

# MasterBrace 4000

Epoxy resin adhesive for MasterBrace Laminate system

## Material Description

**MasterBrace 4000** is the adhesive for the MasterBrace Laminate system and a filling compound for irregular surfaces. The MasterBrace Laminate system is based on ready to use carbon fibre laminate strips that provide high tensile strength and are suitable for supplemental, externally bonded reinforcement of concrete, timber and masonry elements.

## Areas of Application

**MasterBrace 4000** is used as an adhesive for the MasterBrace Laminates to concrete, steel and wood.

## Characteristics and Benefits

- Long pot-life – allows installation of long laminates
- Thixotropic with high adhesive strength – self-supporting requiring no external propping and with minimal drips and runs
- High cured bond strength – creating true composite with substrate

## Properties

|                         |                                    |
|-------------------------|------------------------------------|
| Compressive strength    | >60 MPa                            |
| Flexural strength       | >30 MPa                            |
| Bonding, ASTM D 4541    |                                    |
| Concrete                | >3.5 MPa (concrete failure)        |
| Steel                   | >5 MPa                             |
| Electrical resistivity  | 10 <sup>14</sup> Ω m               |
| Composition             | Two component epoxy based adhesive |
| Mix ratio               | 3A : 2B by weight                  |
| Colour                  | Grey                               |
| Specific Gravity @ 23°C | 1.5                                |
| Full Cure @ 23°C        | 7 days                             |
| Pot Life @              |                                    |
| - 23°C                  | 40 mins                            |
| - 40°C                  | 20 mins                            |
| Tack Free @             |                                    |
| - 23°C                  | 5 hours                            |
| - 40°C                  | 2 hours                            |

*The performance data is typical and based upon controlled laboratory conditions. Actual performance on the job site may vary from these values based on actual site conditions.*

## Application

### Surface Preparation

Remove oils, grease, dust or any other loose material from the surface that may impair adhesion. Application of external reinforcement should only take place if the substrate has an inherent tensile strength of at least 1.5 MPa.

The surfaces of elements that are still in good condition or restored with repair mortar should be roughened sufficiently with grit blasting or similar. Angle grind, grit blast, or needle gun repaired surfaces, to remove smooth, cement paste rich surface layers (laitance) and ensure aggregate is exposed and substrate surface has a sufficient profile. A surface profile of CSP 3-4 is desirable. With degraded substrates, the whole damaged layer should be removed by scarifying, hydro-demolition or similar and then structural restoration carried out with a suitable mortar eg. MasterEmaco S 5400CI, MasterBrace 1446 or MasterBrace 4000 to ensure surfaces are within allowable levelness and flatness tolerances..

### Mixing

Mechanically pre-mix Part A before adding all of Part B and mixing for two minutes or until a homogeneous mix is produced using a slow speed drill and mixing paddle.

### Method of Use

Ensure a maximum substrate humidity of 4% and substrate temperature is at least 30C above dew point. If necessary, apply a levelling coat of **MasterBrace 4000** using a putty knife, to fill any bug holes or imperfections. Recheck surface tolerances.

Apply a layer of MasterBrace P 3500 by roller or brush, and apply the **MasterBrace 4000** while the primer is still tacky. Maximum layer thickness of MasterBrace 4000 for re-profiling is 20 mm.

Remove the peel ply protective coating from the laminate surface before application of the **MasterBrace 4000**.

# MasterBrace 4000

Epoxy resin adhesive for MasterBrace Laminate system

If after removal and before installation the laminate has been contaminated clean with a white cloth and non-greasy solvent (like methylated spirits) before applying the MasterBrace 4000. Apply one layer of **MasterBrace 4000**, of 1-1.5 mm thick, to both substrate and laminate surfaces. Place the MasterBrace Laminate on the substrate surface and using a hard roller, exert a constant pressure by moving the tool both ways in the direction of the fibres to expel air. Aim for a final layer thickness of 1-3 mm of **MasterBrace 4000**. Clean up excess adhesive with non-greasy solvent prior to hardening. For further information about application, please obtain a copy of the Master Builders Solutions "Application Guide for MasterBrace Laminates" from our office or website.

## Estimating Data

A 5kg kit of **MasterBrace 4000** yields approximately 3.3 litres. This is sufficient for approximately 1m<sup>2</sup> of laminate or a 10-12 m length of 80 mm wide laminate.

| MasterBrace 4000 Wet Film Thickness |                                 |                |                       |                              |
|-------------------------------------|---------------------------------|----------------|-----------------------|------------------------------|
| L                                   | Thickness in mm /m <sup>2</sup> | m <sup>3</sup> | pails /m <sup>3</sup> | m <sup>2</sup> /mm thickness |
| 3.3                                 | 3.3mm                           | (0.0033)       | 303                   | 3.3 m <sup>2</sup>           |

## Disclaimer

MasterBrace-4000-ANZ-V12-0523

### STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this MB Solutions Australia Pty Ltd publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use and for ensuring that the application and use of the product is in accordance with the manufacturer's guidelines and recommendations.

### NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by MB Solutions Australia Pty Ltd either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not MB Solutions Australia Pty Ltd, are responsible for carrying out procedures appropriate to a specific application.

### MB Solutions Australia Pty Ltd

ABN 69 634 934 419  
Unit 102, 2 Burbank Place  
Norwest NSW 2153  
Freecall: 1300 227 300

[www.master-builders-solutions.com/en-au](http://www.master-builders-solutions.com/en-au)

### MB Solutions New Zealand Ltd

45C William Pickering Drive  
Albany, Auckland  
New Zealand

Phone: +64 9 414 7233

### Emergency Advice:

1300 954 583 within Australia (24hr)  
0800 001 607 within New Zealand

