

MasterStrength 4500

High strength Epoxy saturant for MasterStrength fabrics

Material Description

MasterStrength 4500 is a two component, solvent free, long pot-life blue pigmented, epoxy resin for saturation of fabric sheets 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.
- Refer to **MasterStrength FIB** technical data sheet for areas of the application of composite system.

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

Performance Properties at 7days	AS5100.8 Table A2.3.4	MasterStrength 4500
Bond Strength	≥ 1.5 MPa	> 3.5 MPa
Tensile Strength	≥ 25MPa	60 MPa
Flexural E-modulus	≥ 1000MPa	3500 MPa
Viscosity	≤ 6000 cps	3600 cps
Application Temperature	5-35°C	5-35°C
Compressive Strength	N/A	65 MPa
Flexural Strength	N/A	62 MPa
Hardness -Shore D	N/A	80

Application Properties	Results
Mixing Ratio by weight	2:1
Colour	Translucent blue liquid
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 **MasterStrength FIB** 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 FIB** 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

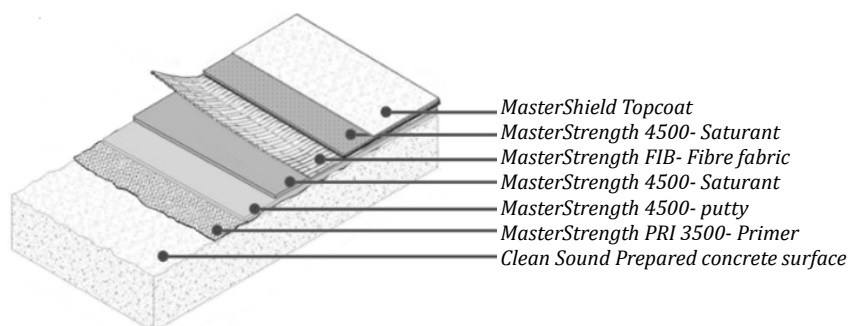
MasterStrength 4500 is a two component system available in a 5 litre kit size.

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

MasterStrength-4500-ANZ-V3-1125

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MB Solutions Australia Pty Ltd

ABN 69 634 934 419
Suite 102, 2 Burbank Place
Norwest NSW 2153

Freecall: 1300 227 300

www.master-builders-solutions.com/en-au

MB Solutions New Zealand Ltd

45C William Pickering Drive
Albany, Auckland
New Zealand

Phone: +64 9 414 7233

Emergency Advice:

1300 954 583 within Australia (24hr)
0800 001 607 within New Zealand