

Coal tar extended epoxy resin coating

Uses

Provides chemical and abrasion resistance to prevent corrosion of concrete surfaces for applications such as :

- Seawater tanks, channels and intakes
- Manhole linings
- Foundation waterproofing
- Sewage works and effluent tanks

Advantages

- **Low cost service life** - excellent chemical and abrasion resistance, does not support bacterial growth.
- **Cost saving** - primerless system.
- **Added value system** - acts as an impermeable water-proof coating.

Description

Nitocote ET402E is based on solvent-free epoxy resins, modified with coal tar. It is supplied as a two pack material in pre-weighed quantities ready for on-site mixing and use.

Nitocote ET402E is applied as a two coat application. It is generally applied at a wet film thickness of 200 micron per coat, but can be applied at greater thicknesses to suit exposure conditions.

Specification

The corrosion resistant coating shall be Nitocote ET402E, a coal tar extended, 100% solids, epoxy resin coating. The coating shall possess a high-build capability, to facilitate varying application thicknesses. It shall further possess excellent bond and chemical resistance properties.

Properties

Colour	: Black/Brown
Solids by weight @ 25°C	: 100%
Specific gravity	: 1.45 at 20°C
Pot life	:
at 25°C	: 2 hours
at 35°C	: 1 hour
Tack free time	: 6 hours at 35°C 3 hours at 45°C
Overcoating time	: 6 hours to 4 days at 35°C
Full cure	: 7 days at 25°C
Water Absorption (ASTM D570)	: <0.1%
Impact Resistance (BS 3900 Pt E3)	: Passed
Bond Strength ASTM D4541	: Min 1N/mm ²

Chemical resistance :

Tests were carried out in accordance with ASTM D543. Test was conducted at room temperature of 23°C and specimens were soaked in the solution for a period of 7 days.

Acids (m/v)

Hydrochloric acid 10%	: Very good
Sulphuric acid 10%	: Very good
Phosphoric acid 10%	: Very good
Nitric acid 10%	: Very good

Alkalis (m/v)

Ammonia 15%	: Excellent
Sodium Hydroxide 25%	: Good
Potassium Hydroxide 15%	: Good
Calcium Hydroxide (Sat)	: Very Good

Aqueous solutions

Water	: Excellent
Sea water	: Excellent
Ground water	: Excellent
Copper sulfate 25%	: Excellent
Zinc Sulfate 25%	: Excellent
Sodium chloride (sat.)	: Excellent
Raw sewage	: Very good

Consult the local Fosroc office for specific recommendations to meet each operating condition.

Fosroc Nitocote ET402E

Instructions for use

Preparation

All surfaces to be treated with Nitocote ET402E must be clean and free from dust or loose material.

Concrete surfaces

All laitance must be removed by grit blasting, or other suitable removal methods. The general standard of surface preparation should be in accordance with ACI 503R-89, Chapter 5, Paragraph 5.4.

Following the preparation of a concrete surface, care should be taken to ensure that any surface irregularities are filled with Nitomortar FC*† or Nitomortar FC(B)*†.

Metal surfaces

Any metal surfaces should be grit blasted to a bright finish, meeting the requirements of Swedish Standard SA 2½ or equal.

Priming

Concrete surfaces

Priming is not required on properly prepared concrete surfaces - see Preparation section.

Metal surfaces

All metal surfaces should be coated immediately after preparation. If this is not possible and to eliminate formation of rust, prime the metal surfaces using Nitoprime 25*. Overcoating time upon priming with Nitoprime 25 is 4 days.

Mixing

The contents of the resin can should be thoroughly stirred to disperse any possible settlement.

The entire contents of **both** the hardener **and** resin cans should be poured into a suitable sized mixing vessel.

It is recommended that the two components are mixed together mechanically using a slow speed electric drill fitted with a Fosroc Mixing Paddle (MR3). Mixing should be carried out continuously for 3 to 5 minutes, until a uniform consistency is achieved.

Application

A minimum 2 coat application is generally recommended to ensure a full, unbroken coating is achieved.

Brush application

Once mixed, the material should be immediately applied, ensuring that a continuous coating is obtained. The first coat is applied to achieve a uniform coating with a wet film thickness not less than 200 microns.

The second coat should be applied between 6 hours and 4 days (at 35°C) after the application of the first coat. The second coat should be applied as above again achieving a wet film thickness not less than 200 microns.

Spray application

Where large areas are to be coated, it is advisable to consider spray application. Consult the local Fosroc office for further details and recommendations.

