

# TECHNICAL DATA SHEET

## UPS 19000 RH THISTLEBOND STANDARD RESIN & HARDENER

### IMPA 81 22 16



## UNIQUE POLYMER SYSTEMS

INNOVATE | REBUILD | ENHANCE

**UPS 19000 RH ThistleBond Standard Resin & Hardener** is a high performance, solvent free epoxy system designed for onsite repairs to metal, wood, glass and synthetic materials.

The mixed Resin & Hardener can be applied to manually prepared surfaces to create a GRP Layer around the entire circumference of leaking pipe surfaces (UPS Composite Wrapping). By incorporating layers of high strength woven glass fibre (UPS 19007/9 GT) the pipe repair systems proven to give 10 years+ protection to damaged leaking or porous pipe surfaces.

### Product Information

#### Product Features

- Excellent adhesion to both blast cleaned and mechanically prepared surfaces.
- Excellent even under seawater immersion conditions.
- Unaffected by short-term contact with industrial chemicals.

#### Product Applications

Suitable for applications such as;

*Encapsulating long lengths of large diameter pipework, bonding dissimilar materials and injection into voids and cracks from 1 to 20mm (40 to 788 mil).*

#### Surface Preparation

1. All oil and grease must be removed from the surface using an appropriate cleaner such as UPS 9918 MEK Cleaner.
2. Where possible abrasive blast the surface 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.

**Metal Surfaces** – Follow surface preparation as above to roughen the surface. Where grinding or needle gunning is used, the surface should be cross-scored to improve adhesion.

**GRP and Wooden Surfaces** – All loose or rotten material must be removed to a sound edge. Flaking paint or lacquer scraped clear and sound paintwork thoroughly sanded to provide an effective key.

**PLEASE NOTE** - Where it is not possible to clean the surface thoroughly the application of *UPS 19003 A&B Cement* could possibly improve the bond of the final repair.

#### 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 (6°F) above the dew point.

*Then proceed with mixing the product:*

1. The Base component should be poured into a suitable mixing container and the Activator added.
2. 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:** Small quantities can be mixed by using 2 parts base to 1 part activator by volume or weight.

#### Application

Stiff brush or roller applications -

1. Apply the material to the prepared surface, ensure the product uniformly coats the surface, taking care to avoid excessive build up and ponding.
2. On rough, pitted surfaces the product should be worked into the surface to ensure complete wetting of the substrate.

**PLEASE NOTE** - To maximize the strength of the repair, it is essential that a complete coating of the resin mix is applied prior to the laying up of each layer of glass fabric. By doing so, a homogeneous glass fibre resin laminate will be achieved.

**Laying up of Glass Fabrics** – When using Tape, this should be wound with a 50% overlap and care must be taken to ensure that it is applied evenly and flatly. When applying multiple layers of Tape each subsequent layer should be applied in the reverse direction and the Tape should not be cut at the end of each pass.

**PLEASE NOTE** – It will sometimes be difficult to keep the winding smooth, e.g. when the repair is on a bend in a pipe. In these instances, cut short lengths of Tape and lap them one on the other.

**Application of Sealer Filler Resin Mix** – Sealer Filler is a non-asbestos powder supplied with sufficient material to add to one unit of *UPS 19000 RH*. The Sealer Filler should be added to the pre-mixed UPS 19000 RH mix and stirred until dispersed. The resultant paste should be applied to the repair, as required, using a troweling tool. The mix can be applied to operate at temperatures up to approximately 180°C (356°F).

**PLEASE NOTE** – When it is applied as a pre-coat, prior to carrying out a repair, it will help insulate the resin laminate from the operating temperatures of the parent body.

**Application of Fairing Compound Resin Mix** – Fairing Compound is a filler which consists of glass fibre strands supplied with sufficient material to add to one unit of *UPS 19000 RH*. The methods of mixing application are similar to the Sealer Filler Resin Mix. The purpose of this mix is to fill in undulations prior to the application of repair.

#### Injection Applications

Once the material has been mixed, dispense the product into a one component cartridge up to 1lt volume (0.25 US Gallon). Using a single component injection pump, air fed, the material can be injected into gaps to bond concrete to metal, metal to metal, plastic to concrete, plastic to metal.

