



Specialist Construction Supplies for Repair, Maintenance, Building & Infrastructure

Nanocrete R2 Data Sheet

Specification notes

Product: **Nanocrete R2**

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EMACO[®] Nanocrete R2

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

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 cements, well graded sands, carefully selected polymers and fibres 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

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BASF Construction Chemicals Belgium NV Nijverheidsweg 89, B3945 Ham 06 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-Taw	≥ 0,8 MPa
- Thunder Shower	≥ 0,8 MPa
- Dry cycling	≥ 0,8 MPa
Capillary absorption	≤ 0,5kg·m ² ·h ^{0,5}
Reaction to fire	A1
Dangerous substances	complies with 5,4

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.



Technical Data

Property	Standard	Unit	Values
Appearance	-		Grey Powder
Grain size	-	mm	Max. 1.0
Layer thickness: Minimum	-	mm	3 (fairing coat)
: Maximum		mm	100 (vertical and horizontal) 80 (overhead)
Density	-	g/cm ³	approx. 1.8
Mixing water per sack of 20kg	-	litre	approx. 3.5 – 4.0
Working time	-	minutes	30 - 45
Setting time	-	minutes	
- initial			45 - 75
- final			60 - 120
Temperature for application (support and material)	-	°C	Between +5 and +30
Compressive strength	EN 12190	N/mm ²	
- after 1 day			≥ 10
- after 7 days			≥ 20
- after 28 days			≥ 25
Adhesion (28 days)	EN 1542	N/mm ²	≥ 0.8
Adhesion after Freeze/Thaw (50 cycles with salt)	EN 13687-1	N/mm ²	≥ 0.8
Adhesion after Thunder/Shower ((50 cycles)	EN 13687-2	N/mm ²	≥ 0.8
Adhesion after Dry cycling (50 cycles)	EN 13687-4	N/mm ²	≥ 0.8
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

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.

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 guidelines

(a) 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 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.

(b) 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*).

(b) 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.

Always apply Emaco® Nanocrete R2 mortar wet-in-wet onto the bond or contact layer.

(c) Mixing:

It is strongly recommended that only full sacks are mixed. Damaged or opened sacks should not be used.

Mix Emaco® Nanocrete R2 with a suitable paddle attached to a powerful, slow speed electric drill or in a forced action pan mixer for 3 minutes until a lump-free, plastic consistency is achieved. Only use clean uncontaminated water.

Mixing water needed: 3.5 to 4.0 litres per 20kg sack depending upon consistency required. (Use stiffer consistency for overhead and vertical patching application and softer more creamy consistency for use as a fairing coat at 3mm thick)

Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency as required. NB: Never exceed the maximum water demand.

(d) Mortar application:

The minimum temperatures must be maintained during application and for at least 12 hours thereafter for optimum curing of the product.

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

Emaco® Nanocrete R2 can be hand or trowel applied. Apply mixed product 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.

Apply to the desired layer thickness of 3 to max. 100 mm.





The Chemical Company

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, with Masterseal® anti-carbonation, chemical resistant, or anti-graffiti coatings as required.*

* Contact your local BASF Construction Chemicals office for more information, on the type of products.

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

Cleaning of tools

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

Coverage / Yield

One 20kg sack will yield approximately 11 litres of mortar.

Approx. 1,8 kg of mixed product per m² and mm layer thickness (approx. 1.5 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

Emaco® Nanocrete R2 is available in 20 kg bags.

Storage

Store in cool and dry warehouse conditions. Shelf life in these conditions is 12 months in unopened original sacks.

Watch points

- Do not apply at temperatures below +5°C nor above +30°C.
- Do not add cement, sand or other substances that could affect the properties of the material.
- Never add water or fresh mortar to a mortar mix which has already begun to set.
- Contact Technical Department of your local BASF Construction Chemicals office regarding any information required not mentioned here.

Handling and transport

Usual preventive measures for the handling of chemical products should be observed when manipulating this product, for example do not eat, smoke or drink while working and wash your hands when taking a break or when the job is completed. Specific safety information in the handling and transport of this product can be found in the Material Safety Data Sheet.

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.

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

NOTE:

Similar to all the other recommendations and technical information, this technical data sheet serves only as a description of the product characteristics, mode of use and applications. The data and information given are based on our technical knowledge obtained in the bibliography, laboratory tests and in practice. The data on consumption and dosage contained in this data sheet are based on our own experience and are therefore subject to variations due to different work conditions. Real consumption and dosage should be determined on the job by means of prior tests and are the liability of the client. Our Technical Service is at your disposal for any additional advice.

BASF Construction Chemicals Belgium N.V. reserves the right to modify the composition of the products provided these continue to comply with the characteristics described in the data sheet. Other applications of the product not covered by those indicated shall not be our liability. In the case of defects in the manufacturing quality of our products we provide a guarantee, any additional claims being exempt and our liability being only to return the value of the goods supplied. The possible reservations with respect to patents or third party rights should be noted.

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The present data sheet becomes null and void on issuance of a new edition.

Version 3:

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