



We create chemistry

MasterBrace ADH 4000

Thixotropic adhesive recommended for structural bonding of the MasterBrace LAM.

DEFINITION OF THE MATERIAL

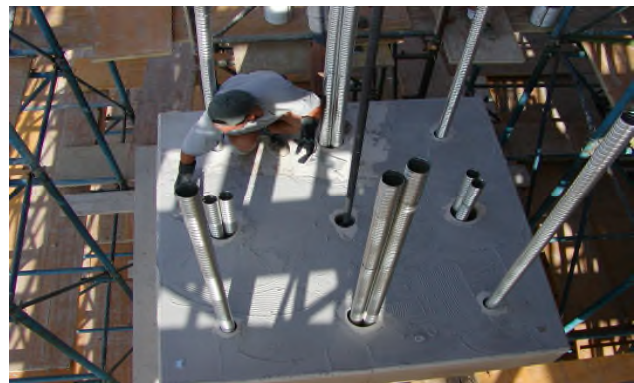
MasterBrace ADH 4000 is a two-part solvent-free thixotropic epoxy resin featuring high bonding strength to various types of substrate.

MAIN FIELDS OF APPLICATION

MasterBrace ADH 4000 is applicable, by means of toothed metal trowel or steel spatula, to achieve both horizontally and vertically:

- bonding of concrete, metal, wood, stone and many other building materials in combination with each other;
- tackles steel (only bolted);
- bonding of precast reinforced concrete blocks;
- surfaces and surface regularisation;
- grouting of crawl spaces;
- sealing of cracks to be injected with MasterInject 1360;
- localized reconstruction of edges, chipping and cavities of concrete elements.

MasterBrace ADH 4000 is recommended as a structural adhesive for all applications with the pull-extruded carbon fibre laminates of MasterBrace LAM system to reinforce structures in concrete, masonry, natural stone, wood and steel.




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FEATURES

MasterBrace ADH 4000 meets the acceptance limits given in UNI EN1504/4.

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UNI EN 1504 - 4 Adesivo di resine epossidiche per il rinforzo strutturale con lastre in fibra di carbonio	
Unione / adesione	Resistenza allo strappo: > 14 N/mm ² Resistenza al taglio inclinato a: 50° ≥ 60 N/mm ² 60° ≥ 60 N/mm ² 70° ≥ 70 N/mm ²
Resistenza al taglio	≥ 12 N/mm ²
Ritiro / dilatazione	≤ 0,1%
Lavorabilità	Circa 90 min. a 23 °C Circa 35 min. a 30 °C Circa 60 min. a 22 °C
Tempo aperto	Circa 60 min. a 30 °C
Modulo di elasticità in compressione	≥ 2000 N/mm ²
Modulo di elasticità in flessione	≥ 2000 N/mm ²
Coefficiente di dilatazione termica	≤ 100 × 10 ⁻⁶ K
Temperatura di transizione vetrosa	≥ 40 °C
Reazione al fuoco	Classe F
Durevolezza (cicli di temperatura e umidità)	Conforme
Sostanze pericolose	Secondo 6.4
Unione / Adesione - Idoneità per applicazione su superfici verticali e intradossi (deflusso inferiore a 1 mm)	Conforme
Idoneità per applicazione su superfici orizzontali (superficie > 3000 mm ² dopo il deflusso)	Conforme
Idoneità per applicazione e maturazione ad alte temperature (30°)	Conforme

The features are:

- excellent adhesion: this requirement, also guaranteed the absence of solvent, obtains the consistency with the support;
- high mechanical performance and compression tensile strength;
- dielectricity;
- resistance to most common acids, alkalis, solvents and hydrocarbons;
- waterproof: the material is also suitable for permanent contact with water.

