

MasterStrength 4500 (formerly MasterBrace 4500)

High strength saturant for MasterStrength fabrics

Material Description

MasterStrength 4500 is a two component, solvent free, long pot-life blue pigmented, epoxy resin for saturation of MasterStrength FIB sheet to form in-situ FRP Composite. MasterStrength 4500 is part of the MasterStrength resin systems for the creation of composite strengthening.

Areas of Application

- **MasterStrength 4500** is used to saturate the MasterStrength carbon, glass or aramid fabric sheets to create a composite with the concrete structure.
- MasterStrength fibre reinforced plastic composites can be used to increase flexural, shear, impact resistance, axial load capacity. MasterStrength systems can increase fatigue resistance, reduce crack propagation and can be used as part of a blast mitigation program.

Characteristics and Benefits

- Adheres to fabric and primed concrete substrates – allows fast creation of true composite with the concrete
- Solvent free – low VOC and non-shrink
- Pre-proportioned packaging – no job site errors
- Easy application – low viscosity penetrates fabric easily
- Cures hard at low temperatures – wide application range

Properties

Mixed resin and hardener technical characteristics	
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 Properties	Results
Mixing Ratio by weight	10 : 5

Colour	Translucent blue liquid
Mixed viscosity (cps, at 25°C)	4000 ± 500
Full Cure @ 23°C	7 days
Mixed density (kg/litre)	1.13 ± 0.03
Pot life	30 min at 40°C
Setting time	< 3 hrs. at 25°C < 2 hrs. at 40°C

Application

For detailed application methodology, please refer to “CFRP Structural Strengthening, MasterStrength systems” application guide.

Surface Preparation

Remove all grease, oil, dust, residual curing compound, mold release agent or other contaminant that could impair adhesion. Laitance should preferably be removed 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 **MasterStrength 1446** mortar. Conventional concrete curing compounds should be removed before application.

Priming

The prepared surface should be primed with **MasterStrength PRI 3500** and always apply the next layer of FRP resins onto the primer, whilst it is still tacky. If the primer is allowed to dry, the surface must be re prepared and primed prior to any work proceeding. Mixed primer should be applied with roller or brush. If necessary a second coat can be applied when surface is very porous. Do not apply if ambient temperature is less than 5°C and only mix as much primer as can be applied within its pot life.

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Mixing

Proportion part kits accurately by weight, mixing only what can be used in less than 30 minutes. Thoroughly stir Part A, add Part B and blend thoroughly using a slow speed (300-600rpm) mixer fitted with a suitable paddle.

Application

Apply first coat of fully mixed **MasterStrength 4500** to primed concrete substrate using roller or brush. Place the MasterBrace Fibre sheet and roll in the longitudinal direction of the fibres two or three times using a deforming roller and rubber spatula in order to impregnate the resin into the fibres and to deform the resin coat. For joining strips of fibre sheet see the application guide for details,

Apply the second coat of **MasterStrength 4500** ensuring total saturation of the **MasterStrength** Fibre sheet. In cases where more than one layer of fibre sheet is to be applied see the application guide for details.

In case of protection with plaster or render, ensure oven dried fine aggregate is broadcast whilst the saturant is still wet to assist bond strength with the subsequent render.

Curing

Cure time will vary depending on the ambient temperature, quantity mixed and placed. **MasterStrength 4500** will have fully cured after 7 days at 23°C.

Estimating Data

A 5 litre kit of MasterStrength 4500 will yield 6-10 m².

MasterStrength 4500 wet film 500 - 750 microns thickness		
L	Yield (m ² per L)	Coverage (m ² per kit)
5	1.3-2	6-10

Coverage will vary depending on the weight of the FRP

Fabric used (in gm/m²):

200 ~ 350 gsm fibre sheet : 0.8 to 1.0 kg/m²

350 ~ 450 gsm fibre sheet : 0.9 to 1.2 kg/m²

750 ~ 900 gsm fibre sheet : 1.5 to 1.8 kg/m²

Packaging

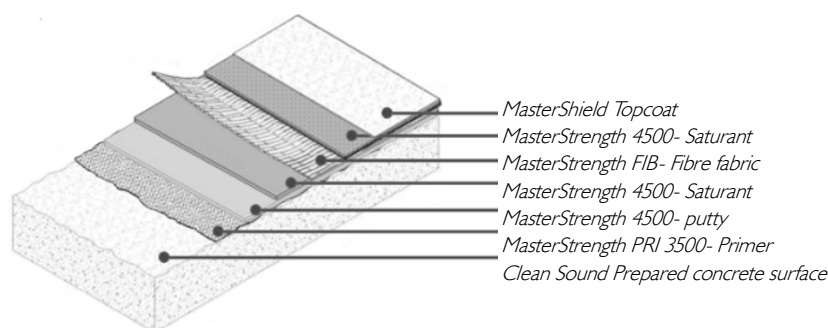
MasterStrength 4500 is a two component system available in a 5 litre kit size.

Storage & Shelf Life

MasterStrength 4500 can be stored in tightly closed original containers for 24 months at moderate temperature.

Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.



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Disclaimer

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