



The Chemical Company

MBT-MBRACE® LAMINATE

High Strength and High Modulus Unidirectional Pultruded Carbon Fiber Laminates

Description of Product

MBRACE® LAMINATE is high strength or high modulus unidirectional pultruded carbon fiber laminates in **Mbrace® FRP** System.

Fields of Application

- Increasing the flexural strength of the concrete beams,
- Increasing the flexural strength of the concrete slabs under heavy machine loads,
- Increasing the rigidity of the beams and slabs against bending deformations,
- Increasing the flexural strength of the concrete slabs damaged with ventilating channel openings, stairs and elevator holes etc.,
- Increasing the flexural strength of the concrete beams and slabs under increased service loads (change of usage etc.),
- Decreasing disturbing effect of the vibrations on the slabs caused by machines.

Features and Benefits

- Light and easy to carry.
- Easy to cut and re-shaped.
- Easy to design (Unidirectional laminates and similar elasticity modulus with steel).
- Does not increase the gravity of the structure.
- Does not require to empty the structure and strengthening works can be done with temporary stops.
- Decreases the bending deformations in the slabs and beams.

Application Procedure

Preparation of Substrate

The mineral based substrates (concrete, stone, brick, tile etc.) must be sound, clean and dry. It shouldn't be weakened by over-troweling and lack of curing. The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust. If there is a water leakage it must be drained or properly plugged. In case of low

Technical Data

Type	MBRACE® LAMINATE LM				MBRACE® LAMINATE HM	
	LM 5/1,2	LM 5/1,4	LM 10/1,2	LM 10/1,4	HM 5/1,4	HM 10/1,4
Elasticity Modulus (N/mm ²)	> 165.000	> 165.000	> 165.000	> 165.000	> 210.000	> 210.000
Thickness (mm)	1,2	1,4	1,2	1,4	1,4	1,4
Width L (mm)	50	50	100	100	50	100
Cross Section Width (mm) (mm ²)	60	70	120	140	70	140
Theoretical Tensile Load (KN)						
Strain $\epsilon = 0,4\%$	39	46	78	92	59	118
$\epsilon = 0,6\%$	60	70	120	140	87	174
$\epsilon = 0,8\%$	78	91	156	182	115	231



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strength concrete ($\sigma_{tc} < 1.5 \text{ N/mm}^2$), the loosen parts of concrete must be broken and the surfaces should be refilled with structural repair mortars in **Emaco® S** range. Before the adhesive application let the repair mortars cure at least 7 days at 20°C.

Steel surfaces should be cleaned from rust by sand blasting, or wire brushing. Plastic surfaces must be cleaned with proper cleaners before adhesive application.

FRP plates should be free of oil stains and dust. In porous substrates **Mbrace® Primer** should be used as a primer and the adhesive application should be done in the following 24 hours.

Application Method

MBRACE® LAMINATE ADESIVO should be applied to the prepared surfaces and to FRP laminates by using a steel spatula or steel trowel. Application thickness should be between 1.0 - 2.0 mm. In the following 10 minutes (at 25 °C) FRP laminates should be placed on to the substrate and push on to the laminates with a stiff roller (polyamide, steel etc.) for preventing possible air gaps between the laminate and substrate.

For plastering on the fiber surface, clean and sound sand should be spread on to the fiber surface while the adhesive is still wet. After curing of adhesive any kind of plaster can be easily applied. For fire resistance, the fibers should be coated with special fire resistant coatings (**Meyco® Fireshield**, etc.).

Watchpoints

- **Mbrace® FRP** applications should be done by approved experts.
- Work clothes, protective gloves, glasses and mask defined in Labour Laws must be used during the application. Do not touch to the laminates without hand gloves.
- Consult to the BASF Technicians for special applications aren't defined in this data sheet.

Cleaning of Tools

After the application all tools should be cleaned with a proper detergent or solvent such as thinner.

Packaging

150 m rolls

Storage

Store in original container in cool (+5°C - +30°C) and dry indoor conditions.

Health and Safety Precautions

It is dangerous to get close to the store areas with fire. The store must be well ventilated. Work clothes, protective gloves, glasses and mask defined in Labour Laws must be used during the application. Avoid from material to contact with skin and eyes. In case of contacting wash your skin with water and go to doctor immediately

Don't bring any food and drink to the application area. Store the material away from the children. For further information Material Safety Data Sheets should be read.

Disclaimer

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