

Expancote* EP403



CONSTRUCTION CHEMISTRY

Damp-tolerant, corrosion resistant solvent free epoxy coating

Uses

As a protective coating for concrete and steel. It is particularly useful where concrete surfaces are damp and cannot be dried out. The cured film is corrosion, chemical and abrasion resistant and is suitable for application to:

- Sewage works
- Water treatment plants
- Marine environments
- Metal structures
- Chemical manufacturing plants
- Desalination plants
- Power station
- Basements
- Tunnels

Advantages

- High build application
- Suitable for use in confined areas
- Can be applied directly to steel and concrete
- Smooth, glossy, easy to clean surface
- Corrosion, chemical and abrasion resistant
- Can be applied to damp surfaces

Description

Expancote* EP403 is a two pack, solvent free, epoxy resin material. It is supplied in pre-measured quantities ready for site mixing and use. The material cures to provide a smooth, tough and resistant finish. It is available in grey.

Specification

Corrosion and chemical resistant lining

Where shown on the contract documents the corrosion and chemical resistant coating shall be Expancote* EP403, a solvent free epoxy, designed for application to dry and damp surfaces, to provide a tough, impermeable and resistant film.

Design criteria

Expancote* EP403 is designed to be applied in two coats to achieve a minimum total dry film thickness of 400 microns. To achieve the correct protective properties, Expancote* EP403 must be applied on to the substrate at the coverage rates recommended.

Technical support

Expanchem Fospak offers a comprehensive range of high performance, high quality flooring, jointing and repair products for both new and existing floor surfaces. In addition, the company offers a 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.

Properties

Solids Content	: 100%
	@ 25°C @ 35°C

Pot life	: 45 mins 25 mins
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Bond Strength (ASTM D4541)	: > 2.00 N/mm ²
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Water Absorption (ASTM D570)	: < 0.1%
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Chemical resistance (ASTM D 1308)	: Resistant to: Distilled water Sea water Sewage Petrol Xylene Sat. sodium chloride 25% sodium hydroxide Sulphuric Acid (25%) Hydrochloric Acid (18%)
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Resistance to Fungal & Bacterial growth (ASTM D 3273)	: Resistant
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Resistance to Carbondioxide diffusion	: No Carbonation was observed
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Resistance to Chloride Ion Penetration	: 100%
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The local Expanchem office should be consulted for resistance to specific chemicals.



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Instructions for use

Concrete surfaces

All surfaces must be smooth, sound and free from debris, loose or flaking material and areas of standing water. Surfaces must be free from contamination such as oil, grease, dust, loose particles and organic growth. Concrete surfaces must be fully cured, laitance free and free from any traces of shutter release oils and curing compounds.

All surfaces should then be grit blasted to remove any foreign matter, and provide a suitable key for Expancote* EP403. All blow holes and imperfections should be filled with Expanmortar* FC or Expanmortar* FC(B). Consult the local data sheet for pot life and overcoating time.

Steel surfaces

All surfaces should be grit blasted to meet the requirements of BS 4232, First Quality. The lining work should be programmed so that newly cleaned steel is coated as soon as possible before the formation of rust or scale.

Priming

Priming is not normally required provided the substrate is sound, untreated and good quality non porous concrete. If any doubts exist of the quality of the concrete, or if it is porous it should be primed with Expanprime* 25. Contact the local Expanchem office for advice.

Expanprime* 25 should be mixed in the proportions supplied. Add the entire contents of the hardener can into the base can. When thoroughly mixed, preferably using a slow speed drill and paddle, the primer should be applied in a thin continuous film, using rollers or stiff brushes. Work the primer well into the surface of the concrete taking care to avoid ponding or over application.

The primer should be left to achieve a tack-free condition before applying the top coat. A second coat of primer may be required if the substrate is excessively porous.

Mixing

The contents of the base can should be stirred thoroughly to disperse any settlement. The entire contents of the hardener can should be added to the base container and mixed thoroughly until a uniform consistency is obtained, taking particular care to scrape the sides and bottom of the container. It is recommended that mechanical mixing be employed, using a Expanchem mixing paddle on a heavy duty, slow speed electric drill.

Application

Number of coats	: 2
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Theoretical application rate per coat	: 3.50 m ² / Kg.
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Theoretical wet film thickness per coat	: 200 microns
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Tack free time	: 2-3 hrs @ 20°C
ASTM D1640	: 1-1½hrs @ 35°C

Overcoating times, ASTM 1640

@ 20°C	: 6-12 hours
@ 35°C	: 2-4hours

Fully cured – ASTM D1640

@ 20°C	: 5 days
@ 35°C	: 3 days

The minimum application temperature is 5°C.

All surfaces should be treated with two coats of Expancote* EP403.

The thoroughly mixed material should be applied with a suitable brush, roller or spray equipment.

The first coat must be firmly applied and be well scrubbed into the surface, ensuring a uniform coating with a wet film thickness not less than 200 microns. The first coat should be allowed to dry for not less than 2 hours and not more than 16 hours at 35°C.

The second coat should be applied exactly as above, again achieving a wet film thickness not less than 200 microns.

For cold weather working, it is recommended that Expancote* EP403 be stored in a heated building and removed immediately before use, as workability deteriorates and curing times increase at lower temperatures.

Cleaning

Expancote* EP403 should be removed from tools and equipment with Expanchem Solvent 102 immediately after use. Cured material can only be removed mechanically.

Limitations

Expancote* EP403 should not be applied over existing coatings.

Expancote* EP403 is not suitable for use in marine environments that are subject to adherent organic growth.



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Application should not be undertaken if the temperature is below 5°C, or is 5°C and falling, nor when the prevailing relative humidity exceeds 90%.

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.

Although Expancote* EP403 may be applied to damp concrete, there must be no standing or running water.

Expancote* EP403 is not colour stable when exposed to direct sunlight or when in contact with some chemicals. Expancote* PU may be used to provide colour stability.

On curing Expancote* EP403, the final colour can vary with curing conditions, and in adverse conditions such as low temperature and/or high humidity, a white bloom may appear on the surface. However, this does not affect the performance of the coating.

Estimating

Supply

Expancote* EP403 : 2.50 Kg. Pack

Expanprime* 25 : 2.50 Kg. Pack

Expanchem Solvent 102 : 5 liter cans

Coverage

Expancote* EP403 : 3.50 m² / Kg.
@ 200 microns wft per coat

Expanprime* 25 : 6 – 8 m² / Kg.

Note: The coverage figure is theoretical – due to wastage factors and the variety and nature of substrates, practical coverage figures may be substantially reduced.

Storage

When stored in dry air conditioned stores at temperatures between 5°C and 30°C in the original, unopened containers all products have a shelf life of 12 months.

If stored at high temperatures the shelf life will be reduced. Air conditioned storage at high ambient temperatures is recommended.

Precautions

Health and safety

Expancote* EP403, Expanprime* 25 and Expanchem Solvent 102 should not come in contact with the skin and eyes, or be swallowed. When using Expanchem Solvent 102 ensure adequate ventilation and avoid inhalation of vapour. Some people are sensitive to resins, hardeners and solvent.

Wear suitable protective clothing, gloves and eye protection. The use of barrier creams provides additional skin protection. In case of contact with the skin, rinse with plenty of clean water, then cleanse with soap and water. Do not use solvent.

In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately – do not induce vomiting.

Fire

Expancote* EP403 is non-flammable. Expanprime 25 and Expanchem Solvent 102 are 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

Expanchem Solvent 102 : 33°C

Expanprime* 25 : 57°C

For further information, refer to the Product Material Safety Data Sheet.



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* Denotes the trademark registered.

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