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PERFORMANCE

The performance indicated below is obtained at 140-160 mm, secondo UNI EN 1015/3

Features	Proof method	Values
Density (20°C):	-	1,7 g/cm ³
Applicable thickness	-	1-3 mm
Pot life a 25°C	-	approx. 90 min
Application temperature	-	da +5 a +30°C
Adhesion on concrete Adhesion: (steel-steel) Adhesion: (steel - concrete) Traction adhesion: (concrete - concrete)	UNI-EN 1542 UNI-EN 12188 UNI-EN 12188 UNI-EN 12636	>2.0 MPa (break of cls) >16 MPa >5.4 MPa (break of cls) > 12 MPa (break of cls)
Oblique shear resistance: Shear resistance	UNE-EN 12188 UNE-EN 12188	50° : > 78 MPa 60° : > 86 MPa 70° : > 106 MPa > 70 MPa
Compressive strength Modulo E (compressive): Modulo E (bending):	UNE-EN 12190 UNE-EN 13412 UNE-EN ISO 178	> 73 MPa 8700 MPa 4260 MPa
Glass transition temperature Tg:	EN 12614	52,3 °C
Absorption Karsten	-	0
Thermal expansion coefficient:	UNE-EN 1770:1999	0,45
Thermal compatibility (heating cycles): Fresh concrete-hardened concrete Hardened concrete-hardened concrete Thermal compatibility (wet cycles): Fresh concrete-hardened concrete Hardened concrete-hardened concrete	EN 13733	> 8.50 MPa > 11.50 MPa > 6.00 MPa > 8.50 MPa

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COVERAGE AND PACKAGING

For applications such as structural adhesive

1.6 kg/m² per mm of thickness.

For applications with the MasterBrace LAM

- 0.16 ÷ 0.25 kg/m for MasterBrace LAM with 5 cm width
 - 0.32 ÷ 0.5 kg/m for MasterBrace LAM with 10 cm width
- 5 kg pack consisting of:
- comp. A, 4,46 kg.
 - comp. B, 0,54 kg.

APPLICATION SHEET

STORAGE

Store in a sheltered, cool, dry place (10÷30 °C) out of direct contact with sunlight, fire or naked flames. Should the temperature fall below 10°C the viscosity of the resin could increase and lumps form. In this case, before using the product, warm the containers (tightly closed) by standing them in hot water until the lumps disappear.

APPLICATION

- Bonding:

If necessary, apply the bonding layer of MasterBrace P 3500 roller or by brush application can be done on a dry support using steel spatula or metal toothed trowel kept constantly clean using specific diluent E100. Do not apply the product at temperatures below 5° C as curing time would be extremely stretched.

- MasterBrace LAM:

Apply a coat of MasterBrace P 3500 PTB by roller or by brush (necessary for wood); mechanically stir component A of MasterBrace ADH 4000 before adding its component B (mixing ratio 4A:1B by weight); once component B has been added, mix until a uniform, grey compound is obtained; use a notched spreader to apply a millimetre thick coat of MasterBrace ADH 4000 on the side of the laminate that has not been sandblasted (after having

cleaned it with acetone or nitro thinner and left to dry thoroughly) and then on the substrate; lay MasterBrace LAM on the substrate and pass a hard rubber roller with constant pressure in the two directions of the fibres until all excess adhesive is squeezed out; remove the excess resin and clean the laminate.

RECOMMENDATIONS AND PRECAUTIONS

With the MasterBrace LAM system, working conditions must be carefully considered during the winter months and in cold climates. Do not apply the product at temperatures below 5°C, as polymerisation time could become extremely long.

Damp and humidity can hinder bonding of the adhesive. Do not apply the system when rain or even dew is forecast.

SAFETY INSTRUCTIONS

- Always wear gloves, goggles and suitable work clothes during mixing in order to avoid contact with the skin.
- In the event of accidental contact, thoroughly wash the affected parts with water and soap or an appropriate detergent.
- Do not use solvents or thinners.
- Do not inhale the vapours and sprays; a continual change of air should be ensured for application in a closed environment.
- Under no circumstances drink, eat or smoke during use.
- Comply with safety regulations on the use of products that are inflammable or contain solvents.



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From 16/12/1992 BASF Construction Chemicals Italia Spa operates under the Quality System in compliance with European Standard UNI-EN ISO 9001. The environmental management system of BASF Construction Chemicals Italia Spa is certified accordingly to UNI EN ISO 14001 and the System of Safety Management is certified accordingly to OHSAS 18001.

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For further information, please consult your local BASF Construction Chemicals Italia Spa representative.

The technical advice on how to use our products, either written or verbally given, are based on the present state of our best scientific and practical knowledge, and no guarantee and/or implicit or explicit responsibility are assumed on final results of works executed by the use of our products.

The owner, his representative, or the contractor is responsible for checking the suitability of our products as to the intended use and aims.

Supersedes all prior issues on this product.

March 2020