BASF

The Chemical Company

PRODUCT DATA

3 03 01 00 **Maintenance of Concrete**

MBRACE® SATURANT LTC

Low temperature cure epoxy encapsulation resin for the MBrace® Composite Strengthening System

Description

MBrace® Saturant LTC is a 100% solids, low viscosity epoxy material that is used to encapsulate MBrace® carbon, glass, and aramid fiber fabrics. Based on a unique amine curing agent technology, MBrace® Saturant LTC is designed to cure at ambient temperatures as low as 40° F (5° C) and substrate temperatures as low as 32° F (0° C). When reinforced with MBrace® fiber fabrics, the MBrace® Saturant LTC cures to provide a high performance FRP laminate. The resulting FRP laminate can provide additional strength to concrete, masonry, steel, and wood structural elements.

Yield

	COVERAGE
CF 130 or CF 530 Fabric	55 ft²/gal (1.3 m²/L)
CF 160 or AK 60 Fabric	45 ft²/gal (1.1 m²/L)
EG 900 Fabric	35 ft²/gal (0.85 m²/L)

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

Features	Benefits
• Moderate viscosity	Can be applied in vertical and overhead applications, but still adequately saturates MBrace® fabrics
• 100% solids epoxy	Low odor, low VOC's
• Suitable for low-temperature application	Can be applied if temperature is 40° F and rising; extends application window in cooler conditions

Color

Part A: Blue

Part B: Clear

Mixed: Blue

Shelf Life

18 months properly stored in unopened containers (Part A and B)

Storage

Store in a cool, dry area (50 to 90° F [10 to 32° C]) away from direct sunlight, flame, or other hazards.

Where to Use

APPLICATION

- Used to encapsulate any MBrace® fabric in low temperature environments

LOCATION

- Vertical
- Horizontal
- Exterior
- Interior

SUBSTRATE

- Concrete
- Masonry
- Steel

How to Apply

Surface Preparation

1. MBrace® Saturant LTC should be applied to a substrate prepared with MBrace® Primer and MBrace® Putty.
2. The primer and putty can be applied before or after the they have achieved full cure.
3. Surfaces with a tack-free primer/putty 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:

   40 min at 50° F (10° C)

   10 min at 77° F (25° 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).

Protection and Repair

Technical Data

Composition

Two component, 100% solids, amine cured epoxy

Handling Properties

PROPERTY	VALUE
Mixed Weight	8.2 lb/gal (984 g/L)
VOC Content	0.21 lb/gal (25 g/L) (EPA Method 24)
Flash Point	Part A: 181 ˚F (83 ˚C) Part B: > 200 ˚F (93 ˚C) (Pensky-Martens Closed Cup)
Mixed Viscosity	
at 50 ˚F (10 ˚C)	2400 cps
at 77 ˚F (25 ˚C)	1150 cps

Physical Properties

PROPERTY	VALUE
Density	61.3 pcf (983-kg/m^3)

Tensile Properties (1)

PROPERTY	VALUE
Yield Strength	2100 psi (14 MPa)
Strain at Yeild	1.3%
Elastic Madulus	165 ksi (1138 MPa)
Ultimate Strength	2100 psi (14 MPa)
Rupture Strain	5.3%
Poisson's Ratio	0.40

Compressive Properties (2)

PROPERTY	VALUE
Yield Strength	5200 psi (36 MPa)
Strain at Yield	2.3%
Elastic Modulus	230 ksi (1586 MPa)
Ultimate Strength	5200 psi (36 MPa)
Rupture Strain	5%

Flexural Properties (3)

PROPERTY	VALUE
Yield Strength	3600 psi (25 MPa)
Strain at Yield	4.5%
Elastic Modulus	80 ksi (552 MPa)
Ultimate Strength	3600 psi (25 MPa)
Rupture Strain	5%

Functional Properties (4)

PROPERTY	VALUE
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)

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.

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 MBrace® Saturant LTC using a 3/8" nap roller or short bristle brush to a wet film thickness of 18 to 22 mils.
2. Apply the desired MBrace® fabric into the saturant before the saturant becomes tacky. (Note some fabrics may require additional MBrace® Saturant LTC be applied directly onto the fabric prior to placing the fabric.)
3. Apply a second layer of MBrace® Saturant LTC over the MBrace® 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 MBrace® fabric are required, repeat steps 1 through 3.

Clean Up

Use T-471, methyl ethyl ketone or acetone. Observe fire and health precautions with solvents.

Maintenance

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.buildingsystems.basf.com.

For Best Performance

- Only apply MBrace® Saturant LTC when the ambient temperature is between 40 and 80° F (5 and 27° C).
- Surfaces should be protected with MBrace® Topcoat, Topcoat ATX, or Topcoat FRL within two days.
- 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.
- Make certain the most current versions of product data sheet and MSDS 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.

Health and Safety

MBRACE® SATURANT LTC PART A

Caution

Contains: Epoxy Resin; Phenol, polymer with formaldehyde, glycidyl ether; Aliphatic diglycidyl ether; Alkyl (C11-C14) glycidyl ether; Ethyl Benzene

Risks

Combustible liquid and vapor. May cause skin, eye and respiratory irritation. Ingestion may cause irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Suspect cancer hazard. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Vapors are heavier than air. Keep container closed. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing vapors. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable Federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Proposition 65

This product contains materials listed by the State of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

25.2 g/L or 0.21 lbs/gal less water and exempt solvents.

MBRACE® SATURANT LTC PART B

DANGER – CORROSIVE

Contains: 4-tert-butylphenol; Trimethylhexamethylenediamine; m-Xylene a,a′-diamine; Diethylenetriamine; Bisphenol-A

Risks

Contact with skin or eyes may cause burns. Ingestion may cause irritation and burns of mouth, throat and stomach. Inhalation of vapors may cause irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Repeated or prolonged contact with skin may cause sensitization. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

DO NOT get in eyes, on skin or clothing. Wash thoroughly after handling. Keep container closed. DO NOT take internally. Use only with adequate ventilation. DO NOT breathe vapors. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable Federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Proposition 65

This product does not knowingly contain materials listed by the State of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

0 g/L or 0 lbs/gal less water and exempt solvents.

Product Material Safety Data Sheets (MSDS) are available and should be consulted and on hand whenever handling these products. These products are for professional and industrial use only and are only installed by trained and qualified applicators. Trained applicators must follow installation instructions.

BASF Construction Chemicals, LLC – Building Systems

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