



UPS 405 EPC Epoxy Protective Coating is a high build solvent free epoxy coating designed for the long-term protection of steel and concrete structures against corrosion, abrasion and chemical attack.

Operating temperatures ranges from -20°C to 60°C (-2°F to 140°F). The two-component product is highly resistant to marine and industrial environments, buried conditions, ground water, effluents, salt water and a wide range of oils and chemicals.

Product Features

- Excellent **adhesion** to currently prepared surfaces.
- Excellent resistance to **abrasion** and mechanical damage.
- **Chemical Resistance** – Suitable for a wide range of industrial chemicals, oils and marine structures.

Product Applications

UPS 405 EPC is typically used within pipelines, tank internals, chemical containment, bund areas, sheet and bearing piles, sumps, chemical intake areas, chemical puts, structural steel, etc.,

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 from 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** or similar type material. 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 405 EPC**. 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.

Transfer the contents of the Activator unit into the Base container and mix thoroughly until a uniform material free of any streaks is achieved. From the commencement of mixing the whole of the material should be used within 20 - 25 minutes at 20°C (68°F). For small volume mixes, the mixing ratio is 2.4:1 by volume.

Apply the mixed material into the prepared surface by brush or roller. This should be in two coats at a target thickness of 250 microns (10 mil) per coat using a practical coverage rate of 3.5m²/litre per coat (37ft² / 0.25 US Gallon). Apply the second coat as soon as possible after the first coat is dry and not in excess of 36 hours. Where the maximum over-coating interval is exceeded, the first coat should be sweep blasted and cleaned prior to over coating.

Where spray application is required, this should be carried out by airless spray using a 60:1 ratio pump with an input pressure of 60 psi and a tip size of 0.025 – 0.03 inches. Warm the base up to 40°C (104°F) and ensure the mixed material is at a temperature of 28 - 36°C (82.4 – 96.8°F). Use as short line as possible to maintain product temperature circulation the product a short time to achieve temperature equilibrium. The practical coverage rate for spraying is 1.5m² / litre for a 500 micron coating (20 mil).

Technical Data & Performance

Characteristics

Coverage Rates

3.4lt (0.9 US Gallon) of fully mixed product will give the following coverage rates -	
13.6m ² at 250 microns	145ft ² at 10mil

16lt (4.2 US Gallon) of fully mixed product will give the following coverage rates -	
64m ² at 250 microns	688ft ² at 10mil
<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 – 25 minutes
Movement Without Load or Immersion	3 – 4 hours
Light Loading	6 – 8 hours
Full Loading / Water Immersion	3 days
Chemical Contact	5 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>	

For Optimum Performance

After an initial curing period of at least 4 hours at 20°C (68°F), raising the cure temperature progressively to 40 – 50°C (105 – 122°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	High Structured Thixotropic Liquid
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 36 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	4	1
By Volume	2.4	1

Density

Base	1.78
Activator	1.04
Mixed	1.56

Solids Content

100%

Slump Resistance

Nil at 400 microns

Pack Sizes

This product is available in the following pack sizes:
3.4LT (0.9 US Gallon), 16LT (4.23 US Gallon)

Useable Life

10°C (50°F)	90 minutes
20°C (68°F)	60 minutes
30°C (86°F)	30 minutes

Mechanical Properties

Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75 micron profile)	194kg/cm ² (2,750 psi)
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Cathodic Disbondment (British Gas CW6 and FW0028 Draft Methods)	Pass
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Compressive Strength ASTM D695	649kg/cm ² (9,200 psi)
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Corrosion Resistance ASTM B117	Minimum 5,000 hours
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Flexibility (British Gas FW0028 Draft Method)	3% Strain at 20°C – Pass 2% Strain at 5°C – Pass 1% Strain at 0% - Pass
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Flexural Strength ASTM D790	522kg/cm ² (7,400 psi)
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Hardness Shore D ASTM D2240	80
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Water Resistance (British Gas CW6 and FW0028 Draft Methods)	Pass at 50°C
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Heat Resistance

Suitable for use in immersed conditions at temperatures up to 60°C (120°F) dependent on chemical contact and dry conditions up to 200°C (392°F) dependent on load.

Chemical Resistance

The product resists attack by a wide variety of inorganic acids, alkalies, salts and organic media, including; Aviation Fuel, Brine, Crude Oil, Ethylene Glycol, Hydrochloric Acid (20%), Hydraulic Oil, Naphtha, Petrol, Sodium Hydroxide, Sulphuric Acid (20%).

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.