



Unique Polymer Systems

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

Unique Polymer Systems 'Standard Resin and Hardener'



Unique Polymer Systems 'Standard Resin and Hardener' is a high performance, solvent free epoxy system designed for onsite repairs to metal, wood, glass and synthetic materials.

Unique Polymer Systems 'Standard Resin and Hardener' consists of a unique blend of epoxy resin combined with polyamino amine adducts, which have been specifically selected to provide the optimum adhesions and mechanical and physical strength.

Unique Polymer Systems 'Standard Resin and Hardener' is simple and easy to use and when used in conjunction with Unique Polymer Systems reinforcement products such as glass cloth, glass tapes or glass mat will result in an excellent repair medium having inherent strength and integrity.

Before proceeding please read the following information carefully to ensure that the correct proper application procedure is fully understood.

SURFACE PREPARATION

All surfaces must be clean, dry and free from oil, grease and loose material.

Metal Surfaces: All loose material, rust and surface contaminants, including existing coatings, must be removed and the surface roughened by using an angle grinder, needle gun or abrasive blasting. Where grinding or needle gunning is used, the surface should be cross-scored to improve adhesion. Care must be taken, when angle grinding, to avoid polishing rather than roughening metal surfaces.

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.

Where it is not possible to clean the surface thoroughly the application of a coating of **Unique Polymer Systems 'A & B Cement'** could possibly improve the bond of the final repair.

MIXING

Unique Polymer Systems 'Standard Resin and Hardener' is a two component material consisting of a resin component and liquid hardener component. The resin component should be poured into

a suitable mixing container and the hardener added and thoroughly stirred until a homogeneous mix is obtained.

The mixed material should be used within 30 minutes of mixing at 20°C. This time will be reduced at higher temperatures and extended at lower temperatures.

APPLICATION

Unique Polymer Systems 'Standard Resin and Hardener' should be applied to the prepared surface by stiff brush or roller to give a uniform even coating taking care to avoid excessive build up and ponding. On rough, pitted surfaces the product should be worked into the surface to ensure complete wetting of the substrate.

To maximise 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: The principal strength of the glass fibre resin laminates lies in the Tape or Cloth layers which are either wound or laid on the surface of the repair. When using Tape, this should be wound on with half overlap and care must be taken to ensure that it is applied evenly and flat.

This will eliminate a possible cause of weakness in the laminate. 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.

It will sometimes be found difficult to keep the winding smooth, e.g. when the repair is on a bend in a pipe. In these instances, it is better to cut short lengths of Tape and lap them one on the other. The same comments generally apply when Glass Cloth is being used.

Application of Glass Mat: The purpose of Glass Mat is to provide a rigid backing layer to a repair that has been effected using Glass Tape.

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To achieve this result, it is essential that the Glass Mat is thoroughly saturated with the resin mix. This can best be achieved by working the Resin Mix into the Mat, by stippling with a brush before applying it to the repair.

NOTE: The ideal film thickness prior to the Glass Tape or Glass Mat is 450 microns. This thickness is required to soak into the Tape or Mat. The coverage rate of the Mat or Tape per 225g unit is 0.35m².

Application of Sealer Filler Resin Mix: Sealer Filler is a non-asbestos powder supplied with sufficient material to add to one unit of Unique Polymer Systems 'Standard Resin and Hardener'. Mix the Unique Polymer Systems 'Standard Resin and Hardener' then transfer to a clean mixing vessel. The Sealer Filler should be added to the resin mix and stirred until the Filler is thoroughly dispersed. The resultant paste should be applied to the repair, as required, using a trowelling tool.

The mix can be applied to operate at temperatures up to approximately 180°C. When it is applied as a pre-coat, prior to carrying out a repair, it will help to 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 Unique Polymer Systems 'Standard Resin and Hardener'. The methods of mixing and application are similar to the Sealer Filler Resin Mix. The main purpose of this mix is to fill in undulations prior to the application of a Unique Polymer Systems repair.

Theoretical Coverage Rate
0.6 m²/unit at 200 microns dft. (12.75 ft²/unit at 4 mils dft).

Recommended Film Thickness
Wet 100 microns (4 mils) Dry 100 microns (4 mils)

PHYSICAL CONSTANTS

Mixing Ratio	Base	Activator	
	2	1	By volume
Appearance	Base	Clear Liquid	
	Activator	Clear Liquid	

Drying & Cure times at 20°C (68°F)

Usable Life	30 minutes
Touch Dry	2 hours
Hard Dry Minimum	16 hours
Overcoating Maximum	2 hours
Overcoating	24 hours
Full Cure	7 days

These times refer to Unique Polymer Systems 'Standard Resin and Hardener' only. When the product is blended for other uses times will be extended and will depend on the final quantities of the mix.

FOR FURTHER INFORMATION PLEASE CONTACT



Volume Solids - 100%

V.O.C - Nil

Shelf Life

Use within 5 years of purchase. Store in original sealed containers at temperatures between 5°C (40°F) and 30°C (86°F).

Maximum Working Temperature

(in conjunction with glass tape) 170°C (338°F)

The maximum working temperature in conjunction with sealer/filler resin mix is 180°C (356°F)

PHYSICAL PROPERTIES

Compressive Strength 1019 kg per cm² (14500psi)
ADTM D695

Flexural Strength 956 kg per cm² (13600psi)
ASTM D790

Tensile Strength 633 kg per cm² (900psi)
ASTM D4060)

* **Low Pressure Repair** 35kg/cm² (500 psi)

* **High Pressure Repair Bandage** 112kg/cm² (1600 psi)

*(See application manual for full details)

HEALTH AND SAFETY

As long as normal good practice is observed Unique Polymer Systems 'Ceramic Carbide Paste' can be safely used. Protective gloves should be worn during use.

A fully detailed **Material Safety Data Sheet** is either included with the material or is available on request

PACKAGING

Supplied in 225g and 5kg packs. .

The information provided in this Product Data Sheet is intended as a general guide only and should not be used for specification purposes. The information is given in good faith but we assume no responsibility for the use made of the product or this information because this is outside the control of the company. Users should determine the suitability of the product for their own particular purposes by their own tests.



Unique Polymer Systems

www.UniquePolymerSystems.com
Quarry House, Hollybush, Ledbury,
Herefordshire. HR8 1ET. UK
Tel: +44(0)1531 636300
Fax: +44(0)8700 558801

Email: sales@UniquePolymerSystems.com