

MasterBrace® SAT 4500

Epoxy encapsulation resin for the MasterBrace Composite Strengthening System

FORMERLY MBRACE® SATURANT

YIELD

MasterBrace FIB 300/50 CFS Fabric
55 ft²/gal (1.35 m²/L)

MasterBrace FIB 600/50 CFS Fabric
45 ft²/gal (1.1 m²/L)

MasterBrace FIB 900/50 FG Fabric
35 ft²/gal (0.85 m²/L)

COVERAGE

Coverage rates are based on square footage (meters) of fabric. Contact a BASF representative for coverage rates for other fabric types.

PACKAGING

Available in 1 gal (3.8 L) and 4 gal (15.2 L) units

COLOR

Part A – Blue
Part B – Clear
Mixed – Blue

SHELF LIFE

18 months when properly stored

STORAGE

Store in unopened containers in a clean, dry area between 50 and 90° F (10 to 32° C) away from direct sunlight, flame, or other hazards.

DESCRIPTION

MasterBrace SAT 4500 is a 100% solids, low viscosity epoxy material that is used to encapsulate MasterBrace carbon, glass, and aramid fiber fabrics. When reinforced with MasterBrace fiber fabrics, the MasterBrace SAT 4500 cures to provide a high performance FRP laminate. The resulting FRP laminate can provide additional strength to concrete, masonry, steel, and wood structural elements.

PRODUCT HIGHLIGHTS

- Used to encapsulate any MasterBrace fabric
- Moderate viscosity Can be applied in vertical and overhead applications, but still adequately saturates MasterBrace fabrics
- 100% solids epoxy Low odor, low VOC's

SUBSTRATE

- Concrete
- Masonry
- Steel

LOCATION

- Vertical
- Horizontal
- Exterior
- Interior

TECHNICAL DATA

COMPOSITION

Two part, 100% solids, sag resistant epoxy Physical Properties Density 61.3 pcf (983-kg/m³)

NOTES:

- (1) Based on testing of cured samples per ASTM D 638 at 72 °F (20 °C) and 40% relative humidity.
- (2) Based on testing of cured samples per ASTM D 695 at 72 °F (20 °C) and 40% relative humidity.
- (3) Based on testing of cured samples per ASTM D 790 at 72 °F (20 °C) and 40% relative humidity.
- (4) Based on testing of cured samples at 72 °F (20 °C) and 40% relative humidity.

TENSILE PROPERTIES (1)

PROPERTY	REQUIREMENT
Yield Strength	7900 psi (54 MPa)
Strain at Yield	2.5%
Elastic Modulus	440 ksi (3034 MPa)
Ultimate Strength	8000 psi (55.2 MPa)
Rupture Strain	3.5%
Poisson's Ratio	0.40

FLEXURAL PROPERTIES (3)

PROPERTY	REQUIREMENT
Yield Strength	20000 psi (138 MPa)
Strain at Yield	3.8%
Elastic Modulus	540 ksi (3724 MPa)
Ultimate Strength	20000 psi (138 MPa)
Rupture Strain	5%

HANDLING PROPERTIES

PROPERTY	VALUE
Mixed Weight	8.2 lb/gal (984 g/L)
VOC Content	25 g/L less water and exempt solvents. (EPA Method 24)
Flash Point	Part A: 230 °F (110 °C) Part B: > 200 °F (93 °C) (Pensky-Martens Closed Cup)
Mixed Viscosity	
at 50 °F (10 °C)	2500 cps
at 77 °F (25 °C)	1350 cps
at 90 °F (32 °C)	900 cps

COMPRESSIVE PROPERTIES (2)

PROPERTY	REQUIREMENT
Yield Strength	12500 psi (86.2 MPa)
Strain at Yield	5.0%
Elastic Modulus	380 ksi (2620 MPa)
Ultimate Strength	12500 psi (86.2 MPa)
Rupture Strain	5%

FUNCTIONAL PROPERTIES (4)

