BS 91 ANCORA
MONO and BICOMPONENT

STRUCTURAL SHRINKAGE-COMPENSATED POURING MORTAR

R4 EN 1504-3 NORMA EUROPEA

CE approved – Certificate n. 1305 - CPD - 0808
EN 1504-3 Class R4
Product for repair and restoration of reinforced concrete

CE approved – Certificate n. 1305 - CPD - 0808
EN 1504-6 type ZA.1
Product for anchoring of reinforcement and anchoring bolts

Description

BS 91 ANCORA is a ready-to-use mortar which after mixing with water is perfect for pouring. It cures to a high quality repair mortar with excellent adhesion, durability, waterproofing and extremely high mechanical resistance, with virtually no shrinkage. The product does not contain metallic compounds. This two components has self-expansion capacity in air, without change of the other physical and mechanical characteristics.

Advantages and characteristics

- Excellent pouring properties. It reaches and fills the finest and most difficult cracks and cavities, even at points at a distance from the actual application
- No bleeding or segregation
- Highly strong adhesion to various substrates, and to the reinforcement metal
- Elimination of plastic shrinkage and hygrometric shrinkage compensation
- Excellent durability against chemical agents, to cycles freezing/thawing, resistance to penetration of greases, oils,…
- Very low permeability to water penetration, even under pressure.
- Exceptional mechanical strengths.

Fields of use

Bedding and anchoring of all types of machinery. Anchoring of beams in reinforced concrete or steel. Cavity filling, welding of joints and panelling, restoration of damaged structures, underpinning. Sealing of prefabricated items for structural continuity. Soil consolidation and foundation strengthening with cables and pre-tensioned rods.

Method of use

Preparation of the substrate

Carefully remove all loose parts from the contact surfaces and anything which might affect the normal hardening or adhesion of the BS 91 ANCORA to the base concrete (oil, grease, dust, polystyrene, etc.). Wet the contact surfaces until thoroughly soaked: do this some hours before casting to ensure maximum saturation of suction porosity.
Remove any excess surface or standing water with compressed air or sponge immediately before casting.

Application

Mix BS 91 ANCORA in the following proportions :

BS 91 ANCORA	= Kg 25 (n°1 bag of Kg 25)
WATER for plastic mixes	= Kg 2,25 - 2,5
WATER for fluid mixes	= Kg 2,75 - 3,25

Mix for 3-4 minutes (or, depending on the efficiency of the mix, until you have a smooth and uniform mix), starting with slightly less water than required.
For large cast volumes or thickness, we recommend adding 20-40% good quality washed quarts or-fine gravel (size 3-6 mm or 3-12 mm depending on the cast area).
Adjust the consistency to achieve the desired workability, and mix for another 2 minutes (the actual amount of water required will vary depending on the weather conditions).

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Start pouring by hand or pump from one corner. Gently vibrate or compact by hand to compact the cast in even the most awkward or intricate areas.
Always make sure that you carry out all substratum filling work correctly:

- do not cast where there are strong vibrations which could adversely affect the necessary adhesion to the concrete or steel
- Make sure that the sides of the lateral formwork are at least 10 cm higher than the edge of substratum so that you get the necessary head required for pouring.
- seal each and every crack in the formwork, no matter how small, to prevent mortar leakage
- pour the mortar continuously from one side only
- check that any trapped air escapes using the special holes in the tile if necessary or by manually running bars across the under-plate during and immediately after casting.

After application, keep the mortar surface damp as soon as it sets or, at any time, prevent the water content from evaporating. This is especially important in hot, dry or windy conditions. Optimal curing can be achieved by using Curing Compound UR19, or by means of wet clothes, or polyethylene foil during a few days.

Remarks The product can be applied in a large range of temperatures. In the case that temperature exceeds 30°C, apply the mortar as quickly as possible after mixing, and keep the surface wet with wet cloths till the product has set.
In the case of low temperatures (<8°C) it is advisable to use warm or hot water to prepare the mix: the optimal conditions of fluidity are obtained when the temperature inside the mix is ≥ 15°C.
We don't advise the use in case of casting in temperatures ≤ 0°C unless you can protect the exposed parts suitably with polystyrene or other insulating material in addition to using hot mixing water and materials at room temperature. The internal cast temperature should, wherever possible, be kept to above 10°C, also bearing in mind the contribution of the exothermic hydration reaction.

