

# MBRACE® MBar

The MBRACE MBar system is a Carbon Fibre Reinforced Polymer (CFRP) system for structural strengthening of concrete, masonry and timber structures. The system comprises of a heavy-duty MBRACE Laminate Adhesive which is used to bond the ready to use MBar rods.

## DESCRIPTION

**MBar** is a ready to use pultruded carbon fibre rod, which provides a high tensile strength (that is higher than steel reinforcement used in the concrete industry) and can be used for flexural reinforcement of concrete, masonry and timber elements.

## RECOMMENDED FOR

To replace or augment steel reinforcement in concrete structures. To add reinforcement to timber and masonry elements. Suitable for NSM (near surface mounted reinforcement) of structures.

Ideal when the cover of the steel bars is very low, as **MBar** does not corrode.

Can be used for slim or narrow architectural concrete.

- reduce deformation under working loads (increase in rigidity)
- increase the load-bearing capacity (e.g. structural conversion following a change in capacity load)
- increase the fatigue strength
- improve the performance of cracked structures (increase in durability)
- **MBar** is supplied with peel ply, which gives better protection during handling and improved adhesion to the substrate.
- can be buried in the structure
- ideal for use in historical structures
- **MBar** enables the amount of reinforcement to be calculated in relation to the performance required or the stress flow
- allows faster installation, thereby reducing costs
- increases the durability of the structure by protecting it against the aggressive action of chlorides and freezing and thawing cycles

## PERFORMANCE DATA

	MBar
Typical tensile strength	2500 MPa
Typical tensile modulus	165 GPa
Diameter mm	8, 10, 12, 16
Section Area mm <sup>2</sup>	47.1, 74.2, 107.5, 193.6
Ultimate elongation (strain)	1.3%
Fibre content %	65
Density g/cm <sup>3</sup>	1.61
Inter laminate shear strength	77 MPa
Thermal expansion m /m/°C	0.6 x 10 <sup>-6</sup>

**Note:** Values given in the Performance Data table are mean values obtained from regular, quality assurance testing. Some variation may occur dependant on batch, size, and test method sensitivity. Allowance should be made for this in the design process.

The structural designer is advised to satisfy themselves, by prior testing if necessary, that the grade chosen will conform to the performance criteria for their specific design requirements.

## APPLICATION

The surfaces to be strengthened with **MBar** should be prepared adequately to receive to the **MBar**. All chases should be clean cut to the required width (and depth). A minimum of 3mm should be left around the **MBar** to allow for adequate adhesive. A coat of **MBRACE Primer** may be required on porous substrates. Remove the protective peel-ply from the MBar before application. Provided the MBar remains clean, there is no need to solvent wipe before application. Mix the **MBRACE Laminate Adhesive** as directed. Apply the adhesive to the prepared chase and place the **MBar** into the adhesive. Level the adhesive to ensure that a smooth surface is achieved.

The adhesive normally used for **MBar** is the **MBRACE Laminate Adhesive**, a two component epoxy based adhesive. Refer to separate technical data sheet for technical properties. Depending on the application, other BASF adhesives may be used to suit a variety of installation conditions (eg **CONCRETE 1444** or **2525**). Please contact your local BASF Construction Chemicals technical representative for further information.

## PACKAGING

**MBar** is available in rolls or pre-cut pieces, depending on project requirements\*.

MBRACE Laminate Adhesive is available in 5kg units (3.33 lt).

\* For special lengths please contact your local BASF Construction Chemicals technical representative.

## STORAGE

Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions.

## SHELF LIFE

Up to 12 months if stored according to manufacturer's instructions.

## WATCHPOINTS

Design and detailed specification should be carried out by appropriately qualified and competent person(s).

Trained and experienced specialist contractors should only carry out installation. Site quality control should be the responsibility of an independent organisation appointed by the client or his representatives.

Technical details of other adhesives, primers and coatings can be found on the technical data sheets for the respective products.



The Chemical Company

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## PRECAUTIONS

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the BASF Construction Chemicals **Material Safety Data Sheet (MSDS)** from our office or our website.

## SPECIFICATIONS

Professional consulting engineers and designers may also make use of standard specification details. Please make sure that you obtain a copy of the "MBRACE MBar Specification" from your local office.

MBRACE MBar is typically designated on drawings as per the example below:

"Apply five lengths of 10 mm diameter **MBRACE MBar** carbon fibre rod, positioned at 250 mm centres x 6000 mm long, as located on the drawings.

Typical installation is to be in accordance with manufacturer's recommendations."

**AMBar/6/1011**

### STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** 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.

### NOTE

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

**BASF Australia Ltd**  
A.B.N. 62008437867  
Head Office: 11 Stanton Road Seven Hills, NSW 2147  
Ph. (02) 8811 4200

Newcastle	(02) 4961 3819
Canberra	(02) 6280 6010
Brisbane	(07) 3633 9900
Townsville	(07) 4774 7344
Melbourne	(03) 9549 0300

Adelaide	(08) 8139 7500
Perth	(08) 9366 2600
Darwin	(08) 8984 3269
Kalgoorlie	0417 772 355

**BASF New Zealand Ltd**  
**BASF WEB SITES**

Head Office: 45 William Pickering Drive, Albany, Auckland Ph: (09) 414 7233  
www.basf-cc.com.au      www.basf-cc.co.nz      www.meyco.basf.com