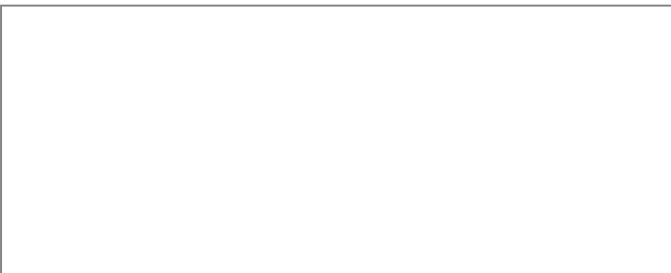
**V.O.C** Nil

**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 (482°F)	170°C (338°F)
Wet Heat	180°C 356°F)	150°C (302°F)

### FOR FURTHER INFORMATION PLEASE CONTACT



### PHYSICAL PROPERTIES

**Abrasion Resistance** 0.065 ml loss per 1000 cycles  
ASTM D4060 1 kg load/CS17 wheel

**Compressive Strength** 915 kg/cm<sup>2</sup> (13000 psi)  
ASTMD695

**Corrosion Resistance** 5,000 hours  
ASTM B117

**Flexural Strength** 635kg/cm2 (9000 psi)  
ASTM 790

**Heat Distortion Temp.** 146°C (295°F)  
ASTM D648 (Post Cured at 120°C for 6 hours)

**Tensile Shear Adhesion** 195 kg/cm<sup>2</sup> (2800 psi)  
ASTM D1002 (Grit Blasted Steel)

### HEALTH AND SAFETY

As long as normal good practice is observed 'High Temperature Ceramic Carbide Compound' can be safely used.

Protective gloves should be worn.

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

### PACKAGING

Supplied in 3kg packs.

The information provided in this Product Data Sheet is intended as a general guide only and should not be used for specification purposes. The information is given in good faith but we assume no responsibility for the use made of the product or this information because this is outside the control of the company. Users should determine the suitability of the product for their own particular purposes by their own tests.



Unique Polymer Systems

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