

Emaco[®] NanoCrete R2

Universal, fast setting, polymer modified, fibre reinforced, repair and levelling mortar



Certificate Number BB-563-0013-0004-001
Certification Institute BCCA

CE	
0749	
BASF Construction Chemicals Belgium NV Nijverheidsweg 83, B3945 Ham	
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0749 - CPD BC2-563-0013-0002-001	
EN 1504-3 Concrete repair product for non-structural repair PCC mortar (based on hydraulic cement, polymer modified)	
Compressive strength	class R2
Chloride ion content	≤ 0,05 %
Adhesive bond	≥ 0,8 MPa
Restrained shrinkage	≥ 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 ·tr ^{0,5}
Reaction to fire	A1
Dangerous substances	complies with 5.4

Approved by the United Kingdom Water Regulations Advisory Scheme , Listing No.0609530



Description

EMACO NANOCRETE R2 is a universal, single component, polymer modified, fast setting, repair, reprofiling and levelling mortar.

EMACO NANOCRETE R2 is a ready-to-use material that contains special sulphate resistant cements (HSR LA), well graded sands, hydraulic binders, carefully selected

polymers and fibres (polyacrylonitril) to reduce shrinkage and improve physical and application properties.

When mixed with water, it forms a mortar with an exceptional wide range of applications.

EMACO NANOCRETE R2 can easily be hand or trowel applied in thicknesses from 3 up to 100 mm.

Field of application

EMACO NANOCRETE R2 is used for the non-structural repair of concrete elements like:

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

EMACO NANOCRETE R2 is ideal for general, non-structural patch repairs where fast setting properties with short over-coating times are needed. It exhibits excellent high build properties allowing up to 100 mm thickness in one layer. Can be overcoated after only 4 hours @ 20°C.

EMACO NANOCRETE R2 can be applied as a smoothing or levelling coat at only 3 mm thick on large vertical and overhead areas to achieve a more aesthetic finish e.g. prior to painting.

EMACO NANOCRETE R2 can be applied inside and outside, on horizontal, vertical and overhead surfaces, in dry and wet environments.



Coverage / Yield

One 20 kg sack EMACO NANOCRETE R2 will yield approximately 10,6 litres of mortar when mixed with 3,7 litres of water (3,5 – 4,0 litres/bag of 20 kg).

Consumption: 1,9 kg of mixed product per m² and mm layer thickness (approx. 1,6 kg of dry powder per m² and mm layer thickness).

This consumption is theoretical and depends on the roughness of the support, for which reason it should be adjusted in each particular job by means of "in situ" tests.

Packaging, storage and shelf life

EMACO NANOCRETE R2 is packaged in 20 kg moisture-resistant bags.

Store EMACO NANOCRETE R2 in cool and dry warehouse conditions with temperatures between 15°C and 25°C. Protect the product against frost.

Shelf life in these conditions is 12 months in unopened original bags.

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 high build capacity - can be applied 80 - 100 mm in horizontal or vertical applications in one layer, or even 70 – 80 mm overhead.
- Minimum layer thickness of 3 mm so can be used as large area fairing coat.
- Easy to create profiles and corners without formwork.
- Multi-use: Fairing coat and patch repair mortar in one.
- Fast setting: can be over-coated in only 4 hours.
- Good strength development exceeding requirement of Class R2 of EN1504 part 3.
- Low modulus of elasticity.
- Low chromate (Cr[VI] < 2 ppm).
- Chloride-free.

Application instructions

1. Surface preparation: concrete

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. grit-, sandblasting or high water pressure blasting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation.

Cut the edges of the repair vertically to a minimum depth of 3 mm.

2. Surface preparation: reinforcing steel

If reinforcing steel is visible, clean to a minimum grade of Sa 2 according to ISO 8501-1 / ISO 12944-4. For extra protection, or when the steel is left exposed before repair work is completed, apply EMACO NANOCRETE AP

active protection cement based primer (see *technical data sheet*).

3. Priming

The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying EMACO NANOCRETE R2. The surface must be mat-damp, but without standing water.

For improved build thicknesses or when working on large areas, apply bond or contact layer of the EMACO NANOCRETE R2 mortar.

Alternatively a bonding coat of EMACO NANOCRETE AP using the special EMACO NANOCRETE Brush can be applied.