Cleaning

Tools and equipment should be cleaned with Fosroc Solvent 102* immediately after use.

Hot weather working practices

Whilst the performance properties of Nitocote ET402E at elevated temperatures are assured, application under such conditions can sometimes be difficult. It is therefore suggested that, for temperatures above 35°C, the following guidelines are adopted as a prudent working regime:

- (i) Store unmixed materials in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.
- (ii) Keep mixing and placing equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself.
- (iii) Try to eliminate application in the middle of the day, and certainly avoid application in direct sunlight.
- (iv) For hand application, ensure that there are sufficient operatives available to complete application within the pot life of the material.
- (v) Have a ready supply of Fosroc Solvent 102 available for immediate cleaning of tools after use.

Fosroc Nitocote ET402E

Repairing and overcoating

Any applications of Nitocote ET402E which have become damaged can be readily overcoated.

The existing surface should well abraded, using a stiff wire brush, or similar, to ensure that a good mechanical bond will be achieved between the two layers.

Overcoating works can then proceed as for new work, always ensuring that the prepared substrate is free from any moisture.

Limitations

- Nitocote ET402E is formulated for application to clean sound substrates of steel or concrete; and where it can be protected from contact with water for the first 24 hours after application as discolouration could occur.
- In conditions of high relative humidity i.e. 85-90% good ventilation conditions are essential. Substrate temperature should be at least 3°C above dew point.
- Nitocote ET402E should not be applied over other existing coatings, but can be applied on top of itself (see above).
- For cold weather working (down to 5°C), it is recommended that materials are stored in a heated building and only removed immediately before use. Accelerated heating methods are **not** to be utilised under **any** circumstances.

Technical support

Fosroc offers a comprehensive technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

Estimating

Supply

Nitocote ET402E	:	18 litre packs
Nitoprime 25	:	1 and 4 litre packs
Fosroc Solvent 102	:	5 litre packs

Coverage

Nitocote ET402E	:	5.0 m ² /litre @ 200 microns wft (per coat)
Nitoprime 25	:	5.0 m ² /litre

Note: Coverage figures quoted are theoretical, and based upon application to a properly prepared substrate of nominal C30 concrete.

Since application conditions vary greatly; due to substrate porosity, quality of surface preparation, application thickness and wastage factors, the actual on-site figures may vary from those shown above.

Storage

Nitocote ET402E should be stored at below 35°C in warehouse conditions then only the shelf life would be 12 months. Avoid storage of material under direct sunlight.

Fosroc Nitocote ET402E

Precautions

Health and safety

Nitocote ET402E, Nitoprime 25 and Fosroc Solvent 102 should not come in contact with skin or eyes, nor should they be swallowed. Avoid inhalation of vapours and ensure adequate ventilation.

Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye/face protection. Barrier creams such as Kerodex Antisolvent or Rozalex Antipaint provide additional skin protection.

Should accidental skin contact occur, remove immediately with a resin removing cream such as Kerocleanse Standard Grade Skin Cleanser or Rozaklens Industrial Skin Cleanser, followed by washing with soap and water - **do not** use solvent.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical attention immediately - **do not** induce vomiting.

For further information, please consult the Material Safety Data Sheet for Nitocote ET402E.

Fire

Nitocote ET402E and Nitomortar FC are non-flammable.

Nitoprime 25 and Fosroc Solvent 102 are flammable. Do not use near a naked flame.

Flash points

Nitoprime 25	:	55°C
Fosroc Solvent 102	:	33°C

Additional Information

Fosroc manufactures a wide range of complementary products which include :

- waterproofing membranes & waterstops
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following :

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.

* Denotes the trademark of Fosroc International Limited

† See separate data sheet



Al Gurg Fosroc Co. LLC

Post Box 657, Dubai
United Arab Emirates
www.fosroc.com

Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Service. **All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.**

Head Office

telephone: (+9714) 2039699

fax: (+9714) 2859649

email: agf@fosroc.com

Regional offices

Abu Dhabi, Al Gurg Fosroc
Bahrain, YBA Kanoo
Kuwait, Boodai
Oman, Al Amana

telephone: 673 1779
telephone: 17735454
telephone: 4817618
telephone: 24815080

fax: 673 1449
fax: 17732828
fax: 4832124
fax: 24817554

email: abudhabi@fosroc.com
email: bahrain@fosroc.com
email: kuwait@fosroc.com
email: oman@fosroc.com

