

# Expancote\* EP405

**Non-toxic, epoxy resin, protective coating for concrete and metal**

## Uses

Provides a non toxic coating to concrete and metal surfaces, which is both chemical abrasion, and corrosion resistant, provides anti-bacteria and anti-fungus surface. It is suitable for walls & floors applications such as, but not limited to:

- Pipes and tanks
- Reservoirs and water treatment works
- Laboratories
- Pharmaceutical manufacturing plants
- Grain silos and dairies
- Meat and food processing plants

## Advantages

- Multi-purpose coating, due to non toxicity
- Low cost service life - resistant to mould growth, chemical attack and abrasion
- Easy to clean, smooth gloss finish, with high build capability
- Easy to apply, solvent free, formulation makes it suitable for use in confined spaces

## Standards Compliance

BS 6920 : tests on Water Quality.  
ASTM D-570-98 : Water absorption at 23±2°C.  
Approved for use in contact with potable water.

## Description

Expancote\* EP405 high gloss, non toxic, coating is based on solvent free, epoxy resins which contain pigments and fine fillers. It is supplied as a two pack material, in pre-weighed quantities ready for on-site

Expancote\* EP405 is applied to dry, or damp, surfaces generally as a two coat application to give a final dft of 400 - 500 microns. It is available in different colors to enable simple, visual checking for full coat application.

For details on spray application contact your local Expanchem office.

## Specification

The non toxic, epoxy resin coating shall be Expancote\* EP405, a 100% solids, solvent free, protective coating. The coating shall be moisture tolerant and, when cured, shall be suitable for use in contact with potable water. It shall further possess excellent bond and chemical resistance properties.

## 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 by weight @ 25°C** : 100 % (mixed)

### Pot life

@ 25°C : 1 Hour 25 minutes  
@ 35°C : 55 minutes

	@20°C	@35°C
<b>Drying time</b>		
<b>Touch dry</b>	6 hrs	3 hrs
<b>Re-coatable</b>	6-18 hrs	3-12 hrs
<b>Fully cured</b>	7 days	5 days

**Bond strength (ASTM 4541-85)** : Substrate failure first at 2 N/mm<sup>2</sup>

**Water Absorption (weight)** : < 0.1%

## Chemical resistance

(test results with some common chemicals)

### Acids (m/v)

<b>Phosphoric acid 10%</b>	: Very good
<b>Lactic acid 1%</b>	: Very good
<b>Hydrochloric acid 30%</b>	: Good

### Alkalis (m/v)

<b>Sodium Hydroxide 40%</b>	: Excellent
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### Solvents & organics

<b>Kerosene</b>	: Excellent
<b>Petrol</b>	: Very good
<b>Gas oil</b>	: Very good
<b>Nickel plating solution</b>	: Very good

### Aqueous solutions

<b>Distilled water</b>	: Excellent
<b>Chlorinated water</b>	: Excellent
<b>Marsh water</b>	: Excellent
<b>Sewage water</b>	: Excellent

- (1) Note - can cause some slight surface discolouration  
(2) Note - acceptable performance up to 7 days immersion

Expanchem Customer Services Department should be consulted for specific recommendations to meet varying operating conditions.

### 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\* EP405. 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\* WB, 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 an Expanchem mixing paddle on a heavy duty, slow speed electric drill.

### Application

Whilst Expancote\* EP405 can be applied to damp surfaces; running water must be excluded from the work area during both application and curing of the product. Where excessive seepage or leaking occurs, consult the local Expanchem office for recommendations.

#### Hand application

This can be suitably achieved by brush or roller. The first coat should be firmly applied and scrubbed well into the surface, ensuring that a continuous film results of uniform thickness. The second coat will cover more readily than the first, and should be applied within the 'overcoating times' mentioned above. It is further recommended that a contrasting colour is chosen for the second coat, to ensure unbroken coverage.

#### Spray application

Faster rates of application are possible using airless spray equipment, but the local Expanchem office should be contacted prior to application for technical advice.

#### Cleaning

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

#### Hot weather working practices

Whilst the performance properties of Expancote\* EP405 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.

#### Use of glass fiber reinforcement

Expancote\* EP405 may be used in conjunction with glass fiber reinforcement to increase coating thickness, or where it is necessary to bridge static cracks in the substrate.

The fabric should be laid directly onto the first coat whilst it is still wet, and should be pressed in and smoothed out with a split washer roller or suitable alternative.

Second and subsequent coats may then be applied in accordance with the 'overcoating times' mentioned above.

Open weave glass cloth in the range of 100 to 300 gm/m<sup>2</sup> is considered most suitable for this application.

#### Repairing and overcoating

Any applications of Expancote\* EP405 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.

#### Limitations

A minimum application temperature of 5°C should be observed at all times.

Expancote\* EP405 should not be applied on top of existing coatings, but can be applied on top of itself (see above).

In high temperature conditions, of above 35°C, hot weather working practices should be adopted (see above).

#### Estimating

##### Supply

**Expancote\* EP405** : 2.50 Kg. Packs

**Expanchem Solvent 102** : 5 liter can

#### Coverage

Coverage figures quoted for Expancote\* EP405 are theoretical, and based upon plain application (without glass fiber) 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 below.

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**Expancote\* EP405** : 3.50 m<sup>2</sup> / Kg. @ 200  
microns wft/coat

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#### 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\* EP405, 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\* EP405 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 CO<sub>2</sub> 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.

\*Denotes the trademark registered.

## REGIONAL SALES OFFICES IN PAKISTAN:

### Fospak (Pvt) Ltd.

#### Head Office

702, Business Avenue,  
Block-6, PECHS., Shakra-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

### Islamabad Sales Office

Plot # 169, Street # 9,  
I 10/3, Industrial Area,  
Islamabad, Pakistan.

Tel # +92-51-4100169

Fax # +92-51-4100169

Email : info.isb@fospak.com.pk

## Important note

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