

MasterEmaco T 1200 PG

Formerly: EMACO FAST FLUID

Fast setting ready-mixed, flowable mortar for application even at temperatures of – 10 °C, recommended for the repair or the fixing of reinforced concrete elements with application thickness from 10 to 150 mm

DEFINITION OF THE MATERIAL

MasterEmaco T 1200 PG is a ready-mixed flowable mortar containing a special pozzolanic binder, which is fast setting even at low temperatures.

MAIN FIELDS OF APPLICATION

MasterEmaco T 1200 PG allows work to be carried out very fast and at temperatures as low as -10°C. It can be used for example to:

- repair top face and ends of slabs;
- repair rigid reinforced concrete paving (for high density traffic or high stress situations, use MasterEmaco T 1400 FR)
- anchor street drains, manhole covers, kerbs (for high density traffic or high stress situations use MasterEmaco T 1400 FR)
- fix and grout stone block paving
- fix and anchor street furniture and road signs




Application thickness is between 10 and 150 mm inclusive (from 10 to 100 mm for localised work; from 25 to 150 mm for bedding or fixing manhole covers, especially if large or subject to high density traffic; up to 50 mm when casting for repair or thickening work).

For work that requires more than the recommended thickness, washed impurity-free aggregate (of the type and in the quantity to be defined according to the required thickness) must be added.

CHARACTERISTICS

MasterEmaco T 1200 complies with the acceptability limits indicated in UNI EN 1504/3

 1305 BASF Construction Chemicals Italia spa Via Vicinale delle Corti, 21 Treviso 13 IT0012/01	
EN 1504-3 Malta da ripristino rapida, colabile. EN 1504-3 metodi 3.1/3.2/4.4/7.1/7.2	
Resistenza a compressione:	Classe R4
Contenuto di cloruri:	< 0,05%
Adesione al supporto:	> 2,0 MPa
Resistenza alla carbonatazione:	Specifica superata
Modulo elastico:	> 20 GPa
Compatibilità termica:	
Gelo-disgelo	> 2,0 MPa (adesione dopo i cicli)
Temporali	> 2,0 MPa (adesione dopo i cicli)
Cicli a secco	> 2,0 MPa (adesione dopo i cicli)
Assorbimento capillare:	≤ 0,5 Kg/m ² .h ^{0,5}
Resistenza all'abrasione	Classe I
Reazione al fuoco:	Classe A1
Sostanze pericolose:	Conforme 5.4

Features peculiar to MasterEmaco T 1200 PG are:

- long open time: despite being a fast-setting mortar, it remains workable for approx. 15-20 minutes, depending on the temperature. This means that 5-6 bags can be mixed at a time in the concrete mixer;

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- high bond strength to concrete: this ensures the monolithic bond with the concrete substrate, any rebars and steel sections;
- high resistance to cracking: the material shows no sign of cracks even after 6 months - assessed using the elliptical crack O Ring test;
- resistance to aggressive environmental agents: the product is waterproof, impermeable to chlorides and sulphates, resists freeze/thaw cycles even in the presence of de-icing salts and is not subject to carbonation;
- high resistance to wear and abrasion.

PERFORMANCE

The performances shown below are obtained with a slump flow of 150-160 mm in accordance with UNI EN 13395/1, in the absence of bleeding.

Requirements	Acceptability limits EN 1504/3	Performance		
Adhesion to the concrete, UNI EN 1542 on substrate MC 0.40 (having w/c ratio = 0.40) in accordance with UNI EN 1766	> 2 MPa	> 2 MPa		
Compressive strength, UNI EN 12190*	at 28 days \geq 45 MPa		5° C	20°C
		3 hrs > 4 hrs > 8 hrs > 24 hrs > 7 days > 28 days >	8 12 20 50 65 85	15 20 30 55 65 85
Permeability to water measured as depth of penetration of water under pressure, UNI EN 12390/8	----	average depth of penetration < 5 mm		
Permeability to water measured as capillary absorption coefficient, UNI EN 13057	$\leq 0,5 \text{ kg}\cdot\text{m}^{-2}\cdot\text{h}^{-0,5}$	< 0,1 $\text{kg}\cdot\text{m}^{-2}\cdot\text{h}^{-0,5}$		
Resistance to freeze-thaw cycles with de-icing salts measured as adhesion UNI EN 1542 after cycles UNI EN 13687/1 on substrate MC 0.40) according to UNI EN 1766	$\geq 2 \text{ MPa}$ after 50 cycles	> 2 MPa		
Resistance to accelerated carbonation, UNI EN 13295	Depth of carbonation \leq that of the reference concrete type MC 0.45 (having 0.45 w/c ratio) in accordance with UNI EN 1766	Specification passed		
Flexural strength, UNI EN 196/1	----	1 day > 15 MPa 7 days > 20 MPa 28 days > 30 MPa		
Resistance to extraction of steel rods, RILEM-CEB-FIP RC6-78	----	> 25 MPa		
Modulus of elasticity, UNI EN 13412	at 28 days $\geq 20.000 \text{ MPa}$	29.000 (± 2.000) MPa		
Abrasion resistance	-	Class I		

**The bond strengths at low temperatures refer to mixes made with product and water at a temperature of + 10° C; when the structures must be used shortly afterwards, it is always indispensable to check the effective bond strengths obtained in the real conditions of the specific worksite.*

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CONSUMPTION AND PACKAGING

20,5 kg/m² for cm of thickness.