Note: always apply EMACO NANOCRETE R2 mortar wet-in-wet onto the bond or contact layer.

4. Mixing

Open the bags EMACO NANOCRETE R2 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 pure vessel.

Mixing water needed: 3.5 to 4.0 litres per 20 kg sack depending upon consistency required. Add the EMACO NANOCRETE R2 powder rapidly and continuously and mix EMACO NANOCRETE R2 with a suitable paddle attached to a powerful, slow speed electric drill (max. 400 tr/min.) for 3 minutes until a lump-free, plastic consistency is achieved. Only use clean uncontaminated water.

Use stiffer consistency for overhead and vertical patching application and softer more creamy consistency for use as a fairing coat at 3 mm thick)

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

In exceptional conditions (hot climate, etc.) only remix the mortar when early stiffening occurs.

Note: Do not retemper the mortar by adding extra water.

Add water if necessary but never exceed the maximum water demand.

5. Mortar application

For optimum curing of the product the temperatures during application of EMACO NANOCRETE R2 are between +5°C and +30°C.

The surface must be mat-damp, but without standing water.

EMACO NANOCRETE R2 can be hand or trowel applied to the desired layer thickness of 3 to max. 100 mm.

Apply the mixed EMACO NANOCRETE R2 directly to the prepared damp substrate, or wet in wet onto the primed surface.

A thin scrape coat or contact layer before building up to the required thickness, wet on wet, will improve the wet adhesion and cohesion of the mortar.

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 45 - 60 minutes at 20°C.

In these environmental conditions, EMACO NANOCRETE R2 can be over-coated, after approximately 4 hours.

Consult your BASF-CC specialist for more information. At lower temperatures and/or higher humidity these times will be extended.

Initial and final setting, and workability

Temp. °C	Initial setting (min)	Final setting (min)	Workability (min)
5 to 25	45 to 75	60 to 120	30 to 45

Cleaning of tools

While still wet clean with water. Once dry/cured the material can only be removed mechanically.

Watch points

- Do not apply EMACO NANOCRETE R2 at temperatures below +5°C nor above +30°C.
- Do not add cement, sand or other substances that could affect the properties of EMACO NANOCRETE R2.
- Never add water or fresh mortar to a mortar mix which has already begun to set.

Health and safety

As with other products containing Portland cement, the cementitious material in EMACO NANOCRETE R2 may cause irritation. Avoid contact with eyes and prolonged contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Call a physician. In case of contact with skin, wash skin thoroughly. Keep product out of reach of children.

Consult the Material Safety Data Sheet for further information regarding this product.

Technical properties of EMACO NANOCRETE R2

Properties	Standard	Unit	Standard EN 1504-3	Measured value (min. once a year or extern)	Declared value
Appearance	-				grey powder
Chloride-ion content	EN 1015-17	%	≤ 0,05		≤ 0,03
Grain size	-	mm			max. 1
Layer thickness minimum	-	mm			3 (levelling coat)
Layer thickness maximum	-	mm			100 (vertical and horizontal)
Density	-	g/cm ³			80 (overhead) approx. 1,910
Mixing water per bag of 20 kg	-	litre			3,5 – 4,0
Working time	-	minutes			30 - 45
Setting initial	-	minutes			45 – 75
Setting final	-				60 – 120
Temperature for application (support and mat.)	-	°C			between +5 and +30
Compressive strength after 1 day	EN 12190	N/mm ²	-		≥ 10
Compressive strength after 28 days		N/mm ²	≥ 15		≥ 30
Adhesion (28 days) concrete	EN 1542	N/mm ²	≥ 0,8		1,8
Adhesion after freeze/thaw (50 cycles with salt)	EN 13687-1	N/mm ²	≥ 0,8	1,7	
Adhesion after thunder/shower (50 cycles)	EN 13687-2	N/mm ²	≥ 0,8	1,9	
Adhesion after Dry cycling (50 cycles)	EN 13687-4	N/mm ²	≥ 0,8	1,9	
Cracking tendency (I)	Coutinho type ring				No cracking after 180 days
Cracking tendency (II)	DIN type V-channel				No cracking after 180 days
Capillary absorption	EN 13057	kg/m ² /h ^{-0.5}	≤ 0,5	0,23	

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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