

MBRACE® LAMINATE 460/1500

Ready to use Ultra High Modulus Carbon Laminate for the reinforcement of metallic structures with MBrace® FRP 'Laminate' System

DESCRIPTION

MBrace 460/1500 is an ultra high modulus Laminate and is a ready to use pultruded carbon LAMINATE that provides a high tensile strength and is indicated for flexural reinforcement (plate bonding) of metallic structures with **MBrace FRP Laminate** system.

RECOMMENDED FOR

To reinforce cast iron, steel and wrought iron elements in structures including bridges, buildings, marine structures, car parks, chimneys, silos etc in order to:

- increase the load-bearing capacity (e.g. structural conversion following a change in capacity load).
- accommodate heavy machinery and/or vibration
- support change of use
- provide blast or seismic resistance
- restore strength to structures damaged by impact, fire or decay
- improve serviceability with reduced deflection, stress and fatigue
- allow structural alteration
- remedy design or construction defects

FEATURES AND BENEFITS

- Ideally suited for metallic structures.
- Manufactured to required dimensions.
- High corrosion resistance and durability.
- Lightweight.
- Tapered ends to minimise peel stresses.
- Fast, economical installation with minimum disruption incorporating the unique peel ply protective coating
- Minimum aesthetic impact.
- Can be sheathed in E-glass or Kevlar® to avoid any risk of steel corrosion.

PERFORMANCE DATA

Performance of MBrace UHM Laminate

Typical tensile strength	1500 MPa
Typical tensile modulus	460 GPa
Elongation at break %	0.3-0.4
Fibre content %	71
Density g/cm ³	1.82
Inter Laminate Shear Strength	50 MPa
Thermal Expansion m/m/°C	0.4 x 10 ⁻⁶

Note:

Width and thickness combinations are manufactured to order on a project basis.

Values above are typical mean values obtained from regular testing. Some variation may occur dependant on batch, size, and test method. Allowance should be made for this in the design process.

The designer is advised to satisfy himself, by prior testing if necessary, that the grade/size chosen will conform to the performance criteria for his specific design.

APPLICATION

Preparation of Substrate

Remove oils, grease, dust or any other loose material from the substrate.

The surfaces of elements to be reinforced should then be prepared by grit blasting to Sa 2½. All surface dust must be removed. If the Laminate is not to be applied within four hours of preparation then the substrate should be protected with a coat of **MBrace Primer**.

Application

Degrease the metallic surface using **Solvent No 2** applied by light brushing.

Remove protective peel ply film from surface of **Laminate** to be adhered.

Apply one layer of **MBrace Laminate Adhesive 1** – 1.5 mm thick on both the surfaces (metal and **Laminate**). Any surface defects or low spots in the substrate should be filled with additional adhesive as required to achieve a level application.

Apply **MBrace Laminate** and using the correct roller, exert a constant pressure by moving the tool both ways in the direction of the fibres. Full contact to both surfaces must be ensured.

Excess adhesive from the edges of the **Laminate** should be chamfered to a fillet of approximately 45°.

Temporary support should be provided until the adhesive cures sufficiently to support the **Laminate**.

For information about application, please obtain a copy of the BASF "Application Guide for MBrace" from your local representative.

PACKAGING

Available in rolls 30kg in weight.

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.



The Chemical Company

MBRACE[®] LAMINATE 460/1500

WATCHPOINTS

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

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

Surfaces exposed to U.V. rays should be protected within two days (maximum seven days) with a selected product from the **Masterseal** line in order to ensure perfect bonding between the protective layer and FRP.

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

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.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF Construction Chemicals** 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. **BASF Construction Chemicals data sheets are updated on a regular basis and it is the user's responsibility to obtain the most recent issue.**

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 Construction Chemicals**, are responsible for carrying out procedures appropriate to a specific application.

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