#### Encapsulation Using Technical Fabrics

The mixed product can be used in conjunction with Glass Tape, Glass Cloth, Chop Stand Matting and Linen Scrim. The use of a technical fabric is dependent on the type of repair to be performed. Typically, the following repairs are performed with these materials;

#### 3 Layer Pipe Wrapping

1. Apply *UPS 19000 RH* at 1mm (40mil) WFT.
2. Wrap 50/100mm Glass Tape around pipe with 50% overlap.
3. Apply *UPS 19000 RH* at 1mm (40mil) WFT.
4. Wrap 50/100mm Glass Tape around pipe with 50% overlap.
5. Repeat Step 2, and finish with a 500 microns (20mil) coat of *UPS 19000 RH*.

#### 3 Layer Pipe T-Joint

1. Apply *UPS 19000 RH* at 1mm (40mil) WFT.
2. Cut the Glass Tape into strips and lay over the surface where the 2 pipe meet (Ensure there are 3 layers of *UPS 19000 RH* and Glass Tape around the joint area).
3. Once all the T-Joint area has been coated, apply *UPS 19000 RH* at 1mm (40mil) WFT to all the repair area.
4. Wrap 50/100mm Glass Tape around the pipe with a 50% overlap.

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- Repeat Step 2, and finish with a 500 microns (20mil) coat of UPS 19000 RH.

#### Leaking Tank Seams

- Apply UPS 19000 RH at 1mm (40mil) WFT, ensure the repair area is oversized by 300mm (8") in all directions.
- Cut a section of Glass Fibre Matting to cover the leaking seam.
- Apply UPS 19000 RH at 1mm (40mil) onto the Glass Fibre Matting.
- Apply a 2<sup>nd</sup> layer of Glass Fibre Matting.
- Seal the repair with a final coat of UPS 19000 RH at 500 microns (20mil).

### Technical Data & Performance

#### Coverage Rates

**225GM (0.5LB) of fully mixed product will give the following coverage rates -**

<b>0.50m<sup>2</sup> at 500 microns</b>	5.3ft <sup>2</sup> at 20mil
<b>0.25m<sup>2</sup> at 1mm</b>	2.7ft <sup>2</sup> at 40mil

*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 material 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.

<b>Useable Life</b>	25 minutes
<b>Movement Without Load or Immersion</b>	2 hours
<b>Light Loading</b>	16 hours
<b>Full Loading</b>	5 days

#### Appearance

<b>Mixed Material Colour</b>	Opaque
<b>Base Component Colour</b>	White Gel
<b>Activator Component</b>	Light Yellow Gel

#### Available Colours

Amber

#### Over Coating Times

<b>Minimum</b>	The applied material can be over coated as soon as it is touch dry
<b>Maximum</b>	The over coating time should not exceed 8 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.*

#### Shelf Life

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

#### Mixing Ratio

Component	Base	Activator
<b>By Weight</b>	2	1
<b>By Volume</b>	2	1

#### Density

<b>Base</b>	1.15
<b>Activator</b>	1.15
<b>Mixed</b>	1.15

#### Volume Capacity

869cc/Kg

#### Solids Content

100%

#### Slump Resistance

Nil at 3mm

#### Pack Sizes

225GM (0.49LB)	6KG (13.2LB)
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#### Mechanical Properties

<b>Tensile Shear Adhesion</b> ASTM D1002 (Abrasive Blasted Mild Steel with 75-micron profile)	148kg/cm <sup>2</sup> (2,100 psi)
<b>Compressive Strength</b> ASTM D695	1,034kg/cm <sup>2</sup> (14,700 psi)
<b>Corrosion Resistance</b> ASTM B117	Minimum 5000 hours
<b>Flexural Strength</b> ASTM D790	912kg/cm <sup>2</sup> (13,000 psi)
<b>Hardness Rockwell R</b> ASTM D785	85
<b>Heat Distortion</b> ASTM D648 At 264psi Fibre Stress	20°C (68°F) Cure – 70°C (158°F)

#### Heat Resistance

<b>Dry Heat</b>	100°C (212°F)
<b>Sealer Filler Resin Mix</b>	180°C (356°F)
<b>In Conjunction with Glass Tape</b>	170°C (338°F)

#### Operating Pressures

Operating Pressures	
<b>Low Pressure Repair</b>	35kg/cm <sup>2</sup> (500 psi)
<b>High Pressure Repair</b>	112kg/cm <sup>2</sup> (1600 psi)

See application manual for full details

#### 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 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

#### Official Approvals



**BUREAU VERITAS**

Certificate No.  
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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.

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