UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER
HIGH-PERFORMANCE EPOXY FOR DURABLE PIPE REPAIRS & COMPOSITE WRAPPING

UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER is a high-performance, solvent-free epoxy system designed for onsite repairs of metal, wood, glass, and synthetic materials. It can be applied to manually prepared surfaces to form a GRP layer around leaking pipes (UPS COMPOSITE WRAPPING), providing long-term protection. When combined with UPS THISTLEBOND GLASS TAPE, the system offers 10+ years of durability for damaged, leaking, or porous pipe surfaces.

This versatile epoxy resin is also ideal for injection applications, pipe wrapping, and gap filling, delivering corrosion protection and high-strength bonding for dissimilar materials.

Key Features

- Provides corrosion protection for pipework
- Pressure resistant up to 300 psi
- Suitable for gap filling on prepared surfaces
- Compatible with glass fibre fabrics for composite repairs

TYPICAL APPLICATIONS

UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER is a high-performance, two-component, solvent-free epoxy system designed for a range of industrial applications.

It is ideal for injection, bonding, gap filling, and pipe wrapping, offering exceptional adhesion and long-term protection against erosion and corrosion. This system effectively bonds dissimilar materials and provides a durable seal on mechanically or abrasive blast-cleaned surfaces, ensuring structural integrity in challenging environments.

Key Applications:

- **Injection Applications** – Fills voids and reinforces weakened structures.
- **Bonding Dissimilar Materials** – Creates high-strength adhesion between metals, composites, and other materials.
- **Gap Filling** – Ensures complete coverage and structural reinforcement.
- **Pipe Wrapping** – Protects pipe surfaces from corrosion and mechanical wear.
- **Encapsulation of Problem Pipework (1"–42" Diameter)** – Provides long-term reinforcement for damaged or deteriorating pipes.

APPLICATION GUIDE

Phase 1: Surface Preparation

Proper surface preparation is essential to ensure optimal adhesion and long-term performance of UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER. The following methods are recommended based on the type of metallic substrate.

Metallic Substrates

Abrasive Blast Cleaning (Recommended for Best Performance)

1. Remove all oil and grease using an appropriate cleaner such as MEK.
2. Abrasive blast the surface to ISO 8501/4 Standard SA2.5 (SSPC SP10/NACE 2) with a minimum blast profile of 75 microns, using an angular abrasive.
3. After blasting, degrease and clean the surface using MEK or a similar solvent.

Manual Abrasion (For Minor Repairs or When Blasting is Not Feasible)

1. Use a wire brush or coarse sandpaper to abrade the surface.
2. Remove all loose material and contaminants as thoroughly as possible.
3. Clean the surface with MEK or an equivalent degreasing solvent.

Mechanical Abrasion (Alternative to Blast Cleaning for Moderate Surface Preparation)

1. Utilize a handheld mechanical grinder with a coarse grinding pad or rotary wire brush.
2. Remove all loose material and surface contaminants.
3. Avoid excessive polishing; instead, create a cross-hatch pattern for better adhesion.
4. Degrease and clean the surface with MEK or a similar solvent.

For optimal mechanical preparation, the MBX Bristle Blaster is recommended, as it effectively removes contaminants while creating an ideal surface profile for bonding.

Phase 2: Product Preparation

Before mixing UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER, ensure the following conditions are met to achieve optimal performance:

- The base component must be at a temperature between 15-25°C (60-77°F).
- The ambient and surface temperature must be above 5°C (41°F).

Important: For the best adhesion and durability, the repair surface should be abrasive blast cleaned. Inadequate surface preparation may compromise the product's performance and longevity.

Phase 3: Product Mixing

For optimal performance, ensure thorough mixing of the UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER by following these steps:

1. Combine Components – Transfer the entire Activator unit into the Base container.
2. Mix Thoroughly –
    a. For 300-450g units, use the provided spatula.
    b. For 6kg units, use an electric paddle mixer.
    c. Continue mixing until a uniform, streak-free consistency is achieved.
3. Usage Time – Once mixed, the material must be applied within 25 minutes at 20°C (68°F).

Note: Higher temperatures will reduce the working time, while lower temperatures may extend it.

