

TECHNICAL DATA SHEET

UPS 402 ENHT EPOXY HIGH TEMPERATURE



UNIQUE POLYMER SYSTEMS

INNOVATE | REBUILD | ENHANCE

UPS 402 ENHT Epoxy High Temperature is a high build solvent-free epoxy novolac coating.

Designed to provide outstanding abrasion and chemical protection of steel and concrete structures at elevated temperatures.

Product Information

Product Features

- The coating contains hardened ceramic particles making it ideal for highly abrasive environments with strong industrial chemicals and acids.
- Can be applied by brush, roller and airless spray.
- 100% solids high performance epoxy novolac.
- Excellent abrasion resistance.
- Resistant to high acidic slurries at elevated temperatures.

Product Applications

UPS 402 ENHT is suitable for use on;

Tank lining, Internal pipe surfaces, process vessels, sumps, chemical drains and channels, pumps and valves etc.



Apply by Airless spray



Apply by Roller



Apply by Brush



Wet Heat Resistance up to 90°C (194°F).

Surface Preparation

Metallic surfaces

1. All oil and grease must be removed from the surface using an appropriate cleaner such as UPS 9918 MEK Cleaner.
2. All surfaces must be abrasive blasted to **ISO 8501/4 Standard SA2.5 (SSPC SP10 / NACE 2)** minimum blast profile of 75 microns (3mil) using an angular abrasive.
3. Once blast cleaned, the surface must be degreased and cleaned using UPS 9918 MEK or similar type material.
4. All surfaces must be coated before flash rusting or oxidation occurs.

PLEASE NOTE: For salt contaminated surfaces the area must be abrasive blast cleaned as above, as well as left for 24 hours to allow any ingrained salts to come to the surface. After the 24-hour period the surface must be washed with UPS 9918 MEK Cleaner prior to brush blasting to remove the surface salts. Repeat this process until all ingrained contaminants have been sweated out of the surface.

Concrete

1. Pressure wash surface if contaminated.
2. When surface is dry, abrasive blast lightly (take care not to expose aggregate).
3. Clean dust and debris from the surface and prime using UPS 909 PP.
4. Apply UPS 909 PP at 150 microns WFT and leave to cure for 3 hours (20°C) before overcoating.

PLEASE NOTE - Allow new concrete to cure for a minimum of 21 days, likewise, treat to remove any surface laitance and check the moisture content of the concrete is 8% or below before coating.

Mixing

Prior to mixing please ensure the following:

1. The base component is at a temperature between 15-25°C (60-77°F).
2. The ambient & surface temperature is above 10°C (50°F).
3. The ambient & surface temperatures are not less than 3°C (37.4°F) above the dew point.

Then proceed with mixing the product:

1. Pour the activator unit into the base container
2. Using an electric paddle mixer, mix the 2 components until they are free of any streaks.
3. From commencement of mixing the material should be used within 45 minutes at 20°C (68°F).

Application

Brush (synthetic) or Roller applications -

1. Pour mixed product into a paint tray.
2. Using a 50mm (2") wide synthetic brush, stripe coat surface edges, joints, corners and equipment with a 100mm (4") wide stripe, at a wet film thickness of 500 microns (20 mil).
3. Once stripe coat has cured and can be over coated, apply 1st coat at same thickness.
4. When 1st coat has cured, after approx. 8 hours at 20°C (68°F) apply a further coat as above.

Spray Application

1. Spray application should be applied using an airless spray with a 60:1 ratio pump with attached hot water pump to heat the spray lines.
2. The temperature around the spray lines should be kept at 25-35°C (77-95°F).
3. Spray using 3500psi with a tip size of 19-23 thou.
4. Use as short a line as possible to maintain product temperature (maximum 8 meters).
5. Circulate the product for a short time to achieve temperature equilibrium.
6. Apply 1st coat at a wet film thickness of 500 microns (20 mil).
7. When 1st coat has cured, after approx. 8 hours at 20°C (68°F) apply a further coat as above.

