Expancote* ET402*

FOSPAK EXPANCHEM CONSTRUCTION CHEMISTRY

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.
- Sewage works and effluent plants.
- Chemical processing.
- Foundation waterproofing.
- Jetties, piers and docks.

Advantages

- Low cost service life - excellent chemical and abrasion resistance, does not support bacterial growth.
- Cost saving – primer less system.
- Added value system - acts as an impermeable waterproof coating.
- Versatile usage - can be applied to green concrete by brush, roller or spray.

Description

Expancote* ET402 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.

Expancote* ET402 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.

Expancote* ET402 is available in marine grade for applications necessitating biocidal and micro-biostatic effect.

Specification

The corrosion resistant coating shall be Expancote* ET402, 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 and shall comply to BS 7542 curing efficiency standards.

Properties

Colour	:	Black/Brown
Solids by weight	:	100%
Pot life		
at 25°C		75 minutes
at 40°C		40 minutes
Tack free time	:	4 to 5 hours @ 23°C
Overcoating time	:	6 hours at 35°C 3 hours at 45°C
Full cure	:	4 days at 35°C
Curing Efficiency (BS 7542)	:	93%
Water Absorption (ASTM D570)	:	<0.01%
Bond Strength (BS 1881 Pt 207)	:	Min 1N/mm²
Water Permeability (DIN 1048 P5)	:	Nil 100% reduction in coated specimens.
Sea water immersion resistance	:	Resistant

Chemical resistance :

Tests were carried out in accordance with ASTM D1308. 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 18%	:	Excellent
Sulphuric acid 25%	:	Very good
Nitricacid 10%	:	Very good
Phosphoric acid 10%	:	Very good

Alkalis (m/v)*		
Ammonia 15%	:	Excellent
Sodium Hydroxide 25%	:	Good

Oils/Salts		
Oils, vegetable and minerals	:	Excellent
Ferric Chloride 15%	:	Excellent

Aqueous solutions*		
Water	:	Excellent
Sea water	:	Excellent
Raw sewage	:	Very good

Consult the local Expanchem Fospak office for specific recommendations to meet each operating condition. * Some colour change may occur.

Instructions for use

Preparation

All surfaces to be treated with Expancote* ET402 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 Expanmortar* FC or Expanmortar* 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 Expanprime* 25.

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 Expanchem Mixing Paddle . Mixing should be carried out continuously for 3 to 5 minutes, until a uniform consistency is achieved.

Although Expancote* ET402 is a non-solvented product, it is still recommended that mixing should take place in an open, well ventilated area.

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, and should be allowed to dry for at least 6 hours at 35°C before the application of the second coat.

The second coat should be applied between 6 hours and 4 days (at 35°C) after the application of the first coat, at 45°C this will be reduced to 3 hours. 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 Expanchem Fospak office for further details and recommendations.

Cleaning

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

Hot weather working practices

Whilst the performance properties of Expancote* ET402 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 Expanchem Solvent 102 available for immediate cleaning of tools after use.

Repairing and overcoating

Any applications of Expancote* ET402 which have become damaged can be readily over coated.

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

- Expancote* ET402 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 utilized under any circumstances.

- In contact with moisture/high humidity during cure, the colour of the coatings will change to brown/red.

Technical support

Expanchem Fospak 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	
Expancote* ET402	**:** 2.50 Kg packs
Expanprime* 25	**:** 1 and 2.50 Kg packs
Expanchem Solvent 102	**:** 5 litre packs
Coverage	
Expancote* ET402	**:** 3.50 m²/Kg @ 200 microns wft (per coat)
Expanprime* 25	: 5.0 - 6.0 m²/Kg.

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 on-site figures may vary from those shown above.

Storage

Expancote* ET402 has a shelf life of 12 months, when stored in warehouse conditions below 35°C.

Precautions

Health and safety

Expancote* ET402, Expanprime* 25 and Expanchem Solvent 102 should not come in contact with skin or eyes, nor should they be swallowed. Avoid inhalation of vapors 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 Expancote* ET402.

Fire

Expancote* ET402 and Expanmortar* FC are non-flammable.

Expanmortar* 25 and Expanchem Solvent 102 are flammable.

Do not use near a naked flame.

Flash points

Expanprime* 25	**:**	55°C
Expanchem Solvent 102	**:**	33°C

Additional Information

Expanchem Fospak manufactures a wide range of complementary products which include :

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

Expanchem Fospak additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Expanchem Fospak'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 Expanchem Fospak office - as below.

*** Denotes the trademark registered.**

REGIONAL SALES OFFICES IN PAKISTAN:

Fospak (Pvt) Ltd.
Head Office
702, Business Avenue,
Block-6, PECHS., Shahra-e-Faisal,
Karachi, Pakistan.
Tel # +92-21-34528477, 34529859
Fax # +92-21-34522436
Email : info.khi@fospak.com.pk

Lahore Sales Office
2nd Floor Sarwar Shaheed Plaza,
Cavalry Ground,
Main Boulevard, Lahore Cantt,
Lahore, Pakistan.
Tel # +92-42-36675773
Fax # +92-42-36675838
Email : info.lhr@fospak.com.pk

Rawalpindi Sales Office
1st Floor,
Al-Harmain Plaza,
Main Murree Road,
Rawalpindi, Pakistan.
Tel # +92-51-9290592
Fax # +92-51-9290590
Email : info.isb@fospak.com.pk

Important note

Expanchem Fospak products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Epanchem Fospak endeavours to ensure that the technical information on this data sheet is correct at the time of printing, it is the customer's responsibility to satisfy himself, by checking with the company that this information is still current at the time of use, that the product is suitable for the intended application, and that the actual conditions of use are in accordance with those recommended. Because Expanchem Fospak has no control over the conditions of use of its products, all recommendations or suggestions regarding the use of these products are made without guarantee.