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Technical Data Guide

3 | 03 01 00  
Maintenance  
of Concrete

# MasterBrace® F 2000

High viscosity epoxy paste for the MasterBrace Composite Strengthening System

FORMERLY MBRACE® PUTTY

## YIELD

100 to 250 ft<sup>2</sup>/gal (4.9 to 6.1 m<sup>2</sup>/L)  
(Coverage rate on concrete and masonry may vary depending on density and porosity of the substrate)

## PACKAGING

Part A – 3 qts; 2 gal pail; 8 lbs  
Part B – 1 qt; 1 qt can; 2.5 lbs

Available in 1 gal (3.8 L) units.  
Each unit is packaged as follows:

## COLOR

Part A – Light Gray  
Part B – Charcoal  
Mixed – Gray

## 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 F 2000 is a 100% solids non sag epoxy paste for use with the MasterBrace Composite Strengthening System. It is used level small surface defects and to provide a smooth surface to which the MasterBrace System will be applied.

## PRODUCT HIGHLIGHTS

- 100% solids epoxy Low odor, low VOC's
- Suitable for low-temperature application can be applied if temperature is 35° F and rising; extends application window in cooler conditions
- High viscosity Can be used in vertical and overhead applications

## SUBSTRATES

- Concrete
- Masonry
- Steel

## APPLICATIONS

- Fill small voids or smooth small offsets on cementitious substrates.
- Sealing of cracks prior to epoxy-injection.
- Vertical
- Horizontal
- Exterior
- Interior

**TECHNICAL DATA**

COMPOSITION

Two part, 100% solids, non-sag epoxy paste

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.

**PHYSICAL PROPERTIES**

PROPERTY	REQUIREMENT
<b>Density</b>	75.8 pcf (1258 kg/m <sup>3</sup> )

**COMPRESSIVE PROPERTIES (2)**

PROPERTY	REQUIREMENT
<b>Yield Strength</b>	3300 psi (22.8 MPa)
<b>Strain at Yield</b>	4.0%
<b>Elastic Modulus</b>	155 ksi (1076 MPa)
<b>Ultimate Strength</b>	3300 psi (22.8 MPa)
<b>Rupture Strain</b>	10%

**FUNCTIONAL PROPERTIES (4)**

PROPERTY	REQUIREMENT
<b>CTE</b>	20·10 <sup>-6</sup> /° F (35·10 <sup>-6</sup> /° C)
<b>Thermal Conductivity</b>	1.32 Btu-in/hr-ft <sup>2</sup> ° F (0.19 W/m·°K)
<b>Glass Transition Temp, T<sub>g</sub></b>	168° F (75° C)

**TENSILE PROPERTIES (1)**

PROPERTY	REQUIREMENT
<b>Yield Strength</b>	1800 psi (12 MPa)
<b>Strain at Yield</b>	1.5%
<b>Elastic Modulus</b>	260 ksi (1800 MPa)
<b>Ultimate Strength</b>	2200 psi (15.2 MPa)
<b>Rupture Strain</b>	7%
<b>Poisson's Ratio</b>	0.48

**FLEXURAL PROPERTIES (3)**

PROPERTY	REQUIREMENT
<b>Yield Strength</b>	3800 psi (26.2 MPa)
<b>Strain at Yield</b>	4.0%
<b>Elastic Modulus</b>	130 ksi (895 MPa)
<b>Ultimate Strength</b>	4000 psi (27.6 MPa)
<b>Rupture Strain</b>	7%

**HANDLING PROPERTIES**

PROPERTY	REQUIREMENT
<b>Mixed Weight</b>	10.5 lb/gal (1259 g/L)
<b>VOC Content</b>	Content 89 g/L less water and exempt solvents. (EPA Method 24)
<b>Flash Point</b>	Part A: 210° F (99° C) Part B: >200° F (93° C) (Pensky-Martens Closed Cup)
<b>Mixed Viscosity</b>	
at 50° F (10° C)	74,000 cps
at 77° F (25° C)	45,000 cps
at 90° F (32° C)	33,000 cps

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## HOW TO APPLY

### SURFACE PREPARATION

1. MasterBrace F 2000 should be applied to a substrate primed with MasterBrace P 3500. The putty can be applied before or after the primer coat has achieved full cure. Surfaces with a tack-free primer 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:
  - 95 min at 50° F (10° C)
  - 40 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.
5. If a thicker consistency is desired, silica flour (S-11 Powder) may be mixed into the material using a low-speed drill and mixing paddle. Add as much silica flour as is needed to achieve the desired consistency.

### APPLICATION

1. Apply the MasterBrace F 2000 to the primed substrate using a spring-steel trowel.
2. The material should be applied by pulling a “tight” trowel. That is the MasterBrace F 2000 should only fill small voids and smooth small offsets in the substrate. High build or thick applications of the MasterBrace F 2000 are not recommended.

### 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.
2. Visit us on the web for the most current product information and news: [www.master-builders-solutions.basf.us](http://www.master-builders-solutions.basf.us).

### FOR BEST PERFORMANCE

- Only apply MasterBrace F 2000 when the ambient temperature is between 35° and 120° F (2° and 50° C).
- Subsequent components of the MasterBrace System should be applied within 48 hours of applying MasterBrace F 2000 to the substrate to assure proper adhesion.
- If more than 48 hours have passed following application of MasterBrace F 2000 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.

### WARNING

Vapor may be harmful. Contains epoxy resins and curing agent. May cause skin sensitivity or other allergic responses. Keep away from heat, sparks or open flame. In enclosed areas or where ventilation is poor use an approved air mask and utilize adequate safety precautions to prevent fire or explosion. In case of skin contact, wash with soap and water. For eyes, flush immediately (seconds count) with water for 15 minutes and CALL A PHYSICIAN. If swallowed, CALL A PHYSICIAN IMMEDIATELY. Product Safety Data Sheets (SDS) 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.

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### 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](http://www.master-builders-solutions.basf.us), e-mailing your request to [basfbscst@basf.com](mailto:basfbscst@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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