

CONCRETE BOND-106

High strength, abrasion - resistance epoxy mortar

Uses

CONCRETE BOND-106 is used for the fast and permanent reinstatement of concrete, particularly where high strength, abrasion - resistance and resistance to chemicals is required. The product is designed for horizontal use but can be applied vertically, although generally in thinner sections. It is ideally suited for acid tanks, sea walls, industrial floors and for use as a bedding mortar. CONCRETE BOND-106 can be used for emergency repairs where fast strength gain is important. When properly compacted, the mortar is highly impermeable.

In certain instances, CONCRETE BOND-106 can be used on metal substrates. Contact the local DON office for advice in this respect.

Advantages

- High ultimate strength - Suitable for structural use
- Early development of strength Minimises disruption
- Abrasion resistance - Suitable for heavy traffic areas
- Highly resistant - To a wide range of chemicals
- Will cure under damp conditions - Cured product is highly impermeable to water
- Typically twice as strong as good quality concrete
- Pre-weighed components ensure consistency

Description

CONCRETE BOND-106 is based on a high quality solvent-free epoxy resin system. The special silica aggregates provide high strength and excellent abrasion resistance. CONCRETE BOND-106 is a three - component material supplied in pre-weighed quantities ready for on-site mixing and use.

Technical support

DON offers a comprehensive range of high performance, high quality concrete repair and construction products. In addition, DON offers a technical support package to specifiers, end-users and contractors, as well as on-site technical assistance in locations all over the country.

Design criteria

CONCRETE BOND-106 can be applied in sections upto 50mm thickness in horizontal locations and 12mm in vertical locations in a single application and without the use of formwork. The material should not be applied at less than 5mm thickness. Greater thicknesses than those specified above can be

Properties

The following results were obtained at a temperature of 30°C unless otherwise specified.

Test method	Typical result
Compressive strength (BS 6319, Pt 2)	60N/mm ² @ 7 days
Flexural strength (BS 6319, Pt 3)	20N/mm ² @ 7 days
Tensile strength (ASTM C 307)10N/mm ²	@ 7 days achieved by the application of subsequent layers. Larger should be applied in a 'checker board' fashion.
Pot life	20 mins @ 35°C
Initial hardness	24 hours
Full cure	7 days
Fresh wet density	Approximately 2000kg/m ³ (fully compacted)
Chemical resistance	The low permeability of CONCRETE BOND-106 retards chemical attack in aggressive environments.

Performance of CONCRETE BOND-106 blocks continually immersed at 20°C.

Citric acid	10%	Resistant
Tartaric acid	10	Resistant
Hydrochloric acid	18	Resistant
Sodium Hydroxide	50%	Resistant
Diesel fuel / Petrol	100%	Resistant
Sulphuric acid	10%	Resistant
Sugar solutions	Sat	Resistant
Lactic acid	10	Resistant
Hydrocarbons	10	Resistant
Phosphoric acid	50	Resistant
Nitric acid	10%	Resistant
Acetic acid	5%	Resistant

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Specification clauses

High strength epoxy repair mortar

The high strength repair mortar shall be CONCRETE BOND-106, a three component epoxy resin with a density not greater than 2000 kg/m³. The cured mortar shall achieve a compressive strength of 60 N/mm², a flexural strength of 20 N/mm² and a tensile strength of 10 N/mm² when tested at 7 days.

Application instructions

Preparation

Clean the surface and remove any dust, unsound material, plaster, oil, paint, grease, corrosion deposits or algae. Roughen the surface and remove any laitance by light scabbling or grit blasting. Saw cut or cut back the extremities of the repair locations to a depth of at least 5mm to avoid featheredging and to provide a square edge. Break out the complete repair area to a minimum depth of 5mm upto the sawn edge.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a bright condition paying particular attention to the back of exposed steel bars. Grit blasting is recommended for this purpose.

Reinforcing steel priming

The cleaned steel should be coated within 3 hours. Apply one full coat of Don Primer and allow to dry before continuing. If any doubt exists about having achieved an unbroken coating, a second application should be made and, again, allowed to dry before continuing.

Substrate priming

The substrate should be primed using Nitoprime 25.

The primer should be mixed in the proportions supplied, adding the entire contents of the 'hardener' tin to the 'base' tin. The two components should be thoroughly mixed together, for 3 minutes.

The mixed primer should be scrubbed well into the prepared

Thicker vertical sections may sometimes be possible dependent on the profile of the substrate and the volume of exposed reinforcing steel but should generally be built up in layers, when larger areas are being rendered, a checkerboard application technique is recommended.

depressions. If the primer is absorbed within 30 minutes, a second coat should be applied before continuing. CONCRETE BOND-106 can be applied as soon as the primer has started to gel but still has surface 'tack'. This is normally between 30 minutes and 4 hours dependent on the ambient and substrate temperatures. If the primer cures hard, a second application must be made before application of CONCRETE BOND-106. The usable life of the mixed primer is approximately 60 minutes at 20°C or 30 minutes at 35°C.

Mixing

Care should be taken to ensure that CONCRETE BOND-106 is thoroughly mixed to produce a fully homogenous, trowellable mortar.

The 'hardener' and 'base' components should be stirred thoroughly in order to disperse any settlement before mixing them together. The entire contents of the 'hardener' container should then be emptied into the 'base' container and thoroughly mixed for 3 minutes, then emptied into a forced action mixer of adequate capacity. Add the aggregate slowly with the mixer running and continue for 2 to 3 minutes until all the components are thoroughly blended. Under no circumstances should part packs be used.

Application

Apply the mixed CONCRETE BOND-106 to the prepared substrate by wood float, pressing firmly into place to ensure positive adhesion and full compaction. Thoroughly compact the mortar around any exposed reinforcement. In restricted locations, or where exposed reinforcing steel is present, application by gloved hands is an acceptable alternative but, in all cases, the product must be finished to a tight surface with a steel trowel. CONCRETE BOND-106 mortar can be applied in sections upto 50mm thickness in horizontal locations or upto 50mm thickness in vertical locations in a single application and without the use of formwork

Note: The minimum applied thickness of CONCRETE BOND-106 is 5mm.

Buildup

CONCRETE BOND-106

Precautions

Health and Safety instructions

Nitozinc Primer, Nitoprime 25, CONCRETE BOND-106 and Nitoflor Sol should not come in contact with skin or eyes, or be swallowed. Adequate ventilation shall be provided and inhalation of vapours shall be avoided. Some people are sensitive to resins, hardeners and solvents. Suitable protective clothing, gloves and eye protection shall be worn. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection.

Shelf life

All products have a shelf life of 12 months at 30°C if kept in a dry state in the original, unopened bags or packs.

Storage conditions

Store in dry conditions in the original, unopened bags or packs. If stored at high temperatures, the shelf life may be reduced to 4 to 6 months.


In case of contact with skin, it shall be removed immediately with resin removing cream followed by washing with soap and water. Solvent should not be used. In case of contact with eyes, it shall be rinsed immediately with plenty of clean water and medical advice shall be sought. If swallowed, medical attention shall be sought immediately - Vomiting should not be used.

Fire

CONCRETE BOND-106 mortar is nonflammable.

Nitozinc Primer, Nitoprime 25, Nitoflor Sol are flammable. It shall be kept away from sources of ignition. Smoking is prohibited during handling / application of the product. In the event of fire, use of fire extinguishers like carbon-dioxide or foam, is suggested. Use of water jet is not suggested.

TECHNICAL COLLABORATION WITH

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