

Emaco[®] NanoCrete AP

Single component, cement based, multi-use, bonding and active protective primer



Certificate number BB-567-0013-0030-002
Certification Institute BCCA

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|  0749 | |
| BASF Construction Chemicals Belgium NV Berkenbossestraat 6, B-2400 Mol 06 0749 - CPD BC2-567-0013-0004-002 | |
| EN 1504.7 Products and systems for the protection and repair of concrete structures Reinforcement corrosion protection products and systems | |
| Corrosion protection EN 15183 | Coated zones of the steels are free of corrosion and if rust creep at the ground plate edge < 1 mm |
| Shear adhesion (coated steel to concrete) EN 15184 | Bond stress at a displacement of $\Delta = 0,1$ mm The bond stress determined with the coated bars is in each case at least 80% of the ref. bond stress determined for the uncoated bars |



Description

EMACO NANOCRETE AP is an active primer, not only reinstates a high pH environment it also contains active corrosion inhibiting additives for the protection of reinforcement steel.

EMACO NANOCRETE AP can also be used as an adhesive bonding slurry for subsequent repair mortars. EMACO NANOCRETE AP is a ready-to-use material that contains Portland cement, well graded fine fillers, redispersible powder and special additives.

When mixed with water, EMACO NANOCRETE AP forms a slurry that can be applied by brush to the clean exposed reinforcement, or directly on the dampened, prepared concrete substrate when used as a bonding coat.

Field of application

EMACO NANOCRETE AP is used for the protection of reinforcement steel:

- When steel is visible and the available depth of cover is less than 10 mm.
- When concrete is contaminated with chlorides.
- In aggressive environments when extra protection is specified.
- With EMACO NANOCRETE R2 repairs when steel is visible.
- When the timing at the jobsite does not allow for the repair mortars to be applied immediately after cleaning the steel.

EMACO NANOCRETE AP can also be used to aid bond and application properties of hand applied repair mortars in extreme thicknesses and conditions.

Coverage / Yield

Approximately 1,5 kg of dry powder per m² and mm layer thickness.

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

Packaging, storage and shelf life

EMACO NANOCRETE AP is packaged in plastic re-sealable cans of 4 kg and 15 kg.

Store in cool and dry warehouse conditions. Shelf life in these conditions is 24 months in unopened original packaging.

Benefits

- Meets all major national and international norms for reinforcement priming in concrete repair systems.
- Excellent rust inhibiting properties as it reinstates a high pH environment.
- Contains active corrosion inhibitors to further protect the reinforcement bars.
- Polymer modified for additional adhesive bond to the steel bars.
- EMACO NANOCRETE AP does not affect the pull out strength of reinforcement steel.
- Perfect compatibility with steel rebars and concrete or repair mortars.
- Fast curing to save time and money.
- Simply mixed with water.
- Multi-use: can also be used as a bonding slurry to improve bond and application thicknesses of EMACO repair mortars on prepared concrete surfaces.
- Light grey/off white colour for easy site control of reinforcement coverage.
- Supplied in re-usable air-tight packaging.
- Low chromate (Cr VI < 2 ppm).

Application instructions

1. Surface preparation

Steel reinforcement

All corrosion and its by-products (loose rust particles, chippings) must be removed from the full circumference of exposed steel reinforcement to be coated. The preparation should meet the requirements of ISO 8501-1 / ISO 12944-4 class Sa2.

Concrete

When EMACO NANOCRETE AP is used as a bond coat on concrete, the surface must be completely clean and structurally sound.

Remove deteriorated or contaminated concrete or mortar, e.g. by grit or high pressure water blasting.

Saturate the concrete surface with water but remove excess of water before application with compressed air or rags.

2. Mixing

Pour the minimum amount of clean, uncontaminated water into a pure vessel.

Mixing water needed: 0,22 to 0,26 litres per kg of powder, depending upon consistency required.

Add the EMACO NANOCRETE AP powder slowly and mix by hand or with a suitable paddle attached to a powerful, slow speed electric drill (max 400 rd/min) until a smooth, thick consistency is achieved.

Allow the EMACO NANOCRETE AP mix to stand for 5 minutes so that full saturation of redispersible polymer can take place. Re-mix briefly before use, until a lump-free consistency.

Note: Never exceed the maximum water demand!

3. Application of slurry

Do not apply EMACO NANOCRETE AP when the temperature is below 5°C or above 35°C, or expected to fall below 0°C in the next 24 hours.

Do not apply EMACO NANOCRETE AP to frozen or frost covered surfaces.

As a reinforcement primer

Apply the mixed material in an even layer at least 1 mm thick (approx. 1,5 kg/m²) to the full circumference of the prepared reinforcement using a soft paint brush. When the first coat has hardened sufficiently, (approx. 30-90 minutes) apply a second coat also 1 mm thick.

A film thickness of approx. 2 mm should be build up in two coats.

It is important that this second layer EMACO NANOCRETE AP has sufficiently hardened (depending upon application), before the repair mortar is applied.

When applying the repair mortar by hand this can be done after approximately 2 hours.

When spraying the repair mortar the priming coat must be left to dry for minimum 8 hours (at 20°C).

As a bonding slurry

Work the mixed EMACO NANOCRETE AP material well into the prepared and pre-soaked, damp surface by using a suitable brush (e.g. EMACO NANOCRETE brush).

Typical application rates are 2-3 kg per m².

Apply the repair mortar wet-in-wet onto a bonding coat of EMACO NANOCRETE AP. Never allow the slurry bond coat to dry out!

Curing

Curing times are dependent on the environmental conditions. Protect from rainfall until finally set.

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 AP at temperatures below +5°C nor above +35°C.
- Do not add cement, sand or other substances that could affect the properties of EMACO NANOCRETE AP.



The Chemical Company

- 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 AP 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 AP

| Properties | Standard | Unit | Standard EN 1504-7 | Measured value (min. once a year or extern) | Declared value |
|--|-----------------------------------|--------------------|--------------------|---|----------------------|
| Appearance | - | | | | light grey powder |
| Layer thickness | - | mm | | | 2 mm in 2 layers |
| % retained on sieve of 125µ | | % | | | 15,5 – 25,5 (*) |
| % passing through 125µ = pan | | % | | | 84,5 – 74,5 (*) |
| Consistency | EN 13395-1 | cm | | | 17,5 – 22,5 (*) (**) |
| Potlife | - | min. | | | 40 – 130 (*) |
| Wet density | EN 1015-6 | kg/dm ³ | | | 1,85 – 2,05 (*) |
| Mixing water | - | litre/kg | | | approx. 0,22 – 0,26 |
| Working time | - | minutes | | | approx. 60 |
| Temperature for application (support and material) | - | °C | | | between +5 and +35 |
| Pull out strength of coated rebar | comparison vs. uncoated TL BE-PCC | % | | ≥ 80 | |
| ZTV-SIB90 method | | | | | |
| - total halogen content | | weight % | | ≤ 0,05 | |
| -corrosion stimulating products after 24 hours | | µA/cm ² | | ≤ 10 | |
| - corrosion resistance | | mm | | ≤ 1 | |
| - accelerated weathering | | | | | |
| 10 cycli DIN 50017 | | | | no corrosion / | |
| 10 cycli DIN 50018 | | | | no delamination/ | |
| 120 uur DIN 50021 | | | | max. crack width | |
| | | | | ≤ 0.1 mm | |

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.

() each batch*

*(**) after 15 beats on shock table*

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