PROPERTY	REQUIREMENT
CTE	20·10 ⁻⁶ /°F (35·10 ⁻⁶ /°C)
Thermal Conductivity	1.45 Btu·in/hr·ft ² ·°F (0.21 W/m·°K)
Glass Transition Temp, T_g	163 °F (71 °C)

HOW TO APPLY

SURFACE PREPARATION

1. MasterBrace SAT 4500 should be applied to a substrate prepared with MasterBrace P 3500 and MasterBrace F 2000. The MasterBrace SAT 4500 can be applied before or after the MasterBrace P 3500 and MasterBrace F 2000 have achieved full cure.
2. Surfaces with a tack-free MasterBrace P 3500/ MasterBrace F 2000 coat must be lightly sanded and cleaned of any dust, oils, or other surface contaminants.

MIXING

1. The mix ratio is 3:1 (Part A to Part B) by volume or 100:30 (Part A to Part B) by weight. Mix only the amount of material that can be used within the working time of the material. Approximate working times for a 1 gal (3.8 L) unit are:
 - 200 min at 50° F (10° C)
 - 45 min at 77° F (25° C)
 - 15 min at 90° F (32° C)
2. Part A (resin) must be pre-mixed using a low speed drill (600 rpm) and mixing paddle (e.g., a Jiffy Mixer). Keep the paddle below the surface of the material to avoid entrapping air. Pre-mix for a minimum of 3 minutes.
3. Carefully measure (ratio) each component and then add Part B (hardener) to Part A (resin).
4. Mix Parts A and B using a low-speed drill (600 rpm) and mixing paddle (e.g., a Jiffy mixer). Carefully scrape the sides and bottom of the container while mixing. Keep the paddle below the surface of the material to avoid entrapping air. Proper mixing will take at least 3 – 5 minutes. Well-mixed material will be free of streaks or lumps.

APPLICATION

1. Apply the MasterBrace SAT 4500 using a 3/8" nap roller or short bristle brush to a wet film thickness of 18 to 22 mils.
2. Apply the desired MasterBrace fabric into the saturant before the saturant becomes tacky. (Note some fabrics may require additional MasterBrace SAT 4500 be applied directly onto the fabric prior to placing the fabric.)

3. Apply a second layer of MasterBrace SAT 4500 over the MasterBrace fabric using a 3/8" nap roller or short bristle brush to a wet film thickness of 18 to 22 mils.
4. If additional layers of MasterBrace fabric are required, repeat steps 1 through 3.

CLEAN UP

Use xylene or methyl ethyl ketone. Observe fire and health precautions with solvents.

MAINTENANCE

1. Periodically inspect the applied material and repair localized areas as needed. Consult a BASF representative for additional information. Visit us on the web for the most current product information and news: www.master-builders-solutions.basf.us

FOR BEST PERFORMANCE

- Only apply MasterBrace SAT 4500 when the ambient temperature is between 50 and 120° F (10 and 50° C).
- Surfaces subject to UV exposure should be protected with MasterProtect HB 400, MasterProtect HB 300 SB, or equivalent 100% acrylic top coat.
- Interior surfaces may be coated — consult your local sales representative for available options. Coatings applied over MasterBrace SAT 4500 should be applied within 48 hours.
- If more than 48 hours have passed following application of MasterBrace SAT 4500 the surface shall be lightly abraded and cleaned with a solvent wipe prior to applying the next component
- Make certain the most current versions of product data sheet and SDS are being used; call Customer Service (1-800-433-9517) to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

OBSERVE WORKING TIME LIMITATIONS

- Catalyze no more material than can be applied within the work time period.
- Available work time, temperature and complexity of the application area will determine how much material should be catalyzed at one time.
- Keep material cool and shaded from direct sunlight in warm weather.
- During hot weather, work time can be extended by keeping material cool before and after mixing or by immersing pot in ice water.

HEALTH, SAFETY AND ENVIRONMENTAL

Health, Safety and Environmental Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.basf.us, e-mailing your request to basfbcst@basf.com or calling 1(800)433-9517. Use only as directed. **For medical emergencies only, call ChemTrec® 1(800)424-9300.**

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