

MasterEmaco N 5100 FC

Fast setting, polymer modified, fibre reinforced, fine levelling mortar

MATERIAL DESCRIPTION

MasterEmaco N5100 FC is a single component, polymer modified, fast setting, fine levelling mortar for finishing repair works.

MasterEmaco N5100 FC is a ready-to-use material that contains special cements, well graded sands, carefully selected polymers and fibres (polyacrylonitril) to reduce shrinkage and improve physical and application properties. When mixed with water, it forms a mortar with a very fine creamy consistency. MasterEmaco N 5100 FC can easily be hand or trowel applied or sprayed in thicknesses from 0,5 mm (blowhole filling) up to 7 mm. Small patch repair areas can be refilled up to 10 mm thickness. in thicknesses from 3 up to 100 mm in one layer.

AREAS OF APPLICATION

MasterEmaco N5100 FC is ideal for fine finishing and levelling repairs on large vertical and overhead areas where fast setting properties with short over-coating times are needed.


MasterEmaco N5100 FC can be used as blow hole filler in the precast industry or anywhere where minor defects in concrete structures have to be repaired. It can be applied inside and outside, on vertical and overhead surfaces, in dry and wet environments:

- Balconies edges
- Building facades
- Parapet walls
- Precast panels
- Beam edges

CHARACTERISTICS AND BENEFITS

- Formulated with new nanotechnology to minimise shrinkage and crack tendency.
- Superb application properties and feel on the trowel.
- Smooth, creamy but non-slump mortar.
- Excellent smoothing properties.
- Can be used down to featheredge and for filling blowholes in concrete.

- Fast setting: can be over-coated in only 4 hours.
- Good strength development exceeding requirement of class R2 of EN1504 part 0033.
- Light concrete coloured mortar.
- Low modulus of elasticity.
- Low chromate (Cr[VI] < 2 ppm).
- Does not contain chlorides.
- It is basically self-curing.

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BASF Belgium Coordination Center Comm. V. Business Belux - Construction Chemicals Nijverheidsweg 89, B3945 Ham 08 BE0029/01	
EN 1504-3 PCC mortar (based on hydraulic cement, polymer modified) EN 1504-3 Principles 3.1 / 3.2 / 3.3 / 4.4 / 7.1 / 7.2	
Compressive strength	class R2
Chloride ion content	≤ 0,05 %
Adhesive bond	≥ 0,8 MPa
Thermal compatibility	
- Freeze-Thaw	≥ 0,8 MPa
- Thunder Shower	≥ 0,8 MPa
- Dry cycling	≥ 0,8 MPa
Capillary absorption	≤ 0,5 kg/m ² x h ^{-0,5}
Reaction to fire	E
Dangerous substances	complies with 5.4

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APPLICATION METHOD

(a) Surface Preparation

Hardness and durability of concrete are increasingly important parameters for the preparation of the support. This is particularly valid for repair and/or protection of concrete formulated according to the most recent concrete technology. It is therefore recommended to determine a diagnosis in advance, in order to adapt choices and the way how to prepare the support to these parameters. Consult your Master Builders Solutions representative for additional information.

Concrete must be fully cured, clean and sound to ensure good adhesion. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed.

Damaged or contaminated concrete should be removed to obtain a keyed surface. Non-impact/vibrating cleaning methods, e.g. shot blasting, sandblasting or high water pressure blasting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation.

The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying MasterEmaco N5100 FC. The surface must be mat-damp, but without standing water.

(b) Mixing

Open the bags MasterEmaco N5100 FC a short time before the mixing is started. Damaged or opened sacks should not be used.

Pour the minimum amount of mixing water into a clean vessel.

Mixing water needed: 3.8 to 4.5 litres per 20 kg bag depending upon consistency required. Add the MasterEmaco N5100 FC powder rapidly and continuously and mix MasterEmaco N5100 FC with a suitable paddle attached to a powerful, slow speed electric drill (max. 400 rpm) for 3 minutes until plastic consistency is achieved without any lump in the mortar. Only use clean uncontaminated water.

Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency when required.

Note: Do not retemper the mortar by adding extra water. Add water if necessary but never exceed the maximum water demand!

(c) Application

The minimum temperatures must be maintained during application and for at least 8 hours thereafter for optimum curing of the product.

The surface must be mat-damp, but without standing water. The material can be hand or trowel applied or sprayed. When used as levelling coat apply a thin scrape coat or contact layer of mixed MasterEmaco N 5100 FC directly to the prepared damp substrate before building up to the required thickness.

When the product is to be used to fill blowholes only, rub the material directly into the pores using e.g. a jute cloth or scrape it in with a trowel.

Remove all excess material, as soon as possible.

Note: When over-coating structural elements (like bridges) always apply MasterEmaco N5100 FC at a minimum thickness of 5 mm.

Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen, typically after approximately 20 – 60 minutes (depending on layer thickness) at 20°C.

