

# MasterBrace® SAT 4500 (Formerly known as Mbrace® Fibre Saturant)

## Epoxy Based Adhesive for MasterBrace® FIB System

### DESCRIPTION OF PRODUCT

**MasterBrace® SAT 4500** is epoxy based, solvent free, high strength adhesive developed for **MasterBrace® FIB System**.

### FIELDS OF APPLICATION

- Bonding of FRP (carbon, glass and aramide) sheets on concrete, steel and wooden surfaces.

### FEATURES AND BENEFITS

- Easy to apply
- Low viscosity
- High strength
- Solvent free

### APPLICATION PROCEDURE

#### Preparation of Substrate

The mineral based substrates (concrete, stone, brick, tile etc.) must be sound, clean and dry. It shouldn't be weakened by over-troweling and lack of curing. The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust. If there is a water leakage it must be drained or properly plugged. In case of low strength concrete ( $O_{fc} < 1.5 \text{ N/mm}^2$ ), the loosen parts of concrete must be broken and the surfaces should be reprofiled with structural repair mortars in **MasterEmaco® S** range. Before the adhesive application let the repair mortars cure at least 7 days at 20°C. FRP sheets should be free of oil stains and dust.

In all kind of substrates **MasterBrace® P 3500** should be used as a primer and the adhesive application should be done in the following 24 hours.

### Mixing

**MasterBrace® SAT 4500** has two parts in pails, produced according to right mixing ratio. Material temperature should be between 15 - 25°C before mixing. Part B should be added into the Part A without any remaining material in the pail. It should be mixed with using a proper mixer (~300rpm) for polymer mixing. Mix the parts at least 3 minutes to have a homogenous mixture.


### Mixing Ratio

MasterBrace® SAT 4500	Part A	Part B
Quantity	3,73 kg	1,27 kg
Mixed Density	1,02 kg/litre	

### APPLICATION METHOD

**MasterBrace® SAT 4500** should be applied to the primed surfaces by using a soft roller. Application thickness should be between 0.8-1.0 mm. Lay down the sheets on to the surfaces while the adhesive is still wet. After lying, strongly press the sheets two or three times in the longitudinal direction of the fiber using a roller or rubber spatula in order to allow **MasterBrace® SAT 4500** penetrate into the sheet and to eliminate air from the coat of resin. In the case of multiple layers of fiber, 700-800 gr/m<sup>2</sup> **MasterBrace® SAT 4500** should be applied between the all layers. Under UV radiations the fibers should be coated with a UV resistant paint in **MasterProtect®** range. For plastering on the fiber surface, clean and sound sand should be spread on to the fiber surface while the adhesive is still wet. After curing of adhesive any kind of plaster can be easily applied. For fire resistance, the fibers should be coated with special fire resistant coatings (**Meyco® Fireshield**, etc.).

### TECHNICAL DATA

Product Chemistry <b>MasterBrace® SAT 4500</b> Part A <b>MasterBrace® SAT 4500</b> Part B	Epoxy Resin Epoxy Hardener	
Color	Blue	LX
Mixed Density	1,02 kg/litre	
Viscosity	1500-2500 mPa.s	
Compressive Strength TS EN 196 (7 days)	>60 N/mm <sup>2</sup>	
Flexural Strength TS EN 196 (7days)	>50 N/mm <sup>2</sup>	
Bonding Strength to concrete (7 days)	>3,0 N/mm <sup>2</sup>	
Application Temperature	+5°C + 30°C	
Pot Life	30 minutes	
Fully Cured at 20°C	7 days	

*Typical values are obtained from the test results of 4x4x16 mortar prism in 23°C and 50% relative humidity conditions. High temperatures shortens the curing and working time, lower temperatures extends the durations*

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### COVERAGE

1.8 kg/m<sup>2</sup> in first layer, and 0.8 kg/m<sup>2</sup> in the following coats.

### WATCH POINTS

- **MasterBrace® FRP** application should be done by approved experts.
- During the application the substrate and ambient temperature should be between 5 - 30°C.
- Resinous materials' pot life and curing times vary depending on the relative humidity, substrate and ambient temperature. Reaction gets slow in low temperatures and it causes to extension on pot life and working time. On the other hand high temperatures speed up the reaction, which results to short pot life and working time. For full curing of material, both the substrate and ambient temperature shouldn't be under allowed application temperature.
- **MasterBrace® SAT 4500** is provided in ready to mix pails. Do not add any solvent etc. Into the mixture during the application.
- The amount of mixed resin should be such that it may be applied within its useful workability time.
- Mixing should be made with proper mixers and do not allow mixing by hand.

### CLEANING OF TOOLS

After the application all tools should be cleaned with a proper detergent or solvent such as thinner. **MasterBrace® SAT 4500** can be cleaned with only mechanical abrasion after hardening.

### PACKAGING

5 kg set  
Part A: 3.73 kg pail  
Part B: 1.27 kg pail

### STORAGE

Store in original container in cool (+5°C - +25°C) and dry indoor conditions.

### SHELF LIFE

18 months under proper storage conditions after production date.

### HEALTH AND SAFETY PRECAUTIONS

It is dangerous to approach the application sites. During the application, a protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixtures should not come into contact with skin and eyes; in case of contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should be consulted immediately. No food or beverages should be brought to the application area. The product should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

### DISCLAIMER

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### CONTACT INFORMATION

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**MasterBrace® SAT 4500** Technical Data Sheet -Revision  
Date: 12/2020

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<b>20</b> <b>1020 - CPR - 040 065838</b> <b>DOP NO: 02.1504.4.004</b>	
<b>EN 1504-4:2004</b> <b>MasterBrace SAT 4500</b> Beton Yapıların Korunması Ve Tamiri İçin Mamuller Ve Sistemler - Tarifler, Gereklere, Kalite Kontrol Ve Uygunluk Değerlendirmesi – Bölüm 4: Yapısal Bağ (Products and Systems For The Protection and Repair of concrete structures - Definitions, Requirements, Quality Control and evaluation of conformity Part 4: Structural Bonding Tamir prensibi 4: Yapısal takviye (Principal of repair 4: Structural strengthening) Tamir yöntemi 4.4: Bağlanmış harç veya beton (Repair method 4.4: Bonded mortar or concrete )	
Elastisite Modülü (Elastic Modulus)	≥ 2000 N/mm <sup>2</sup>
Basınç Dayanımı (Compressive Strength)	≥ 30 N/mm <sup>2</sup>
Kesme Dayanımı (Shear Strength)	≥ 6,0 N/mm <sup>2</sup>
İşlenebilirlik Süresi (Workable life)	40 min (23°C)
Büzülme / Genleşme (Linear Shrinkage)	≤ % 0,1
Isıl genleşme katsayısı (Coefficient of thermal expansion)	≤ 100 x 10 <sup>-6</sup> / °C
Camsıya geçiş sıcaklığı (Glass transition temperatures)	≥40°C
Adezyon : Sertleşmiş beton ile sertleşmiş beton arasında (Adhesion concrete to concrete : Hardened concrete to hardened concrete)	Beton kopar (Deformation should be from concrete)
Adezyon : Taze beton ile sertleşmiş beton arasında (Adhesion concrete to concrete : Wet concrete to hardened concrete)	Beton kopar (Deformation should be from concrete)
Dayanıklılık (Durability)	Uygun (Pass)
Yangına tepki (Reaction to fire)	E
Tehlikeli maddeler (Dangerous substances)	Madde 5.3'e uygun (Comply with clause 5.3)