

Nitobond EP

Epoxy based concrete bonding agent

Uses

For bonding fresh wet cementitious materials to existing cementitious surfaces. For use on horizontal surfaces or on vertical surfaces where mortar or concrete can be supported by formwork. The long 'open' life makes it suitable for use with formwork or where additional steel reinforcement has to be fitted. The product is ideal for roads, bridges, pavements, loading bays and factories, and for bonded or granolithic floor toppings. Nitobond EP is equally suited to internal and external applications.

Nitobond EP may also be used as part of a repair system where a substrate/repair barrier is required or where the substrate is likely to remain permanently damp or wet.

Advantages

- Can be applied on to dry or damp substrates
- Exhibits high mechanical strength
- Positive adhesion - exceeds that of the tensile strength of the host concrete
- Solvent-free - can be used in enclosed locations

Description

Nitobond EP is based on solvent-free epoxy resins containing pigments and fine fillers. It is supplied as a two-component material in pre-weighed quantities ready for on-site mixing and use. The 'base' component is white and the 'hardener' component is black, providing visual evidence that adequate mixing has been achieved.

Technical support

Parchem offers a comprehensive range of high performance, high quality concrete repair and construction products. In addition, Parchem offers a technical support package to specifiers, end-users and contractors, as well as on-site technical assistance.

Design criteria

Nitobond EP is designed to have an overlay time of 90 minutes at 20°C. The minimum application temperature for Nitobond EP is 5°C. Consult the local Parchem branch for further information.

Properties

Test method	Typical result
Compressive strength:	50 MPa
Tensile strength:	20 MPa
Flexural strength:	35 MPa
Shear strength:	25 MPa
Adhesive bond to concrete:	In general, the bond will always exceed the tensile strength of the host concrete.

The following properties were measured at 20°C:

Pot life:	35 to 45 mins
Initial hardness:	24 hours
Full cure:	7 days
Max. overlay time:	90 mins

Note: at temperatures below 20°C, the cure rate will be slower. Conversely, at temperatures above 20°C, the cure rate will be faster.

Specification clauses

Epoxy bonding agent

The bonding agent shall be Nitobond EP, a two-component solvent-free epoxy resin. The two components shall be differentially pigmented in order to ensure visually that correct mixing has taken place prior to the application. The product shall achieve 50 MPa compressive strength, 20 MPa tensile strength, 35 MPa flexural strength and 25 MPa shear strength. The adhesive bond to the concrete substrate shall exceed the tensile strength of the host concrete.

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 and expose aggregate by light scabbling or grit-blasting.

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



Mixing

Any steel reinforcement and formwork should be prepared, cut to size and shape, and made ready for assembly before mixing commences.

Care should be taken to ensure that Nitobond EP is thoroughly mixed. The 'hardener' and 'base' components should be stirred separately before mixing to disperse any settlement. The entire contents of the 'hardener' tin should then be poured into the 'base' tin and the two materials thoroughly mixed using a suitable slow-speed drill and mixing paddle for 2 minutes until a fully uniform colour is obtained. The sides of the tin should then be scraped and mixing should continue for a further 2 minutes.

To facilitate mixing and application at temperatures below 20°C, the separate components should be warmed in hot water up to a maximum temperature of 25°C before beginning to mix. If heated to 25°C, the subsequently mixed material will need to be used more speedily as the pot-life will be reduced to 20 minutes. Alternatively, the material should be stored in an environment heated to 20°C and only removed immediately before use.

Application

Nitobond EP should be applied as soon as the mixing process has been completed. It should be brush or spray-applied to the prepared surfaces.

The new concrete or screed should be applied to the coated substrate within 90 minutes at 20°C, ie. while the Nitobond EP is still tacky. If the Nitobond EP is allowed to cure, a second coat will be required.

Where Nitobond EP is to be used as part of a repair system to form a substrate/repair barrier, care should be taken to achieve an unbroken coating. One coat should be applied and allowed to gel. A second coat should be applied and used as the bonding coat. In some situations (e.g. sprayed concrete repairs) it may be advantageous to scatter dust-free sharp sand over this coat and leave to harden.

As soon as the Nitobond EP has been applied, any required steel reinforcement and/or formwork should be erected and fixed securely in place.

Low temperature working

The minimum application temperature is 5°C. In temperatures below 15°C, the separate components should be heated in warm water (up to 25°C) or stored in a heated environment for 12 hours before use. These measures will facilitate mixing and application. Normal precautions for winter working with cementitious materials should then be adopted.

High temperature working

At ambient temperatures above 30°C, the material should be stored in the shade or in an air-conditioned environment for 12 hours before use.

Cleaning

Nitobond EP should be removed from tools, equipment and mixers with Solvent 10 immediately after use. Hardened material can only be removed mechanically.

Limitations

Nitobond EP should not be applied when the temperature is below 5°C or is 5°C and falling. If any doubts arise concerning temperature or substrate conditions, consult the local Parchem sales office.

Estimating

Supply

Nitobond EP:	1.5 and 6.0 litre packs
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Solvent 10:	4 and 20 litre cans
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Coverage

Nitobond EP:	4 - 5 m ² /litre
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Notes: the coverage figures for Nitobond EP is theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.

Storage

Shelf life

Nitobond EP has a shelf life of 12 months if kept in a dry store in the original unopened packs.

Storage conditions

Store in dry conditions in the original unopened packs. If stored at high temperatures, the shelf life may be reduced.



Precautions

Health and safety

Nitobond EP & Solvent 10 are classed as hazardous under Worksafe Australia guidelines. Nitobond EP and Solvent 10 should not come in contact with skin or eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection. In case of contact with skin, remove immediately with resin removing cream followed by washing with soap and water. Do not use solvent.

If poisoning occurs, contact a Doctor or Poisons Information Centre 13 11 26. If swallowed, do NOT induce vomiting - give a glass of water. If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor. If skin contact occurs, remove contaminated clothing and wash skin thoroughly.

A product Material Safety Data Sheet is available from your local Parchem sales office. Read MSDS and data sheet carefully before first use. In emergency, contact any Poisons Information Centre.

Fire

Nitobond EP is non-flammable.

Solvent 10 is flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO₂ or foam. Do not use a water jet.

Flash Point

Solvent 10:	27°C
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Additional information

Parchem manufactures a wide range of products specifically designed for the repair and refurbishment of damaged reinforced concrete. This includes hand-placed and spray grade repair mortars, fluid micro-concretes, chemical-resistant epoxy mortars and a comprehensive package of protective coatings. In addition, a wide range of complementary products is available. This includes joint sealants, waterproofing membranes, grouting, anchoring and specialised flooring materials.

Fosroc have also produced several educational training videos which provide more detail about the mechanisms which cause corrosion within reinforced concrete structures and the solutions which are available to arrest or retard these destructive mechanisms. Further information is available from the publication: 'Concrete Repair And Protection - The Systematic Approach'.

For further information about products, training videos or publications, contact your local Parchem branch.



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