

# MasterBrace SAT 4500

Epoxy adhesive for impregnating fabrics from the MasterBrace FIB line

## MATERIAL DESCRIPTION

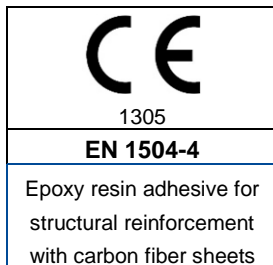
MasterBrace SAT 4500 is a two-part, high-solid epoxy-based product recommended to ensure impregnation and bonding to the MasterBrace FIB substrate.

## FIELDS OF APPLICATION

MasterBrace SAT is the recommended saturant for reinforcement of the MasterBrace FRP system for all types of substrate on which MasterBrace can be applied (concrete, masonry, wood, natural stone, etc).



In compliance with the European Regulation (EU No 305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 1504-4 and the relative DoP (Declaration of Performance).



## COVERAGE

From 1.00 liters / m<sup>2</sup> to 1.40 liters / m<sup>2</sup> depending on the weight of the fabric to be impregnated.

## PACKAGING

5 kg unit:

- component A 3.81 kg bucket;
- component B 1.19 kg bucket.

## STORAGE

Store in a sheltered, cool, dry place (10÷30 °C) out of direct contact with sunlight, fire or naked flames. Should the temperature fall below 10°C the viscosity of the resin could increase and lumps form. In this case, before using the product, warm the containers (tightly closed) by standing them in hot water until the lumps disappear.

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Technical Information			
Mixing time	At least 3 minutes		
Density of the individual components A and B	A: 1.05 ± 0.05 kg / liter B: 1 ± 0.05 kg / liter		
Density (A + B)	1.04 ± 0.05 kg / liter		
Workability time at:	At 5 ° C: 120 minutes At 10 ° C: 70 minutes At 20 ° C: 60 minutes At 35 ° C: 20 minutes		
Application temperature	5 ÷ 40°C		
Packs	component A 3.81 kg bucket; component B 1.19 kg bucket		
Consumption	From 1.00 liters / m2 up to 1.40 liters / m2 depending on the weight of the fabric to be impregnated		
Essential characteristic in accordance to 1504-4		Limits and class	Performances
Modulus of elasticity in bending	EN ISO 178	>2.000 N/mm <sup>2</sup>	2.200 MPa
Shear resistance	EN 12188	>12 N/mm <sup>2</sup>	95 MPa
Open time	EN 12189	-	60 min
Workability time	EN ISO 9514	-	70 min
Compressive strength		-	90 MPa
Modulus of elasticity in compression	EN 13412	>2.000 N/mm <sup>2</sup>	2.800 MPa
Glass transition temperature	EN 12614	>40 °C	54,9°C
Coefficient of thermal expansion	EN 1770	<100 × 10 <sup>-6</sup> per °C	0,675 × 10 <sup>-6</sup> per °C
Total shrinkage for structural adhesive agents,	EN 12617-1	<0,1%	0,09%
Adherence,	EN 12188	a 50° > 50 MPa a 60° > 60 MPa a 70° > 70 MPa	a 50° > 100 MPa a 60° > 110 MPa a 70° > 120 MPa
Durability (temperature and humidity), THERMAL CYCLES Fresh concrete - hardened concrete Hardened concrete - hardened concrete HUMIDITY CYCLES Fresh concrete - hardened concrete Hardened concrete - hardened concrete	EN 13733	-	4,80 MPa 4,90 MPa  4,60 MPa 5,10 MPa
Adhesion by traction,	UNI EN 1542	-	3,5 MPa
Cls-cls adhesion,	UNI EN 12636	-	12 MPa
Steel-to-steel adhesion,	UNI EN 12188	-	17 MPa
Steel-concrete adhesion,	UNI EN 12188	-	5,5 MPa

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### APPLICATION SHEET

#### APPLICATION

Application is by roller, wet on wet over skim coat or, lacking the skim coat, when the primer is tack free and in any case within 24 hours after application of the primer.

Mechanically stir component A of the Saturant before adding component B.

Use a low speed drill with whisk attachment to mix component A with component B in the recommended ratio for approx. one minute to obtain an evenly coloured mix.

After having applied the first layer of saturant, lay the unidirectional woven fabric taking care to press it two or three times in the longitudinal direction of the fibre, using a spiked roller with blunted spikes parallel to the direction of the fibres to eliminate air from the layer of resin. When joining several strips together in the longitudinal direction of the fibre, they must overlap by about 20 cm. At the point of overlap, another coat of MasterBrace SAT 4500 must be applied onto the external surface of the sheet onto which the overlapping section will be bonded. No overlapping is necessary in the lateral direction of the fibre.

The second coat of MasterBrace SAT 4500 must be applied over the surface of the sheet.

If a second layer of fabric also has to be bonded, it will be applied followed by another coat of saturant, following the instructions given above.

#### CURING

MasterBrace FRP must be left to harden for no less than 24 hours (at 20 ° C) before the reinforced element can be used for service. For temperatures below 20 ° C it will be necessary to wait for more than 24 hours.

#### PROTECTION AGAINST UV RAYS

Protect surfaces reinforced with MasterBrace FRP by means of a coating from the MasterProtect line resistant to the action of atmospheric agents.

The application of the protective system:

it must take place after the last layer of MasterBrace SAT 4500 has hardened, starting from a minimum of 24 hours up to a maximum of 48 hours (at 20 ° C); in this case, the protective can be applied directly (for example MasterProtect 220 without the use of primer); temperatures different from 20 ° C can cause the time interval indicated above to vary;

in case of waiting for a period of time exceeding 48 hours (at 20 ° C) from the application of MasterBrace SAT 4500, it is necessary to first treat / roughen the surface of the adhesive with sandblasting and / or equivalent system, remove dust and then apply protective (for example MasterProtect 220 without using primer)

#### ENVIRONMENTAL LIMITATIONS

Apply MasterBrace SAT 4500 and the reinforcement system with air and substrate temperatures between +10 and + 30 ° C.

Application at air and substrate temperatures below 10 ° C can be done by adopting special precautions, such as heating the substrate and the resin application environment to a temperature between 10 and 20 ° C (for a period of time until the resin has hardened), using suitable heaters. Do not apply the product at temperatures below 5 ° C as the polymerization time would be extremely lengthened.

The application must take place on a dry support, which has a humidity not exceeding 6% and with a relative environmental humidity not exceeding 85%.

The reinforcement applied must subsequently be protected from any rainwater until the resin has completely hardened.

Do not apply the system when the substrate is wet, when leaning or dew formation is expected.

The operating temperature range for the resin is between -10 and + 40 ° C (this value refers to the measured surface temperature of the resin and not to the ambient temperature). For different operating temperatures, the technical service of Master Builders Solution should be contacted.

#### SAFETY INSTRUCTION

When mixing, always wear gloves, goggles and suitable work clothes to avoid contact with the skin.

In case of accidental contact, wash the affected parts abundantly with soap and water or with an appropriate detergent.

Do not use solvents or thinners.

Do not breathe vapors and aerosols; the application in a closed environment must take place in conditions of continuous air exchange.

During use it is forbidden to drink, eat and smoke.

Observe the safety regulations for the use of flammable and solvent-containing products

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## OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports and technical assistance, visit the website [www.master-builders-solutions.com/it-it](http://www.master-builders-solutions.com/it-it) or contact [infomac@mbcc-group.com](mailto:infomac@mbcc-group.com).

Scan the QR code to visit the product page and download the latest version of this datasheet.



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Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

### Master Builders Solutions Italia Spa

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For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.

This version supersedes all the previous ones.