SAINT-GOBAIN

durafibre CFW Resin

TWO COMPONENT EPOXY LAMINATING/IMPREGNATING RESIN

DESCRIPTION

Two component, solvent free, unfilled, polyamide cured epoxy impregnating resin.

USES

Laminating/impregnating resin used in conjunction with **durafibre CFW** (carbon fibre wrap) for the structural strengthening of building elements. Structures that require additional strengthening due to change of business activity, damage by over loading, mechanical or seismic activity.

ADVANTAGES

- Solvent free
- Self-priming
- Excellent adhesion to substrates
- Easily applied liquid by brush or short nap roller
- Excellent mechanical properties
- Good chemical resistance

SURFACE PREPARATION

Any surface to receive the **durafibre CFW** system must be clean, mechanically sound and dry. Concrete surfaces should be chipped to expose main aggregate and in the case of honeycomb, all suspect material must be cut out. See our concrete repair systems. The surface should be mechanically prepared by using grinding, abrasive blasting in order to remove surface high spots, laitance, loose and friable material resulting in a sound, clean opened textured surface. The surface profile must be level, variance of ≤ 1.0 mm over 0.5 m length and irregularities not greater than 1 mm. All internal corners should be coved having a minimum radius of 20 mm. Internal corners to be coved using **epidermix® 314** epoxy putty. External corners to have a radius a minimum of 20 mm or chamfered a minimum of 20 mm across the diagonal and all sharp protrusions to be ground off.

The surface must be free of all debris or dust prior to placing the **durafibre CFW resin**. The surface, once prepared, must provide a minimum of 1.5 MPa pull off tensile adhesive strengths.

MIXING

Stir each component separately and then add the activator to the base and stir with a flat paddle for at least five minutes. It has been found that mechanical mixing gives better dispersion than manual mixing.

A suitable mixing method would be a slow speed electric drill (approximately 200 r/min) fitted with a paddle.

Note: Ensure that all the mixing equipment and containers are clean prior to use.

Do not mix more than can be applied as per the products pot life.

Do not add solvents for thinning purposes, should the material stiffen up due time lapse of the pot life the material must be discarded and a fresh batch to be mixed.

APPLICATION

Mixed **durafibre CFW resin** may be applied by brush or a short nap roller. Apply the mixed resin to the substrate and whilst still wet lay up the **durafibre CFW wrap** and roll the surface using a plastic roller ensuring that an even amount of resin is squeezed/ bleeds through to the surface of the fabric wrap and spread uniformly, followed by an additional coat of resin and rolled as above to ensure thorough saturation of fabric is achieved. The rolling application must be carried out in a longitudinal direction of the fabric wrap ensuring that all air is expelled and creases are ironed out, this may require two or three passes.

In the case where plaster needs to applied, while the resin is still wet broadcast clean, dry, sharp silica sand (1 mm) into the surface. Once the system has cured the sand will provide a mechanical key for the plaster to bond also including **durabond GP** as an adhesion promoter.

durafibre CFW system may be over coated for UV protection or aesthetic reasons.

TEMPERATURE AND RELATIVE HUMIDITY

durafibre CFW system should be applied at material temperatures between 12 °C and 18 °C and ambient temperatures of 5 °C to 30 °C. Temperatures should not fall below 5 °C in the 24 hours after application. Do not apply coating if the substrate temperature is at least 3 °C (5 °C is better) above dew point or highly humid conditions to cause condensation.

DESIGN WORK

Consultation with a structural engineer is imperative when the design criteria and application configurations are required subject to load calculations of the various elements that are under consideration.

COVERAGE

Theoretical coverage rates are provided in the “Properties During Application” table. The coverage rates may vary subject to surface profile irregularities and or porosity.

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PROPERTIES OF WET MATERIAL	
Mixing ratio	1.5 base: 1 activator by volume
Density (typical)	1.04 g/cm^3
Colour: Base Activator Mixed material	 Pale amber Dark amber Amber translucent
Flash point	120 °C
Dilution	Not to be diluted
Consistency	Medium viscosity
Mixed viscosity	2800 cP
Toxicity	Uncured material is toxic
Finish	Gloss
Shelf-life	2 years from date of manufacture
Storage conditions	Store under cover in cool conditions
Packaging	2 and 5 ℓ kits

PROPERTIES DURING APPLICATION	
Application by	Brush or short nap roller
Application temperature	10 °C to 40 °C
Pot life	80 – 105 min/500 ml @ 25 °C
Overcoating time @ 25 °C	Not less than 6 hours Not more than 48 hours
Curing time @ 25 °C	Touch dry – 12 hours Practical cure – 24 hours Full cure – 7 days
Volume solids	100%
Theoretical coverage for the **durafibre CFW resin**	1 to 4 m^2/ℓ (on concrete) 1.5 to 2 m^2/ℓ between wrap layers
Equipment clean up	**abe® super brush cleaner**

PROPERTIES OF CURED MATERIAL	
Toxicity	Cured film non-toxic
Maximum service temperature	Dry: 60 °C Wet: 40 °C
Compressive strength @ 25 °C (ASTM C109)	Unfilled: 75 MPa
Tensile strength @ 25 °C (ASTM C307)	6.5 MPa
* Tensile bond strength applied to 50 MPa concrete @ 22 °C to 25 °C – DYNA Z Pull-off digital manometer (ASTM D 4541)	> 3 MPa
Lap shear strength on grit blasted steel	9 MPa
Modules of rupture	15 MPa
**Arizona slant shear (ASTM C 882)	> 47 MPa
Shrinkage during cure	Negligible
* The pull off test included and excluded the carbon fibre plate, in both cases adhesive failure occurred in the concrete substrate ** Failure occurred within the 50 MPa concrete	

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CHEMICAL PROPERTIES OF CURED FILM	
Toxicity	Non-toxic after curing
Water resistance	Excellent
Solvent resistance	Resists, aliphatic solvents
Chemical resistance	Dilute mineral acids (limited) and 40% sodium hydroxide

HEALTH AND SAFETY

Uncured **durafibre CFW resin** must be regarded as toxic. Gloves should be worn at all times and care must be taken not to ingest any of the material by eating or smoking while working with the compound. If working in a confined space, provide adequate ventilation. Cured **durafibre CFW resin** is inert and non-toxic.

CLEANING

Clean tools with **abe® super brush cleaner** while uncured and use a little of this liquid to remove any splashes on the skin. Wash finally with soap and warm water. Cured material will have to be mechanically removed.

PACKAGING

durafibre CFW resin is supplied in:

2 litre kit (code: 20401002)
5 litre kit (code: 20401005)

HANDLING AND STORAGE

Epoxy compounds in their uncured state are toxic and prolonged skin contact can give rise to dermatitis. When handling epoxy compounds, use should always be made of disposable gloves and barrier creams. Involuntary habits such as face starching and spectacle adjustment must be avoided. Similarly eating and smoking whilst or after working with epoxy must be avoided until the individual has washed up. This product has a shelf-life of 24 months if kept in a cool dry place.

IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.**®endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot accept any liability for application – because **a.b.e.**®has no direct or continuous control over where and how **a.b.e.**® products are applied.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements.

a.b.e.® has a wealth of technical and practical experience built up over the years in the company's pursuit of excellence in building and construction technology.

Please consult our website for our latest datasheets.