25 kg bag.

APPLICATION SHEET

STORAGE

Store the product in a sheltered, dry place at a temperature anywhere between 5 and 40°C.

PREPARATION OF THE SUBSTRATE

The substrate must be concrete. Any damaged or loose concrete must be removed to the depth and in the ways that the engineer decides best on the basis of the preliminary surveys aimed at identifying the state of preservation of the structure. Loose or contaminated concrete must be removed preferably by hydro demolition or, alternatively, by mechanical chipping (or similar method) using lightweight compressed-air operated concrete breakers and taking all the necessary precautions to avoid damaging the structures. The surface of the concrete substrate must be macroscopically rough (surface irregularity approx. 5 mm deep) to obtain maximum bond between the substrate and the repair material. If there are reinforcement rods in the substrate, any loose or contaminated concrete around the reinforcement rods must be removed. Any exposed reinforcement rods must have the rust removed by mechanical brushing or sand-blasting.

Whenever rebars must be added for structural reasons, they will be laid first. The concrete cover must be at least 2 cm thick and in any case in conformity with the engineer's indications in relation to the class of exposure.

CLEANING AND SATURATION OF THE CONCRETE

The concrete substrate must preferably be cleaned and saturated using water under pressure (80÷100 atm and warm water in winter). This is indispensable to prevent the concrete substrate taking water from the mix. Incomplete saturation would cause loss of adherence and cracking of the added material. The use of water under pressure also

ensures effective cleaning of the surface by removing dust and small loose particles that may still be present after the concrete has been scarified. Cleaning and saturation of the surfaces are essential to obtain high bond strength between the substrate and the applied material.

APPLICATION TEMPERATURE

MasterEmaco T 1200 may be applied at an ambient temperature anywhere between -10 °C and +35 °C.

WARNINGS

MasterEmaco T 1200 is incompatible with any binder and therefore even with cement products in the MasterEmaco range; mixing such products together could change the mechanical performance and is therefore not allowed.

PREPARING THE MIX

Since the product maintains its workability, 5-6 bags may be mixed at a time in a concrete mixer; the mixing time must be sufficient (3-5 minutes) to obtain a lump-free, smooth plastic mix with the fibres perfectly dispersed. At low temperatures mixing must be prolonged by about 6-8 minutes so as to trigger the hydration process within the due times as well as to fully dissolve the size that keeps the fibre bundles glued together. A drill with whisk attachment can be used to mix small quantities. It is inadvisable to mix by hand. The whole contents of each bag must always be mixed at a time. Each 25 kg bag of MasterEmaco T 1200 PG must be mixed with 10.4-12.4 % water (equivalent to 2.6 and 3.1 litres of water respectively per bag).

Application thickness is between 10 and 150 mm. For applications of more than 150 mm thickness the mix must be extended with washed, impurity-free aggregate of the type and in the quantity to be decided on the basis of the required thickness.

When adding aggregate, performance must be checked again on site with test mixes. Before applying the product at low temperatures, check for any surface ice, which must be eliminated.

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APPLICATION

MasterEmaco T 1200 must be applied onto cohesive, macroscopically roughened surfaces that have been cleaned and saturated with water. At the time of application the substrate must be saturated but with a dry surface; in other words any free water must be removed.

MasterEmaco T 1200 PG is cast in situ with fluid or superfluid consistency.

Workability inside the revolving concrete mixer remains constant for approx. 15-20 minutes according to the temperature. Clean the concrete mixer thoroughly immediately after mixing is completed.

When fixing manhole covers, street drains, road signs or street furniture, the mix is poured into the areas where the elements are to be anchored.

When grouting stone blocks, pour the mix over the surface to be grouted and then remove the excess material before it sets using an appropriate method, which will be decided according to site logistics.

FLOAT FINISH

A float finish is recommended for surfaces exposed to the air, using a sponge float at a suitable time after application according to weather conditions.

The interval between application and the float finish depends on the first stiffening of the mortar; the correct moment to start the floating is when the fingers of a hand resting on the surface do not sink into the mortar but leave just a slight mark on it. A correct float finish is indispensable for effectively countering the formation of micro-cracks due to plastic shrinkage.

CURING

To obtain the best results with MasterEmaco products on site, correct curing is necessary.

PROTECTION

To increase the overall durability of the repair work, it is advisable to apply protection over the whole structure.

The MasterEmaco protection system is accomplished with the application of MasterProtect products.

For more details contact our technical service.

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. Environment sustainability: Partner Green Building Council since 2009.

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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.

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