

TECHNICAL DATA SHEET

UPS 105 EG THISTLEBOND METAL REPAIR PASTE

IMPA 21 22 11



UNIQUE POLYMER SYSTEMS

INNOVATE | REBUILD | ENHANCE

UPS 105 EG ThistleBond Metal Repair Paste is a high-performance multi-purpose synthetic metal repair compound specially developed for metal repairs requiring excellent mechanical strength combined with easy machining properties.

Product Information

Product Features

- Good machining characteristics with good mechanical properties.
- Advance solvent free epoxy technology.
- Designed for application by trowel or spatula at thicknesses up to 12mm (472mil).
- No shrinkage.
- Fully machinable after 2 hours.
- Outstanding cold weld capabilities.
- High build capability – Up to 25mm without slumping.
- Excellent adhesion to correctly prepared metal surfaces.
- Suitable for all metallic surfaces.

Product Applications

UPS 105 EG can be applied to any damaged component in one easy application and is ideal for repairing;

Worn or damaged pump shafts, cracked pump or valve casings, scored hydraulic rams, worn bearing housings, damaged flanges, leaking tank seams, worn keyways, cracked engine blocks, etc.



Surface Preparation
Manual –
Mechanical –
Abrasive Blast



2 hours to
Machining



Dry Heat
Resistance
in Excess of
200°C
(392°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 the UPS Miniblaster or equivalent handheld grinders, to ISO 8501/4 ST3 (SSPC SP3 ST3)
3. Once abraded the surface must be degreased and cleaned using UPS 9918 MEK Cleaner.
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 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.

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 Mini-Blaster, Needle Gun or Grinding.

In areas where the product should not adhere, a thin layer of UPS 9921 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 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. 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.
3. From the commencement of mixing the whole of the material should be used within 25-30 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 1 equal measure 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.

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.

Technical Data & Performance

Coverage Rates

1KG (2.2LB) of fully mixed product will give the following coverage rates -

0.406m ² at 1mm	4.3ft ² at 40mil
0.203m ² at 2mm	2.2ft ² at 80mil
0.135m ² at 3mm	1.45ft ² at 1/8"

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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 subjecting them to the conditions indicated. These times will be extended at lower temperatures and reduced at high temperatures:

Useable Life	30 minutes
Movement Without Load or Immersion	1.5 hours
Machining & Light Loading	2 hours
Full Loading	2 days
Immersion	3 days

For Optimum Performance

After an initial curing period of at least 4 hours at 20°C (68°F), raising the cure temperature progressively from 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	Mid 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 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.

Mixing Ratio

Component	Base	Activator
By Weight	5	1
By Volume	3	1

Density

Base	2.70
Activator	1.70
Mixed	2.46

Volume Capacity

406cc/Kg

Solids Content

100%

Slump Resistance

Nil at 2.0cm

Useable Life

10°C (50°F)	50 – 60 minutes
20°C (68°F)	25 – 30 minutes
30°C (86°F)	15 – 20 minutes

Pack Sizes

1KG (2.2LB) 3KG (6.6LB)

Shelf Life

5 years if unopened and stored 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)	185kg/cm ² (2,630 psi)
Compressive Strength ASTM D695	1,075kg/cm ² (15,300 psi)
Corrosion Resistance ASTM B117	Minimum 5000 hours
Flexural Strength ASTM D790	703kg/cm ² (10,000 psi)
Hardness Rockwell R ASTM D785	100
Heat Distortion ASTM D648 At 264psi Fibre Stress	20°C (68°F) Cure – 58°C (136°F) 100°C (212°F) Cure – 98°C (208°F)

Heat Resistance

Suitable for long-term water immersion at temperatures up to 70°C (158°F) and intermittent contact with pressured steam up to 120°C (248°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 105 EG ThistleBond Metal Repair 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 | 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

Official Approvals



Certificate No.
58535/AO BV



USDA compliant for incidental food contact.

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 always observed 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.