

MasterBrace[®] 4500

Two-component epoxy resin saturant for MBRACE fibre fabrics

DESCRIPTION OF PRODUCT

MasterBrace 4500 is 100% solids, epoxy resins adhesive that permits adhesion of carbon, glass and aramid fibre fabrics within the **MasterBrace** Composite Strengthening System. When cured with the tow sheet, **MasterBrace 4500** produces a high performance composite system for use in external structural repair.

MasterBrace Composite Strengthening System is a comprehensive approach, bringing innovative strengthening techniques to the construction industry. **MasterBrace** Composite Strengthening Systems include high strength and high modulus carbon fibre, carbon fibre laminate, glass and aramid fibre.

Both carbon glass and aramid fibre have been used in the construction industry for many years for strengthening of all types of structures including concrete, masonry, timber and steel.

FIELDS OF APPLICATION

For use as a structural adhesive when used in conjunction with **MasterBrace** fibre fabrics.

FEATURES AND BENEFITS

- Ready to use (no need to add filler)
- Convenient pot-life
- High adhesive and bond strength
- Low viscosity, good for a variety of fibre densities
- High mechanical strength
- Solvent-free

SPECIFICATIONS

Composition:	Two part
Type of resin:	Epoxy
Solids by volume:	100%
Specific gravity at 20°C:	1.10 ± 0.024kg/ltr
Colour:	Translucent blue
Viscosity:	3100 mPas
Recommended application methods:	Dry Lay-up: 1 coat on base substrate + 1 coat on installed sheet
	Wet Lay-up: Pre-saturate sheet using laminating machine 0.55kg/m ² /coat
	Theoretical consumption: (minimum 2 coats/fibre layer)
Workability time:	30 minutes at 20°C
Cure period:	7 days at 20°C Within 24 hours
Re-coat range maximum:	(usually wet-on-wet)
Tool cleaning:	Solvent

PACKAGING

MasterBrace 4500 is available in 3.5kg packs.

APPLICATION DIRECTIONS (BRIEF INSTRUCTIONS)

- For detailed instructions, refer to the "**MasterBrace Fibre** Fabrics Application Guidelines" document.
- Application of **MasterBrace Fibre** Fabric Systems may only take place if the substrate has an inherent tensile strength of at least 1.0 MPa for sheet materials.
- The surfaces of elements that are still in good condition or restored with repair mortar should be roughened sufficiently with grit blasting or similar. With degraded substrates, the whole damaged layer should be removed by scarifying, hydro-demolition or similar and then structural restoration carried out with suitable mortar, e.g. MasterEmaco S 488 or **MasterProtect 2020**
- Angle grind, grit blast or needle gun to remove smooth cement paste rich surface (laitance)

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and ensure aggregate is exposed and surface has sufficient profile.

- Remove oils, grease, dust or any other loose material from the surface that may impair adhesion.
- Ensure a maximum substrate humidity of 4%.
- Ensure substrate temperature is at least 3oC above dewpoint temperature.
- Ensure surfaces are within allowable levelness and flatness tolerances.
- Apply one coat of **MasterBrace P 3500** (not normally required) by roller or brush to the prepared substrate.
- If necessary, apply a levelling coat of **MasterBrace Putty** using a steel trowel, to fill any small voids and smooth small offsets in the substrate. Re-check surface tolerances.
- Apply two coats of MasterBrace 4500 for each layer of **MasterBrace Fibre**, one coat on base substrate and one top coat on installed sheet, such that the fibre fabric is completely encapsulated by the saturant.

PRECAUTIONS

Only mix the material that may be applied within its workability time.

The climatic and operating conditions of the site and the complexity of the area to be treated should give an indication as to the quantities of product to be mixed.

Excessive vibration and oscillation of the structural component should be avoided during application of the adhesive and the curing phase.

After the adhesive has hardened, check for bonding over the entire area by tapping.

Fire protection requirements must be complied with, as epoxy adhesives generally have limited fire resistance.

The surface of the may be painted over with **MasterProtect 300**, to ensure visual uniformity and ultraviolet protection.

SAFETY

READ ALL SAFETY DIRECTIONS AND WARNINGS AND REFER TO MATERIAL

SAFETY DATA SHEETS FOR HANDLING PROCEDURES.

Store in cool, dry area 10 to 32°C away from direct sunlight, flame or other hazards. Do not bend laminates or they may break and become unusable.

In particular:

- Always wear gloves, goggles and suitable work clothes during mixing of epoxy resins and working with fibre materials, in order to avoid contact with the skin and eyes.
- In the event of accidental contact, thoroughly wash the affected parts with water and soap or an appropriate detergent.
- Do not add solvents or thinners to the epoxy resins.
- Do not inhale vapours, sprays or fibre dust; a continual change of air should be ensured for application in a closed environment.
- Under no circumstances drink, eat or smoke during use.
- Comply with safety regulations on the use of products that are inflammable or contain solvents.
- Use caution when handling flammable liquids and eliminate all sources of ignition from work area

FOR APPLICATIONS TO SUBSTRATE SURFACES, EXTREME CLIMATIC CONDITIONS OR USE OTHER THAN THOSE INDICATED IN THE PRODUCT DATA SHEET, PLEASE CONTACT MASTER BUILDERS SOLUTION'S TECHNICAL SERVICES DEPARTMENT FOR FURTHER INFORMATION.

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NOTE

Field service, where provided, does not constitute Supervisory responsibility. For additional information, contact your local Master Builders Solutions representative.

Master Builders Solutions reserves the right to have the true cause of Any difficulty determined by accepted test methods.

QUALITY STATEMENT

All products manufactured by Master Builders Solutions Egypt, or imported from Master Builders Solutions affiliate companies world- wide, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 standards.

* Properties listed are based on laboratory controlled tests.

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