



## TECHNICAL DATA

### ECS EPOXY COMPOSITE SYSTEM

<b>DESCRIPTION</b>	ECS is a two-component epoxy system formulated to provide enhanced adhesion to wood, glass reinforcing and other common laminating composite materials.
<b>MIXING</b>	<p>The two components must be thoroughly mixed prior to use in the ratio of:</p> <ul style="list-style-type: none"><li>* By volume - 4 parts resin to 1 part hardener</li><li>* By weight - 4.55 parts resin to 1 part hardener</li></ul> <p>For consistent results and to realise the full structural potential of the system, measuring accuracy should be within the range of + or - 5%.</p>
<b>FEATURES</b>	<ul style="list-style-type: none"><li>* Good substrate wetting characteristics</li><li>* Silane modified for substrate bonding</li><li>* Relatively short thin film cure time, enabling rapid laminate fabrication</li><li>* Blush resistance to humid conditions</li><li>* Alternative hardeners for summer or winter usage to ensure consistent handling characteristics</li></ul>
<b>INTENDED USES</b>	<ul style="list-style-type: none"><li>* Timber Preservation and Waterproofing</li><li>* Structural adhesive</li><li>* Sheathing system</li><li>* Sealing of porous substrates</li></ul>

#### RECOMMENDATIONS FOR USE:

##### TIMBER PRESERVATION AND WATERPROOFING

The application of ECS to timber components during vessel construction provides protection against water-logging and rot infestation, a major cause of destruction of timber boats.

ECS, in sealing the surfaces of timber components, maintains the desired level of moisture content, thus prolonging strength and low weight capabilities whilst improving the flexural strength and resistance to impact.

Depth of penetration will vary dependant on the moisture content of the timber, which should be less than 12%.

For maximum penetration the first coat should be thinned with approximately 25% of Methylated Spirits. Do not exceed 25% thinning. Apply liberally with brush or roller.

- \* Allow a minimum of 12-24 hours curing time between each coat.
- \* Between coats lightly sand back the surface with a medium grit paper.
- \* Second and third coats must **NOT** be thinned.
- \* Ensure that end grain areas are completely saturated.
- \* Screw and nail holes should be filled with an epoxy filler after saturation. (i.e.ECS thickened with F12)
- \* Coverage will depend on the moisture content and nature of the timber.

## **STRUCTURAL ADHESIVE**

A thickening agent must be added to the system to increase viscosity and ensure adequate "wet out" is achieved (ie, Uroxsys F12). Use sufficient to gain a 'gel', unthickened epoxy will leave the joint dry.

The type of thickening agent used should produce thixotropy (i.e. resistance to flow) without increasing the viscosity excessively. To this end the fumed silicas have been used extensively in the past, but with recent advances in asbestos-free fibres it is now possible to obtain a thixotrope with the advantages of reinforcement and ease of dispersal.

As these two types of thixotropes differ in efficiency, it is recommended that advice from the thickener supplier be sought for application technique.

Do not clamp epoxy adhesive with too much pressure. It is necessary to ensure there is sufficient glue in the joint, which is then held immobile by light clamping during the curing period.

## **SHEATHING SYSTEM**

Incorporating reinforcing materials such as glass cloth in the epoxy coating of timber craft provides strength, impact and abrasion resistance. Such reinforcement should be used for all surfaces below the water line, and on decks.

Surfaces must be clean and dry, and any irregularities, holes or sharp corners filled or filleted.

Precut glass to easily handled sizes, and coat surface with ECS using a brush or roller.

If using 6oz cloth, allow 2 square metres per litre of binder. In general, you need to use between 2.2 and 2.5 times the glass reinforcing weight per square metre for proper wet out.

Apply the fibreglass to the wet surface and push it into the binder using normal fibreglass application tools. The cloth when properly wet will become transparent whilst areas not impregnated retain the dry cloth appearance. These dry areas require more binder.

With successive laminations the build can be increased to any desired level.

Upon obtaining the required build, the binder is allowed to cure and then sanded to remove protruding "glass hair" and the surface glazed with unfilled resin/hardener mix.

The final coat should consist of a high quality UV resistant paint. Refer to **UROXSYS** for recommendations.

## **SEALING OF POROUS SUBSTRATES**

ECS epoxy is highly cross-linked and forms an effective vapour barrier over porous substrates such as concrete.

The surface must be clean, dry and sound. When overlaying concrete with a high performance coating or a bonded timber system, dry diamond grinding is a fast and effective method of preparing and trueing up the surface.

The ECS epoxy should be thinned 10% with Methylated Spirits to ease rolling and applied at an application rate of 6m<sup>2</sup> per litre with a mohair roller.

To be effective as a vapour barrier, there must be a continuous glossy film left on the surface. If this is not achieved in one coat application, repeat the operation. If the epoxy is soaking away, it normally indicates a low strength concrete (high free volume) probably caused by overwatering during laying. Watch also for signs of rejection (pulling back/poor wetting) during application, as this indicates contaminated concrete, which must be further cleaned/prepared before coating.

ECS can also be used for crack filling if there is no live load movement. Make a temporary dam with either Plaster of Paris or self-adhesive foam strips either side of cracks, opening them a little with a grinding wheel

if possible to aid ingress. Pour unthinned ECS into the retained area and top up as epoxy migrates. Grind off excess product after curing.

## **CAUTIONS:**

### **MOISTURE**

The cure of epoxy products can be affected by moisture, which reacts with the hardener to give a surface "bloom".

This blooming can give a permanent loss of gloss, less than normal chemical and physical resistance at the surface, and affect inter-coat adhesion if over-coated.

Take all reasonable steps to minimise the risk of water, moisture, or excessive humidity exposure during the cure period (which may be several days in cold temperatures).

### **HYGIENE:**

Wear protective clothing, gloves are essential. Avoid contact with exposed skin. Before commencing work apply a barrier cream.

### **TEMPERATURE:**

Do not use this product at ambient temperatures lower than 10°C, as full strength will not develop reliably below this temperature.

Epoxy resins used in the manufacture of this product may thicken and crystallise over time at low storage temperatures. The product should be stored at not less than 10°C. If cold temperature crystallising occurs, it can be simply reversed by reconditioning the resin component by raising the temperature of the product to at least 35°C overnight, and thoroughly mixing with a power mixer whilst hot. Heating can be done by standing the unopened containers in a small room with a thermostat-controlled electric heater, or by standing the pails in very hot water. Contact Uroxsys for specific advice.

This information is, to the best of our knowledge true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. Furthermore nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

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