Information according to 2003/53/CE
Storage : The product can be kept for at least 12 months if stored in dry and protected conditions, in the original unopened packaging, between +5°C and + 35°C.
Do not use the content of opened bags in case of powder agglomeration. Keep the liquid component away from frost.

Packaging BS 91 ANCORA MONOCOMPONENT :
25 Kg bag

BS 91 ANCORA BICOMPONENT :
Bag of 25 kg (comp A) + bottle of 0,25 kg (comp B sra)

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COMPARISON PERFORMANCE REQUIREMENTS

Standard EN 1504-3 — **BS 91 ANCORA**

Performance characteristic	Reference substrate (EN 1766)	Test method	Requirements Structural Class R4	Performances TYPICAL VALUES
Compressive strength	None	EN 12190	≥ 45 MPa (28 d.)	69 MPa (28 d.)
Chloride ion content	None	EN 1015-17	≤ 0,05%	≤ 0,03%
Adhesive bond (adhesion to concrete)	MC(0,40)	EN 1542	≥ 2,0 MPa	2,5 MPa
Restrained shrinkage/expansion	MC(0,40)	EN 12617-4	Bond strength after test ≥ 2,0 MPa	≥ 2,0 MPa
Carbonation resistance	None	EN 13295	d_k ≤ control concrete [MC(0,45)]	passed requirement
Elastic modulus	None	EN 13412	≥ 20.000 MPa (28 gg.)	33.000 MPa (28 d.)
Thermal compatibility ✱ Part 1, freeze-thaw	MC(0,40)	EN 13687-1	Bond strength after 50 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Thermal compatibility ✱ Part 2, Thunder shower	MC(0,40)	EN 13687-2	Bond strength after 30 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Thermal compatibility ✱ Part 4, Dry cycling	MC(0,40)	EN 13687-4	Bond strength after 30 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Coefficient of thermal expansion	None	EN 1770	Not required if tests 7,8 and 9 are carried out✱, otherwise declared value	• passed tests ✱ • declared value = $15,1 \times 10^{-6}$ ($°K^{-1}$)
Capillary absorption	None	EN 13057	≤ 0,5 Kg $\cdot m^{-2} \cdot h^{-0,5}$	≤ 0,3 Kg $\cdot m^{-2} \cdot h^{-0,5}$

Standard EN 1504-6

Performance characteristic	Test method	Requirements	Performances TYPICAL VALUES
Pull-out	EN 1881	Displacement ≤ 0,6 mm at load of 75 kN	Displacement ≤ 0,33 mm at load of 75 kN
Chloride ion content	EN 1015-17	≤ 0,05%	≤ 0,03%

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Other Technical characteristics (typical values)

•	Initial setting time		approx 1h a 20°C
•	Bleeding		absent
•	Workability		140% with 13% addition of water 90% with 12% addition of water
•	Consumption		1,9 Kg/m^2/mm
•	Compressive strength UNI EN 12190	1 d. 28 d.	30 MPa 69 MPa
•	Flexural strength UNI EN 196/1	1 d. 28 d.	4 MPa 9 MPa
•	Permeab. to CHLORIDES FHWA/ RD/ 81 100÷1000 Coulomb = low chloride permeability		150 Coulomb
•	Carbonation in time (simulation in lab.)	8 years 18 years 25 years	0,2 mm 0,4 mm 1,4 mm
•	Resist. to CO_2 penetration		10.000 µ
•	Resist. to water vapour diffusion		58 µ
•	Restrained expansion UNI 8147		>0,04%
•	Slant shear strength UNI EN 12615		>6,5 Mpa
•	Resistance to pull out of steel bars with improved adherence		>30 Mpa

Safety indications Read carefully the safety indications on the packaging, or consult the relevant Material Safety Datasheet of this product.

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