

MasterBrace[®] 4500

Two component, High strength saturating resin for MasterBrace fabric sheets

DESCRIPTION

MasterBrace 4500 is a 100% solids long pot life blue pigmented epoxy resin for saturation of **MasterBrace** fibre sheet to form insitu Fibre Reinforced Polymer composites

RECOMMENDED USES

- **MasterBrace 4500** is used to saturate the **MasterBrace** carbon, glass or aramid fabric sheets to create a composite with the structure
- **MasterBrace** composites can be used to increase flexural, shear, and axial load capacity
- Increased impact resistance and to provide blast mitigation
- Reduction of crack propagation and increased resistance to fatigue

FEATURES AND BENEFITS

- **Excellent adhesion to fabric and primed concrete** – Provides true composite with the substrate.
- **Solvent free** – Low VOC and non shrink
- **Pre-packaged** – avoids on site errors ensuring quality control
- **Low viscosity** – ensures complete saturation and easy application to the fabric
- **Cures at low temperatures** – suitable for a range of climates

PROPERTIES

Supply form	Translucent blue liquid
Volume solids	100%
Mixed density (kg/Lt)	1.13 ± 0.03
Mixing ratio, by weight (A:B)	100:40
Mixed viscosity (cps at 25°C)	4000 ± 500
Pot life (minutes)	25 min at 25°C
Setting time	< 3hrs at 25°C < 4hrs at 40°C
Full cure	7 days

Compressive strength (ASTM C579)	> 40 MPa at 1 day > 60 MPa at 7 days
Tensile Strength (BS: 6319 Pt 7)	> 17 MPa
Flexural Strength (BS: 6319 Pt 3)	> 35 MPa

APPLICATION

Surface preparation

Remove all grease, oil, dust residual curing compound, mould release agent or other contaminants that could impair adhesion.

Laitance should be removed preferably by light sweep blasting or hydro-jetting. Mechanical wire brushing may be appropriate for small areas.

Spalled concrete should be cut back to sound concrete and made good with **MasterBrace 2200** or suitable **MasterEmaco** repair products.

Mixing

Avoid mixing part kits wherever possible. Thoroughly stir Part A and add Part B and blend thoroughly using a slow speed (300-600rpm) drill and paddle. Where part units cannot be avoided then proportion parts A and B accurately, mixing only what can be used in less than 30 minutes.

Priming

The prepared surface should be primed with **MasterBrace P 3500** and allowed to cure until the surface is no longer tacky (usually overnight). The **MasterBrace P 3500** should be applied by a roller or brush. If necessary a second coat can be applied if the substrate is very porous.

Do not apply the **MasterBrace P 3500** if the ambient temperature is less than 5°C

The **MasterBrace** fabric saturated with the **MasterBrace 4500** can be applied when the primed surface is tack free

Sheet preparation

MasterBrace fibre sheet:

The selected **MasterBrace** sheet should be cut before the application of the **MasterBrace 4500** into the correct lengths using scissors or cutters (**MasterBrace** aramid fibre requires the use of specialized scissors).

The number of sheets cut shall be limited to those that can be applied within a day. The size of any sheet shall be less than 2m in length to facilitate flat wrinkle free application and ensure no air is trapped under the fibre sheet.

Application of MasterBrace 4500

Apply the first coat of fully mixed **MasterBrace 4500** to the primed substrate using a roller or brush. Place the pre-cut **MasterBrace** fibre sheet working wet on wet and roll the surface in the longitudinal direction of the fibres two or three times with a de-foaming roller and rubber spatula in order to impregnate the resin into the fibres and to de-foam the resin coat.

Apply a second coat of **MasterBrace 4500** on to the placed fibre sheet ensuring total saturation of

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the **MasterBrace** sheet.

In cases where more than one layer of fibre sheet is to be applied the above application method should be repeated.

Where fibre sheets are to be joined then allow for an overlap of at least 150mm in the main direction of the fibres additional resin must be applied at the overlap location on top of the outer layer of fibre sheet.

Where the **MasterBrace** composite is to be protected or over coated with a plaster finish, clean dry quartz sand should be broadcast into the wet resin surface to provide a mechanical key.

ESTIMATING DATA

Typical consumption	
200-450 gsm carbon fibre sheet	0.8 to 0.9 kg/m ²
750-900 gsm glass fibre sheet	0.8 to 1 kg/m ²

Note: The coverage is based upon the ideal substrate condition, however this shall vary as per the condition of the substrate at site and on labour skills

PACKAGING

MasterBrace 4500 is available in 5kg packs

SHELF LIFE

MasterBrace 4500 can be stored in tightly closed original containers for 12 months at a moderate temperature.

PRECAUTIONS

Please refer the Material Safety Data Sheet for handling and storage of this product.

MasterBrace4500/02/0216

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