In these environmental conditions, MasterEmaco N5100 FC can be over-coated with MasterProtect protective coatings, after approximately 4 hours. Consult Master Builders Solutions representative for further information.

Note: At lower temperatures and/or higher humidity these times will be extended.

COVERAGE

Approximately 74 bags are required to produce 1 m³ of fresh mortar. 20 kg bag will yield approximately 13.5 litres of mortar, when mixed with 4.3 litres water/bag.

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FINISHING AND CLEANING

Tools and mixer must be cleaned immediately after use with water. Cured material can only be removed mechanically.

CURING

Full cure is reached in 28 days after the application at a constant temperature of 23 °C.

WORKING TIME

30 – 45 minutes in 20 °C ambient and substrate temperature.

PACKAGING

MasterEmaco N 5100 FC is available in 20 kg paper bags.

STORAGE

Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions and clear of the ground on pallets protected from rainfall prior to application.

SHELF LIFE

12 months if stored at above mentioned storage conditions.

WATCH POINTS

- Do not apply MasterEmaco N 5100 FC at temperatures below +5°C nor above +30°C.
- Do not add cement, sand or other substances that could affect the properties of MasterEmaco N5100 FC.
- Never add water or fresh mortar to a mortar mix which has already begun to set.
- Keep the mixing water ratio between the recommended limits.
- Protect the freshly applied material against rainfall for minimum 24 hours.
- In dry, hot and windy conditions use e.g. MasterKure curing compounds for optimum curing.

HANDLING AND TRANSPORT

Usual preventive measures for the handling of chemical products should be observed when using this product, for example do not eat, smoke or drink while working and wash hands when taking a break or when the job is completed. Specific safety information referring the handling and transport of this product can be found in the Material Safety Data Sheet. For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

Disposal of product and its container should be carried out according to the local legislation in force. Responsibility for this lies with the final owner of the product.

CONTACT DETAILS

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Product Data				
Property		Standard	Data	Unit
Chemical Base		-	Cement	-
Colour		-	Grey	-
Grain Size	maximum	-	0.3	mm
Chloride Ion Content		EN 1015-17	≤ 0.02	%
Layer Thickness ¹	minimum maximum	-	0.5 7.0 10.0	mm
Fresh Mortar Density		-	Approx. 1.8	g/cm ³
Mixing Water for 20 kg Bag		-	ca. 3.8 – 4.5	l
Working Time ²		-	30 – 45	Minute
Setting Time ²	initial final	-	45 – 75 60 – 120	Minute
Application Temperature (ambient and substrate)		-	+5 - +30	Celcius
Compressive Strength	1 day 7 days 28 days	EN 12190	≥ 15 ≥ 20 ≥ 25	N/mm ²
Adhesion to Concrete	28 days	EN 1542	≥ 2.8	N/mm ²
Adhesion to Concrete after Freeze-Thaw (50 cycles with salt)	28 days	EN 13687-1	≥ 3.1	N/mm ²
Adhesion to Concrete after Thunder-Shower (50 cycles)	28 days	EN 13687-2	≥ 3.2	N/mm ²
Adhesion to Concrete after Dry Cycling (50 cycles)	28 days	EN 13687-4	≥ 2.9	N/mm ²
Capillary Absorption	28 days	EN 13057	≤ 0.5	kg.m ⁻² .h ^{-0.5}
Cracking Tendency (I)		Coutinho Ring	No Cracking	Up to 150 days
Cracking Tendency (II)		DIN type V-channel	No Cracking	Up to 150 days

Note: ¹ 0.5 mm for featheredge / blowhole filling, 7.0mm as levelling mortar application and 10mm for small patch repairs.

² Hardening times are measured at 21°C ± 2°C and 60% ± 10% relative humidity. Higher temperatures will reduce these times and lower temperatures will extend them. Technical data shown are statistical results and do not correspond to guaranteed minima. Tolerances are those described in appropriate performance standards.

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Health and Safety

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Solvent Based Products

Use in well ventilated areas; avoid inhaling. Suitable respiratory equipment may be needed, eg when spraying. Can cause skin, eye irritation. Wear protective eye shields and gloves during use. Do not smoke or allow sparks or naked lights when stored or in use.

Resin Products

Can cause irritation, dermatitis or allergic reaction. Use protective equipment particularly for skin and eyes. Use only in well ventilated areas.

Spillage

Chemical products can cause damage; clean spillage immediately.

DISCLAIMER

"Master Builders Solutions UK Ltd" (the Company) endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, the Company has no control over the selection of its products for particular applications. It is important that any prospective customer, user or specifier, satisfies him/her-self that the product is suitable for the specific application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing the material and when the completed work is to be brought into use.

Accordingly, no liability will be accepted by the Company for the selection, by others, of a product, which is inappropriate to a particular application.

Products are sold subject to the Company's standard conditions of sale and all customers, users and specifiers, should ensure that they examine the Company's latest Product Literature.