

MasterBrace[®] SAT 4500

Resin for MasterBrace FIB Fibre Reinforced Polymer Strengthening Systems

DESCRIPTION

MasterBrace SAT 4500 is an epoxy resin for use in conjunction with **MasterBrace FIB sheets**. With the chosen **MasterBrace FIB fibre**, the **MasterBrace SAT 4500** resin produces a high-performance composite system for use in structural strengthening and upgrade, repair, or blast mitigation applications.

ADVANTAGES

- Increased flexural strength
- Increased shear strength
- Increased impact resistance
- Confinement
- Blast resistance
- Fatigue enhancement
- Lightweight
- Durable
- Control of crack propagation
- Excellent strength to thickness ratio

PACKAGING

MasterBrace SAT 4500 Base	4.24 kg
MasterBrace SAT 4500 Reactor	2.12 kg
Total	6.36 kg

TYPICAL PROPERTIES*

Composition	Two parts (PTA & PTB)
Mixed density	1.06 kg / Lt
Colour	Blue
Bond strength	>2.5 N/mm ² (Failure in concrete)
Full cure	7 days at 20°C

APPLICATION GUIDELINES

Preparation of substrate

Preparation shall be by grinding or abrasive blasting to remove loose material, laitance and surface contamination. Concrete must be, free of oils, curing compounds or mould release agents and must be thoroughly dried and free of dust at time of application. It is not always necessary to remove existing coatings.

Substrates must be repaired using epoxy resin or polymer modified cementitious mortars from the **MasterEmaco** or **MasterBrace** range of repair materials. Small surface defects in concrete

should be made good using **MasterBrace ADH 2200**. Concrete surface protrusions such as small projections, grouting lines etc. must be ground flat. Depressions in concrete surfaces such as a concrete joint must be filled with **MasterBrace ADH 2200**. Sharp corners must be rounded with a radius of at least 30 mm.

MIXING

Mechanically premix the **MasterBrace SAT 4500** PTA resin individually prior to adding PTB. Mechanically mix resin PTA and hardener PTB for 3 minutes or until homogeneous.

PLACING / APPLICATION

The chosen **MasterBrace FIB sheet** must be cut to the correct length and prescribed sizes using scissors or cutters before application of **MasterBrace SAT 4500**. The number of sheets cut shall be limited to those that can be used within a day.

The mixed **MasterBrace SAT 4500** shall be applied to the **MasterBrace FIB sheet** a roller ensuring that the fibres are completely impregnated with the resin.

At the same time apply a coat of the **MasterBrace SAT 4500** resin by roller or brush to the substrate to 'wet' out the surface.

The resin saturated **MasterBrace FIB sheet** should be placed immediately fibre side down onto the concrete surface onto which the **MasterBrace SAT 4500** has been applied.

The applied FRP sheet should be squeezed only in the longitudinal direction of the fibres using a defoaming roller, rubber spatula or by hand in order to ensure that the fibres are fully impregnated with the resin and to ensure all air bubbles are removed.

For joining strips of fibre sheet, a 10 cm overlap length is required in the horizontal direction and 2 cm overlap length in the vertical direction.

Additional resin must be applied at the overlap location on top of the outer layer of fibre sheet to be overlapped.

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The plastic backing sheet shall be removed from applied FRP sheet before continuing and the adhered Fibre Reinforcement System should be allowed to stand for at least 30 minutes before continuing. Any lifting or dislocation that occurs during this period must be corrected using the roller and spatula.

Where a second layer of **MasterBrace FIB sheet** is required the mixed **MasterBrace SAT 4500** should then be applied onto the cut fibre sheet then the resin impregnated second layer laid onto the initial application of fibre sheet.

Applied FRP sheet should be squeezed in the fibre longitudinal direction with a roller, spatula or by hand in order to impregnate the fibre sheet in the same manner as above.

In cases where multiple layers of fibre sheet is to be applied, the above application method for should be repeated.

MasterBrace System - overcoating

The **MasterBrace** system should be overcoated where the installed system is directly exposed to sunlight or chemicals. The chosen coating system / finish should be determined by the type of exposure anticipated and should be from the Master Builders Solutions range of available coatings.

Where an Architectural plaster or render is required **MasterTop SR 3** aggregate can be cast into the wet resin to act as a key for the subsequent finish.

CLEANING

Use a suitable thinner (Xylene / MEK / Acetone). Observe fire and health precautions with solvents.

Maintenance

Periodically inspect the applied material and repair localised areas needed. Consult Master Builders Solutions Construction Chemicals Technical Services for additional information.

COVERAGE / YIELD

Estimated coverage is 0.7-1.6 L/m² per layer of FRP sheet depending upon the type, grade and weight of sheet chosen for the particular application and yield is 6 L.

WATCHPOINTS

MasterBrace SAT 4500 contains reactive resins and diluents. Observe the following health and physical precautionary measures before using this product:

Wear gloves, eye protection, and appropriate work clothing to avoid contact with components. Ventilation is required with special consideration for enclosed or confined areas. Air movement must be designed to ensure turnover at all locations in work adjacent areas to avoid build-up of heavy vapours.

Do not apply the **MasterBrace** Fibre Reinforcement Systems when ambient temperature is less than 5°C. Surfaces should be overcoated within two days when exposed to direct sunlight, or in other cases within one week to assure proper adhesion of coating to saturant.

STORAGE AND SHELF LIFE

Store in cool, dry area (10 to 32°C) away from direct sunlight, flame or other hazards. **MasterBrace** fibre reinforcement materials contain carbon fibres. During application of **MasterBrace** fibre materials, wear appropriate work clothing to minimize contact. Use caution when handling flammable liquids and eliminate all sources of ignition from work area. Product Material Safety Data Sheets (MSDS) are available and should be consulted and on hand during application and/or whenever handling these products. These products are for professional and industrial use only; application directions must be followed. Shelf life is 12 months when properly stored in unopened containers.

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HEALTH AND SAFETY

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Solvent based products

Use in well ventilated areas; avoid inhaling. Suitable respiratory equipment may be needed, e.g. when spraying. Can cause skin, eye irritation. Wear protective eye shields and gloves during use. Do not smoke or allow sparks or naked lights when stored or in use.

Powder products

Should be handled to minimise dust formation; use light mask if excessive dust unavoidable. Cement powders when wet or moistened can cause burns to skin and eyes which should be protected during use.

Resin products

Can cause irritation, dermatitis or allergic reaction. Use protective equipment particularly for skin and eyes. Use only in well ventilated areas.

Spillage

Chemical products can cause damage; clean spillage immediately.

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001 and ISO 14001.

* Properties listed are based on laboratory controlled tests.

® = Registered trademark of the MBCC Group in many countries.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.

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