Technical Data & Performance

Coverage Rates

4 LTR (1.05 US Gallon) of fully mixed material will give the following coverage rates -

8m² at 500 microns 85ft² at 20 mil

16 LTR (4.2 US Gallon) of fully mixed material will give the following coverage rates -

32m² at 500 microns 343ft² 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.

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Drying & Cure Times

At 20°C (68°F) allow the applied materials to harden for the times shown below before subjecting them to the conditions indicated. These times will be extended at lower temperatures and reduced at higher temperatures.

Useable Life	45 minutes
Minimum overcoating time	8 hours
Maximum overcoating times	24 hours
Water/sea water immersion	4 days
Chemical immersion	7 days

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	Dark Grey or Red thixotropic liquid
Base Component Colour	Dark Grey or Red highly structured thixotropic liquid
Activator Component	Amber Fluid

Available Colours

Dark Grey or Red

Over Coating Times

Minimum	The applied material can be over coated as soon as it is touch dry (approx. 8 hrs.)
Maximum	The over coating time should not exceed 24 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.

Mixing Ratio

Component	Base	Activator
By Weight	5	1
By Volume	3.5	1

Density

Base	1.55
Activator	1.05
Mixed	1.43

Solids Content

100%

Slump Resistance

Nil at 650 microns

Useable Life

10°C (50°F)	90 minutes
20°C (68°F)	45 minutes
30°C (86°F)	22 minutes
40°C (104°F)	11 minutes

Pack Sizes

4LTR (1.05 US Gallon)	16LTR (4.2 US Gallon)
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Shelf Life

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

Mechanical Properties

Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75-micron profile)	196kg/cm ² (2,790 psi)
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Abrasion Resistance Taber CS17 Wheels / 1KG Load	64mg loss / 1000 cycles 0.08cc loss / 1 000 cycles
Compressive Strength ASTM D695	790kg/cm ² (11,235 psi)
Corrosion Resistance ASTM B117	Minimum 5000 hours
Flexural Strength ASTM D790	820kg/cm ² (11,600 psi)
Hardness Shore D ASTM D2240	20°C (68°F) – 86 100°C (212°F) – 85 150°C (302°F) - 72
Heat Distortion ASTM D648 At 264psi Fibre Stress	20°C (68°F) Cure – 60°C (140°F) 100°C (212°F) Cure – 98°C (208°F) 150°C (302°F) Cure – 112°C (235°F)

Heat Resistance

Suitable for use in immersed conditions at temperatures up to 90°C (194°F).

Resistant to dry heat up to 200°C (392°F) dependent on load.

Chemical Resistance

The product demonstrates resistance to a wide variety of inorganic acids, alkalis, salts and organic media.

Chemical	Concentration	Temperature
Sulphuric Acid	98%	75°C
Acetic Acid	10%	50°C
Chromic Acid	10%	75°C
Hydrobromic Acid	40%	50°C
Hydrochloric Acid	36%	75°C
Benzene	100%	60°C
Phosphoric Acid	75%	90°C
Butanol	100%	50°C
Nitric Acid	10%	50°C
Ammonia Hydroxide	30%	80°C
Ethanol	100%	60°C
Toluene	100%	60°C
Xylene	100%	60°C
Steam Out	100%	200°C

Global Availability

UPS 402 ENHT Epoxy Novolac High Temperature is available from a network of Global Distributors for prompt delivery. For further details and the location of your local distributor, please contact Unique Polymer Systems on: +44(0) 1531 636300 | sales@uniquepolymersystems.com

Technical Service

Complete technical assistance is available. Please contact Unique Polymer Systems with your requirements: +44(0) 1531 636300 | sales@uniquepolymersystems.com

The products that we supply are for professional use only, it is your responsibility to read the technical data sheets before you place an order and prior to application of the product.

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

Warranty: Unique Polymer Systems warrants that the performance of the product supplied will conform 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 accepts no liability arising out of the use of this information or the product described herein.