TECHNICAL DATA SHEET
UPS 115 XL EXTENDED LIFE METAL REPAIR PASTE

UNIQUE POLYMER SYSTEMS
INNOVATE | REBUILD | ENHANCE

UPS 115 XL EXTENDED LIFE METAL REPAIR PASTE is a two-component solvent free epoxy metal repair compound designed to fill surface erosion & corrosion on metallic surfaces. The product has an extended usable life making it ideal for repairs in warm climates.

Product Information

Product Features
Apply to mechanically & abrasive blast cleaned surfaces
High mechanical adhesion to metal substrates
Aplly at thicknesses upto 25mm (1")
Useable life of 60minutes at 20°C (68°F)

Product Applications
Suitable for emergency repairs to part of planned maintenance to equipment such as;

Worn or damaged pump shafts, cracked pump valve casings, scored hydraulic rams, worn bearing housings, damaged flanges, leaking tank seams, worn keyways, cracked engine blocks, damaged hulls on vessels, eroded rudder surfaces, corroded bow thruster tunnels, cold bonding steel plate.

The long working life of the material also makes it ideal for complex shimming operations.

Surface Preparation Manual – Mechanical – Abrasive Blast

Useable Life 60 minutes

Suitable for immersed conditions up to 60°C (140°F)

Cost Effect Solution

Surface Preparation
Metallic Substrates – Mechanical abrasion
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 mechanically abraded using handheld grinders to ISO 8501/4 ST3 (SSPC SP3 ST3).
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.

Metallic Substrates – Abrasive blast cleaning

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 mentioned 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. This process must be repeated until all ingrained contaminants have been sweated out of the surface.

On cracked surfaces, the cracks should be stabilized by drilling the termination points and the cracks '*veed*' out and drilled, tapped and bolted every 75-100mm (3-4").

Where abrasive blast cleaning is not possible (excluding salt contaminated surfaces) the surface should be roughened by UPS MiniBlaster, Needle Gun or Grinding.
In areas where the product should not adhere, a thin layer of UPS 9912 Release Agent should be applied taking care not to contaminate other areas.

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 5°C (41°F).

Then proceed with mixing the product:
1. Mix all Base and Activator together on a clean plastic mixing surface
2. Using a spatula, mix the 2 components until a uniform material free of any streaks is achieved. Ensuring there is no unmixed material left on the spatula or mixing board.
3. From the commencement of mixing the whole of the material should be used within 60 minutes at 20°C (68°F)

PLEASE NOTE: This product can also be part mixed. For part mixing, using a spatula place 3 equal measures from the Base unit onto a clean plastic mixing surface. Clean the spatula thoroughly and then take 2 equal measures from the Activator unit and place alongside the Base measures. Mix as above.

Application
Spatula or applicator tool applications -
1. Apply the material to the prepared surface, ensure the product is pressed into any holes, scars or cracks and profile the repair to a smooth finish using a gloved hand.

PLEASE NOTE: Where a machined finished is required, the repair area should be overfilled by up to 1.5mm (60mil). Once hardened, machine using a surface cutting speed of 200ft /minute and a feed rate of 50 thou /rev and 10 thou /rev for finishing.

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Technical Data & Performance

Coverage Rates

4KG (8.8LB) of fully mixed product will give the following coverage rates -	
1.624m² at 1mm	17.2ft² at 40mil
0.812m² at 2mm	8.8 ft² at 80mil
0.540m² at 3mm	5.8ft² at 1/8

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) allow the applied materials to harden for the times shown below before being subjected to the conditions indicated. These times will be extended at lower temperatures and reduced at high temperatures:

Useable Life	60 minutes
Minimum Machining Time	4 hours
Maximum Overcoating Time	12 hours
Full Cure	6 days

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	Dark Grey Paste
Base Component Colour	Dark Grey Paste
Activator Component	Light Grey Paste

Available Colours

Grey

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 12 hours at 20°C (68F°)

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	1.67	1
By Volume	3	2

Density

Base	2.70
Activator	2.40
Mixed	2.58

Volume Capacity

388cc/Kg

Solids Content

100%

Slump Resistance

Nill at 25mm

Useable Life

20°C (68°F)	60 minutes
30°C (86°F)	30 minutes

Pack Sizes

4KG (8.8LB)

Shelf Life

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

Mechanical Properties

Abrasion Resistance	Taber CS17 Wheels/1Kg load 22mm³ loss/1000 cycles
Adhesion Tensile Shear ASTM D1002 (Abrasive Blasted Mild Steel with 75-micron profile)	185kg/cm² (2,630 psi)
Pull off Adhesion To ASTM D4541 on abrasive blasted mild steel with 75-micron profile	244 kg/ cm² (3480 psi)
Compressive Strength ASTM D695 Tested	1075kg/cm² (15,300 psi)
Flexural Strength ASTM D790 Tested	703kg/cm² (10,000 psi)
Hardness Rockwell R to ASTM D790	100

Heat Resistance

Suitable for long-term water immersion at temperatures up to 60°C (140°F).

Resistant to dry heat in excess of 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. Refer to the Unique Polymer Systems Technical Centre for advice.

Global Availability

UPS 115 XL EXTENDED LIFE METAL PASTE 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 I sales@uniquepolymersystems.com

Technical Service

Complete technical assistance is available. Please contact Unique Polymer Systems with your requirements:
+44(0) 1531 636 300 I sales@uniquepolymersystems.com