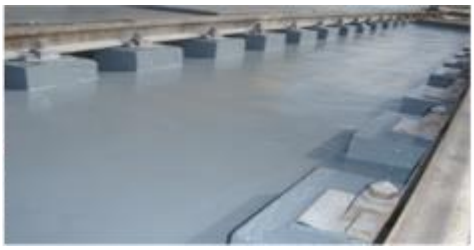
Technical Data Sheet

UPS 403 UCU
Ultimate Epoxy Novolac 75



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UPS 403 UCU Ultimate Epoxy Novolac 75 is a high build solvent free epoxy novolac coating designed to provide outstanding chemical and corrosion protection of steel and concrete structures in continuous immersion conditions up to 90°C (194°F).

UPS 403 UCU is particularly resistant to attack by strong acids including 98% Sulphuric acid and 36% Hydrochloric acid.

Product Features

- Excellent **adhesion** to currently prepared surfaces.
- Excellent resistance to **abrasion** and mechanical damage.
- Excellent **erosion** resistance, suitable for use in aqueous slurries.
- **Chemical Resistance** – 98% Sulphuric acid at 75°C (167°F) & 75% Sulphuric acid at 90°C (194°F). Full Chemical Resistance Chart available on request.

Product Applications

UPS 403 UCU 75 is suitable for the protection of chemical containment and bund areas, tanks, pumps, chemical drains and channels, and pipework.

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

Surface Preparation

Metallic Substrates

All oil and grease must be removed form the surface to be coated 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 an angular abrasive. Once blast cleaned, the surface must be degreased and cleaned using *UPS CLEANER MEK*. All surfaces must be coted 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 hours 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 contaminates have been sweated out of the surface.

Where abrasive blast cleaning is not possible (excluding salt contaminated surfaces) the surface should be roughened by UPS Mini-Blaster, needle gun or grinding. Under these conditions adhesion levels will not be optimal although still satisfactory for most applications.

Concrete Surfaces

Remove any contamination and lightly abrasive blast or scarify taking care not to expose the aggregate before application of *UPS 403 UCU 75*. Allow new concrete to cure for a minimum of 21 days and likewise treat to remove any surface laitance before coating. For optimum results on damp concrete, condition with *UPS 905 DP*. Where the concrete is dry but highly porous, it is recommended to condition with *UPS 909 PP*.

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.

Pour approximately half 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. The material, once fully mixed, has an application time of 15 – 20 minutes at 20°C (68°F). This time will be extended at lower temperatures and shorted at higher ones.

Apply the mixed material onto the prepared surface by brush or applicator tool. This should be in two coats at a target thickness of 300 – 400 microns (12 – 16 mils) per coat. Apply the second coat as soon as possible after the first coat is dry and ***not in excess of 6 hours***. Where the maximum over coating interval is exceeded, the first coat should be sweep blasted and cleaned prior to over coating.

Where small volume mixes are required, the mixing ratio is 5.34:1 by weight or 4:1 by volume.

For spray application, in order to achieve atomization when spraying, heat should be applied to both Base and Activator components as follows;

Base: 50 – 60°C (120 – 140°F)
Activator: 35 – 40°C (95 – 105°F)

Trace heating on lines should be maintained at 45 – 50°C (115 – 120°F).

Dependent on the pump ratio, adjust the compressed air pressure to give a tip pressure of 4200 psi at the tip. Spray using a 21 – 23 thou tip.

Spray apply the material in sufficient passes to achieve a minimum thickness of 500 microns (20 mil) checking the film thickness regularly with a wet film thickness gauge and brushing out the test marks.

Technical Data & Performance

Characteristics

Coverage Rates

4lt (1.25 US Gallon) of fully mixed product will give the following coverage rates -	
11.44m^2 at 350 microns	123ft^2 at 14mil

16lt (4.2 US Gallon) of fully mixed product will give the following coverage rates -	
Brush or Roller Application	
46m^2 at 350 microns	492ft^2 at 14mil
Spray Application	
32m^2 at 500 microns	344ft^2 at 20mil
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	15 -20 minutes
Movement Without Load or Immersion	6 hours
Light Loading	12 hours
Full Loading / Water Immersion	4 days
Chemical Contact	7 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 12 hours at 20°C (68°F), raising the cure temperature progressively to 60 – 80°C (140 – 175°F) for up to 8 hours will result in improved mechanical, thermal and chemical resistance properties.

Appearance

Mixed Material Colour	Red / Grey Thixotropic Liquid
Base Component Colour	Red / 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 6 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	5.34	1
By Volume	4	1

Density

Base	1.40
Activator	1.05
Mixed	1.34

Solids Content

100%

Slump Resistance

Nill at 500 microns

Pack Sizes

This product is available in the following pack sizes;
1LT (0.26 US Gallon), 4LT (1.06 US Gallon), 16LT (4.23 US Gallon)

Useable Life

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

Mechanical Properties

Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75 micron profile)	188kg/cm^2 (2,650 psi)
Compressive Strength ASTM D695	592kg/cm^2 (8,400 psi)
Corrosion Resistance ASTM B117	>1000 Hours
Flexural Strength ASTM D790	480kg/cm^2 (6,800 psi)
Shore D ASTM D2240	20°C – 86 100°C – 84 150°C - 72
Heat Distortion ASTM D648 At 264psi Fibre Stress	20°C Cure – 62°C 100°C Cure – 98°C 150°C Cure – 112°C

Heat Resistance

Suitable for use in immersed conditions at temperatures up to 90°C (194°F) dependent on chemical contact and dry conditions up to 170°C (338°F) dependent on service.

Chemical Resistance

UPS 403 UCU Ultimate Epoxy Novolac 75 (postcured) offers excellent resistance to the following chemicals when tested at the temperatures indicated;

Chemical	Concentration	Temperature
Sulphuric Acid	98%	75°C
Sulphuric Acid	75%	90°C
Sulphuric Acid	50%	90°C
Sulphuric Acid	25%	90°C
Hydrocholric Acid	36%	50°C
Hydrochloric Acid	10%	50°C
Phosphoric Acid	40%	60°C
Phosphoric Acid	20%	60°C
Nitric Acid	5%	50°C
Sodium Hydroxide	40%	90°C
Sodium Chloride	20%	90°C

In addition the product offers excellent resistance to the following chemicals when tested at 20°C;

Chemical	Concentration
Ammonium Hydroxide	30%
Butanol	100%
Benzene	100%
Cyclohexane	100%
Diethanolamine	100%
Ethanol	100%
Ethylene Glycol	100%
Hexane	100%
Hexanol	100%
Methyl Diethanolamine	100%
Propylene Glycol	100%
Octane	100%
Xylene	100%

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.