Phase 4: Product Application

Injection Applications

1. Dispense the mixed UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER into a one-component cartridge (maximum capacity: 1 litre / 0.25 US gallons).
2. Use a single-component, air-fed injection pump for controlled application.

3. Inject the material into gaps to bond dissimilar materials and reinforce structures.

Bonding Dissimilar Materials

1. The mixed epoxy is suitable for bonding concrete, plastic, metal, and other materials.
2. Apply the material using a brush or applicator tool.
3. Maintain a wet film thickness of 1mm–4mm (40 mil–3/16") for optimal adhesion.
4. Suitable for encapsulation applications, providing structural integrity and corrosion protection.

Encapsulation Using Technical Fabrics

UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER can be reinforced with glass tape, glass cloth, chop strand matting, and linen scrim to enhance durability and structural integrity. The choice of technical fabric depends on the specific repair requirements.

Layer Pipe Wrapping

1. For reinforcing pipe surfaces, follow these steps:
2. Apply UPS 19000 RH at 1mm (40 mil) WFT.
3. Wrap 50mm (19007) or 100mm (19009) Glass Tape around the pipe with a 50% overlap.
4. Apply another 500 microns (20 mil) WFT of UPS 19000 RH.
5. Wrap a second layer of Glass Tape with a 50% overlap, ensuring the return wrap follows in the opposite direction.
6. Repeat step 2 and finish with a final 500 microns (20 mil) coat of UPS 19000 RH for a strong, protective seal.

Layer Pipe T-Joint Repair

1. For repairing T-joint connections, use the following method:
2. Apply UPS 19000 RH at 1mm (40 mil) WFT.
3. Cut and lay glass tape strips over the area where the pipes meet.
4. Ensure at least three layers of UPS 19000 RH and Glass Tape are applied around the joint.
5. Coat the entire repair area with another 1mm (40 mil) WFT of UPS 19000 RH.
6. Wrap 50mm or 100mm Glass Tape around the pipe with a 50% overlap.
7. Repeat step 2 and finish with a final 500 microns (20 mil) coat of UPS 19000 RH to seal the repair.
8. This encapsulation process ensures a durable, high-strength composite layer for pipe repairs and reinforcement.

APPLICATION AT A GLANCE

Step 1 - Preparation

Ensure you have the following materials and tools:
1 x Base unit
1 x Activator unit
1 x Spatula
1 x Brush
1 x 19007 or 19009 Glass Tape

Step 2: Mixing

- Thoroughly mix the Base and Activator using the provided spatula.
- Ensure all material, including any unmixed portions along the container edges, is fully blended.

Step 3: Initial Application

- Using a brush, apply the mixed epoxy resin at 1mm WFT (Wet Film Thickness) to the prepared pipe surface.

Step 4: Anchor Point Creation

- Wrap the glass tape around the pipe three times to establish an anchor point for the repair.

Step 5: Pipe Wrapping

- Continue wrapping the glass tape along the length of the pipe, ensuring a 50% overlap for maximum strength.

Step 6: Termination of First Wrap

- Once the entire length of the pipe is wrapped, apply another layer of mixed epoxy resin to the surface.
- Wrap the Glass Tape three times around the pipe to terminate the first wrap.

Step 7: Second Layer Application

- Apply UPS 19000 RH at 500 microns WFT over the pipe wrap.
- Repeat the glass tape wrapping process, ensuring a 50% overlap.

Step 8: Final Wrapping Layer

- After completing the second wrap, apply another 500 microns WFT of UPS 19000 RH.
- Repeat the glass tape wrapping process for a third and final layer.

Step 9: Final Thickness & Curing

- The completed system will achieve a dry film thickness of 2-5mm, depending on the application of UPS 19000 RH.

Step 10: Curing Time

- Allow the repair system to cure for 24 hours at 20°C (68°F) before placing the pipe back into service.
- This process ensures a durable, high-strength composite wrap for long-term pipe protection and structural integrity.

