

Technical Data Sheet

UPS 205 FG Fluid Grade Ceramic



UPS 205 FG Abrasion Resistant Ceramic Fluid is a high performance fluid grade engineering resurfacing compound designed for use in fluid flow environments.

UPS 205 FG uses a complex blend of epoxy resins and a polyamino-amide curing system reinforced with carbide and ceramic particles to produce a coating with a high level of abrasion and erosion resistance combined with optimum physical and mechanical strength.

UPS 205 FG offers outstanding protection against impingement, entrainment and erosion / corrosion conditions.

Product Features

- Designed for application by stiff brush or squeegee.
- Provides outstanding resistance to impingement, entrainment and erosion / corrosion.
- Primary designed for resurfacing metal components used in fluid flow environments.
- Excellent adhesion to correctly prepared metal surfaces.

Product Applications

Suitable for the coating of equipment such as impellers, pump casings, valves, heat exchanger end plates, water boxes, separator housings, pipes, propellers, kort nozzles and rudders.

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

Surface Preparation

All oil and grease must be removed from the surface of the repair using UPS CLEANER MEK.

For optimum performance, the surface should be abrasive blasted to ISO 8501/4 Standard Sa2.5 (SSPC SP10/NACE 2) and a minimum blast profile of 75 microns using angular abrasive. Once blast cleaned, the surface must be degreased and cleaned using UPS CLEANER MEK or similar type material. All surfaces must be repaired before gingering or oxidation occurs.

PLEASE NOTE: For salt contaminated surfaces the area must be abrasive blast cleaned as mentioned above and left for 24 hours to allow any ingrained salts to come to the surface. After this 24 hour period the surface must be washed with UPS CLEANER MEK prior to brush blasting to remove the surface salts. This process must be repeated until all ingrained contaminants have been sweated out of the surface.

On surfaces already rebuilt with UPS 105 EG Metal Repair Paste or UPS 200 EG Ceramic Repair Paste no further surface preparation is required where over-coating times place within 3

hours. After this maximum over-coating time has elapsed roughen the surface by flash blasting or other means of abrasion.

Mixing & Application

Warm the Base component to 15 – 25°C (60 – 77°F) before mixing and do not apply when the ambient or substrate temperature is below 5°C (40°F) or less than 3°C (37°F) above the dew point.

Mixing of the product can be on full units or by part-mixing. If mixing the whole unit, pour the contents of the Activator unit into the Base container, ensuring that as much material is drained from the Activator container as possible. Mix the two components together until they are streak-free using a spatula and apply using a short bristled brush or applicator tool.

The product should be applied at a target wet film thickness of 250-350 microns (10-14 mil) per coat. The product must be applied to any metallic surface in two coats to give a minimum dry film thickness of 500 microns (20 mil). From commencement of mixing the material should be used within 20-30 minutes at 20°C (68°F).

As soon as possible after application of the first layer, and after no longer than 6 hours, apply a further coat as above. If the maximum over-coating time is exceeded, the first layer should be brush blasted or abraded before applying the second coat.

For part mixing use a mixing ratio of 8:1 by weight or 3:1 by volume.

Technical Data & Performance

Characteristics

Coverage Rates

1KG (2.2LB) of fully mixed product will give the following coverage rates -	
1.785m at 250 microns	17.5ft at 10 mil
1.485m at 300 microns	16ft at 12 mil
1.271m at 350 microns	13.55ft at 14 mil
<i>Please note that the coverage rates quoted are theoretical and do not take into consideration the profile or condition of the surface being repaired.</i>	

Drying & Cure Times at 20°C (68°F)

Useable Life	20 – 30 minutes
Movement Without Load or Immersion	3 hours
Machining & Light Loading	6 hours
Full Loading	1.5 days
Immersion	2 days
<i>Once hardener, the material should be left for the following periods of time at 20°C (68°F) before being subjected to the conditions indicated. These times will be doubled at 10°C (50°F) and halved at 30°C (86°F)</i>	



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For Optimum Performance

After an initial curing period of at least 4 hours at 20°C (68°F), raising the cure temperature progressively to 60 – 100°C (140 – 212°F) for up to 8 hours will result in improved mechanical, thermal and chemical resistance properties.

Appearance

Mixed Material Colour	Thixotropic Dark Grey or Light Grey or Blue Liquid
Base Component Colour	Dark Grey, Light Grey or Blue Paste
Activator Component	Amber Liquid

Over Coating Times

Minimum	The applied material can be over coated as soon as it is touch dry
Maximum	The over coating time should not exceed 6 hours
<i>Where the maximum over coating time is exceeded, the material should be allowed to harden before being abraded or flash blasted to remove surface contamination.</i>	

Shelf Life

5 years if unopened and store in normal dry conditions (15-30°C / 60-86°F)

Mixing Ratio

Component	Base	Activator
By Weight	8	1
By Volume	3	1

Density

Base	2.65
Activator	1.0
Mixed	2.24

Volume Capacity

446cc/Kg

Solids Content

100%

Slump Resistance

Nil at 400 microns

Pack Sizes

This product is available in the following pack sizes; 1KG (2.2LB), 3KG (6.6LB), 27KG (59.4LB)

Useable Life

10°C (50°F)	25 – 60 minutes
20°C (68°F)	20 – 30 minutes
30°C (86°F)	15 – 20 minutes

Mechanical Properties

Abrasion Resistance Taber CS17 Wheels / 1KG load	145mg loss / 1000 cycles 0.065cc loss / 1000 cycles
Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75 micron profile)	202kg/cm ² (2,875 psi)
Compressive Strength ASTM D695	960kg/cm ² (13,650 psi)
Corrosion Resistance ASTM B117	Minimum 5000 hours
Flexural Strength ASTM D790	635kg/cm ² (9,000 psi)
Hardness Rockwell R ASTM D785	100
Heat Distortion ASTM D648 At 264psi Fibre Stress	20°C (68°F) Cure – 48°C (118°F) 100°C (212°F) Cure – 95°C (203°F)

Heat Resistance

Suitable for long-term water immersion at temperatures up to 70°C (158°F).

Resistant to dry heat in excess of 200°C (392°F) dependent on load.

Chemical Resistance

The product resists attack by a wide variety of inorganic acids, alkalis, salts and organic media. Refer to the Unique Polymer Systems LTD Technical Centre for advice.

Quality: All Unique Polymer Systems LTD Products are supplied under the scopes of the company's fully documented quality system.

Warranty: Unique Polymer Systems LTD warrants that the performance of the product supplied will confirm to the typical descriptions quoted within this Technical Data Sheet provided the material is stored correctly and used according to the procedures detailed in the Technical Data Sheet for the material.

Health & Safety: Please ensure good practice is observed at all times during the mixing and application of this product. Protective gloves must be worn during the mixing and application of this product. Before mixing and applying the material please ensure you have read the fully detailed Material Safety Data Sheet.

Legal Notice: The data contained within this Technical Data Sheet is furnished for information only and is believed to be reliable at the time of issue. We cannot assume responsibility for results obtained by others over whose methods we have no control. It is the responsibility of the customer to determine the products suitability for use. Unique Polymer Systems LTD accepts no liability arising out of the use of this information or the product described herein.



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