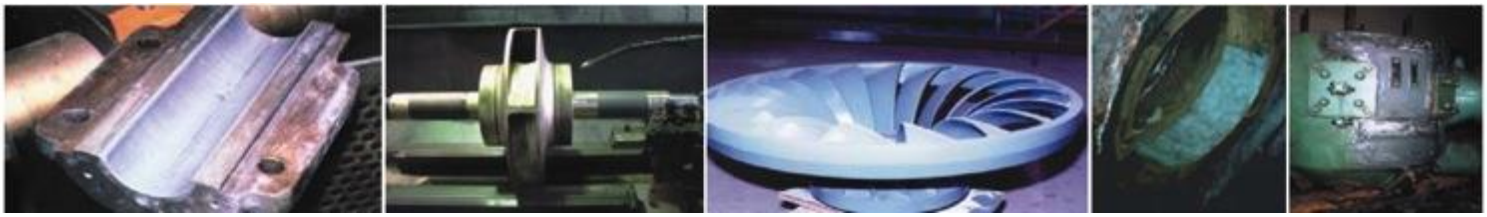
Technical Data Sheet
UPS 226 HAC High Acid Ceramic



UPS 226 HAC High Acid Ceramic is designed to upgrade the performance of conventional materials of construction and in particular to protect equipment operating in contact with acids and highly aggressive chemicals at elevated temperatures.

The coating once fully cured is capable of withstanding temperature up to 110°C (230°F) in continuous immersion in sulphuric acid, hydrochloric acid and phosphoric acid.

The material can be applied directly to abrasive blasted steel or to surfaces previously rebuilt with UPS 105 EG Metal Repair Paste or UPS 200 EG Ceramic Repair Paste.

Product Features

- Designed for application by brush or squeegee.
- Provides a high build protective system capable of resisting wet heat up to 90°C (195°F)
- Primarily designed for resurfacing and lining metal components.
- Exhibits excellent adhesion to correctly prepared metal surfaces.

Product Applications

Suitable for the coating of sour oil and gas processing equipment, acid treatment vessels, scrubber units, extraction fans, chimneys etc.

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 form 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 eft 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.

Only full units of material should be mixed and to aid mixing add only part of the Activator initially. Pour approximately one third of the contents of the Activator Unit into the Base container and mix carefully using a spatula.

Once the two materials have been blended, add the remainder of the Activator ensuring that as much material is drained from the Activator container as possible.

Mix the two components together until they are streak-free and apply using a short-bristled brush or applicator tool. The material once fully mixed has an application time of 30 – 40 minutes at 20°C (68°F).

Two Coat Application

Where possible, the application should be carried out in two coats.

a) The first coat of material should be applied at a target thickness of 600 microns (24 mil), use a plastic applicator as a squeegee to apply a ***very*** thin later of product, forcing it into the blast profile. Special attention should be paid to detailed areas such as edges, corner and welds where brush application by stippling may be required. Immediately after the initial application apply further material by brush or applicator to give the required film build, checking film thickness with a Wet Film Thickness Gauge. Lay off the coating by brush to give a smooth finish.

b) Allow to harden for a minimum of 16 hours before removing any surface bloom by washing first with a detergent and water mixture and then clean water. This should be followed by sweep blasting at reduced pressure using fine grit, and removal of any debris before washing with UPS CLEANER MEK.

c) The second coat of material should be applied at a target thickness of 300 microns (12 mil) using a brush or applicator tool and once again checking film thickness with a Wet Film Thickness Gauge before finally laying off the coating with a brush to give a smooth finish.

Single Coating Application

If a two coat application is not practical, the product can be applied as in (a) above in a single coat at 650 – 850 microns (26 – 34 mil). Using this method extreme care is require when carrying out visual inspection of the coating (whilst still wet) to identify any defects which should be corrected.

Once cured any surface bloom should be removed by detergent wash and then Wet Sponge tested to identify any pin holes. These should be repaired by manually abrading the surface, cleaning down and applying freshly mixed UPS 225 HT at approximately 250 microns (10 mil) thickness to the prepared area.

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Technical Data & Performance Characteristics

Coverage Rates

1KG (2.2LB) of fully mixed product will give the following coverage rates -	
1.415m² at 300 microns	15ft² at 12mil
1.063m² at 400 microns	11.5ft² at 16mil
0.850m² at 500 microns	9ft² at 20mil
0.708m² at 600 microns	7.5ft² at 24mil
0.607m² at 700 microns	6.5ft² at 28mil
0.531m² at 800 microns	5.7ft² at 32mil
Please note that the coverage rates quoted are theoretical and do not take into consideration the profile or condition of the surface being repaired.	

Drying & Cure Times at 20°C (68°F)

Useable Life	20 – 30 minutes
Movement Without Load or Immersion	3 hours
Light Loading	6 hours
Full Loading	1.5 days
Immersion	3 days
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)	

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 Liquid
Base Component Colour	Dark Grey 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 3 hours
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.	

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	18	1
By Volume	7	1

Density

Base	2.55
Activator	0.97
Mixed	2.35

Volume Capacity

425cc/Kg

Solids Content

100%

Slump Resistance

Nil at 1000 microns

Pack Sizes

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

Useable Life

10°C (50°F)	50 – 60 minutes
20°C (68°F)	30 – 40 minutes
30°C (86°F)	15 – 20 minutes

Mechanical Properties

Abrasion Resistance Taber H10 Wheels / 1KG load, Wet	85mg loss / 1000 cycles 0.036cc loss / 1000 cycles
Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75 micron profile)	220kg/cm² (3,125 psi)
Compressive Strength ASTM D695	983kg/cm² (13,960 psi)
Corrosion Resistance ASTM B117	Minimum 5000 hours
Flexural Strength ASTM D790	614kg/cm² (8,710 psi)
Hardness Shore D ASTM D2240	20°C (68°F) – 89 100°C (212°F) – 87 150°C (302°F) – 86 200°C (392°F) – 82 240°C (464°F) - 78
Heat Distortion ASTM D648 At 264psi Fibre Stress	20°C (68°F) Cure – 47°C (117°F) 100°C (212°F) Cure – 126°C (259°F) 150°C (302°F) Cure – 172°C (342°F)

Heat Resistance

Suitable for use in immersed conditions at temperature up to 110°C (230°F).

Resistant to dry heat up to 240°C (464°F) dependent on load.

Chemical Resistance

The product resists attack by a wide variety of aqueous non-acidic solutions and hydrocarbon oils at elevated temperatures and other media at lower temperatures. Refer to the Unique Polymer Systems 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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INNOVATE | REBUILD | ENHANCE

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