TECHNICAL DATA & PERFORMANCE Characteristics

Appearance

Base	White Gel
Activator	Light Yellow Gel
Mixed	Opaque Gel

Solids Content

100%

Volume Capacity

860cc/Kg

Sag Resistance

Nill at 3mm

Density

Base	1.15
Activator	1.15
Mixed	1.15

Mixing Ratio

Component	Base	Activator
By Weight	2	1
By Volume	2	1

Shelf Life

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

Coverage Rates

225GM (0.5LB) of fully mixed product will give the following coverage rates -	
0.375m^2 at 500 microns	3.98ft^2 at 20mil
0.1875m^2 at 1mm	2.02ft^2 at 40mil

6KG (13.23LB) of fully mixed product will give the following coverage rates -	
10m^2 at 500 microns	106ft^2 at 20mil

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$5m^2$ at 1mm	$54ft^2$ at 40mil
Please note that the coverage rates provided are theoretical and do not account for the profile or condition of the surface being repaired.	

Cure Times

Useable Life

10°C (50°F)	50 minutes
20°C (68°F)	25 minutes
30°C (86°F)	12.5 minutes
40°C (104°F)	6 minutes

Touch Dry

10°C (50°F)	4 hours
20°C (68°F)	2 hours
30°C (86°F)	1 hour
40°C (104°F)	30 minutes

Hard Dry

10°C (50°F)	12 hours
20°C (68°F)	6 hours
30°C (86°F)	3 hours
40°C (104°F)	90 minutes

Full Cure

10°C (50°F)	6 days
20°C (68°F)	3 days
30°C (86°F)	1.5 days
40°C (104°F)	18 hours

Chemical Resistance
The product is resistant to a wide range of inorganic acids, alkalis, salts, and organic media. For more detailed information, please refer to the Unique Polymer Systems Technical Centre for advice.

Pack Sizes
This product is available in the following pack sizes:

225GM
300GM
450GM
6KG

Mechanical Properties

Compressive Strength ASTM D695	**1,034kg/cm² (14,700 psi)**
Corrosion Resistance ASTM B117	**Minimum 5,000 hours**
Flexural Strength ASTM D790	**912kg/cm² (13,000 psi)**
Hardness Rockwell R ASTM D785	**85**
Tensile Shear Adhesion ASTM D1002 (Abrasive Blasted Mild Steel with 75-micron profile)	**148kg/cm² (2,100 psi)**
Pull Off Adhesion ASTM D4541 (Abrasive Blasted Mild Steel with 75-micron profile)	**244kg/cm² (3,480 psi)**
Heat Distortion ASTM D648 at 264psi Fibre Stress	20°C (68°F) Cure – 70°C (158°F)
Heat Resistance	Suitable for use in immersed conditions at temperature up to 70°C (158°F)
	Resistant to dry heat up to 150°C (302°F) dependent on load

Approvals
Approved by **BUREAU VERITAS** for Surface Protection and Cold Repair Products applied to Marine Vessels. Certificate No. 58535 / A0 BV.

Food Contact USDA compliant for incidental food contact

IMPA Registration Code 81 22 16

Global Availability
UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER 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 manufactured and supplied in accordance with an ISO 9001 registered Quality Management System.

Warranty
Unique Polymer Systems warrants that the performance of the supplied product will conform to the typical descriptions provided in this specification, provided the material is stored correctly and used in accordance with the procedures outlined in the Technical Data Sheet.

Health & Safety
Please ensure good practices are followed at all times during the mixing and application of this product. Protective gloves and other recommended personal protective equipment must be worn. Before mixing and applying the material, please ensure you have read and fully understood all relevant information.

Legal Notice
The data provided in this Product Technical Data Sheet is for informational purposes only and is believed to be accurate at the time of issuance. However, we cannot assume responsibility for results obtained by others whose methods are beyond our control. It is the customer's responsibility to assess the suitability of the product for their intended use. Unique Polymer Systems accepts no liability arising from the use of this information or the product described herein.

About Use
Unique Polymer Systems is a global leader in advanced polymer composites and protective coatings, offering solutions for erosion, corrosion, and wear. With over 30 years of experience, we serve industries including Oil & Gas, Petrochemical, Marine, Paper & Pulp, Water, Power Generation, and Chemicals. Our focus is on providing reliable products and technical support through a global network of distributors.