



Expancote* PU*

Chemical and UV resistant protective coating system

Uses

Provides a high grade protection system, to a variety of surfaces exposed to aggressive environments. Typical areas for application would include the following :

- Sewage works and effluent plants.
- Chemical processing.
- Underwater, or submerged conditions.
- Wherever UV resistance is required.
- Jetties, piers, harbors, seawater intakes and channels.

Advantages

- **Low cost in service** - due to combination of excellent UV and chemical resistance properties.
- **Labour saving** - can be applied directly onto fully cured epoxy coatings, without need for priming system.
- **Versatile** - can be applied to steel and concrete, allows colour matching of different elements.
- **Superior surface finish achievable** - allows use of powerful detergent cleaners where necessary.
- **Enhanced performance** - two part material eliminates curing problems associated with single part alternatives.

Description

Expancote* PU is a high quality, polyurethane, protective coating which can be applied to a variety of surfaces including steel, concrete and fully cured epoxies. It is supplied as a two pack material in pre-weighed quantities ready for on-site mixing and use.

Expancote* PU is applied to a dry surface, as a single coat of between 95 and 145 microns wet film thickness, which will cure to give a finished dry film thickness of between 50 and 75 microns. Additional coats may be required for extreme exposure conditions.

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

Specification

The final, corrosion resistant coating shall be Expancote* PU, a polyurethane, protective coating. The coating shall possess excellent chemical and UV resistance properties, with a Carbon Dioxide diffusion coefficient of not less than 1.0×10^{-7} cm²/s. It shall be compatible with concrete, steel and fully cured epoxies.

Properties

Specific gravity	: 1.3 (mixed)	
Solids by volume @ 25°C	: 52% (mixed)	
Carbon-di-oxide diffusion	: 1.0×10^{-7} cm ² /s	
Pot life	@ 20°C	@ 35°C
	: 2 hours	1 hour
Drying time	:	
touch dry	4 hours	2 hours
recoatable	4 hours	2 hours
full cure	7 days	3 days

Chemical resistance :

Fully cured coatings were tested on some common chemicals. Tests were performed by constant immersion over a set period, followed by visual inspection.

Acids (m/v)

Acetic acid 5%	: Excellent
Citric acid 80%	: Excellent
Tartaric acid 10%	: Excellent
Phosphoric acid 2 50%	: Good
Oleic acid 1	: Good

Alkalis (m/v)

Ammonia 20%	: Excellent
Sodium Hydroxide 1 24%	: Very good
Hydrogen Peroxide 1 100%	: Very good

Solvents & organics

Xylene	: Excellent
Diethyl ether	: Excellent
Ethanol	: Excellent
Toluene 2	: Very good

Aqueous solutions

Bleach	: Excellent
Aqueous starch solution 5%	: Excellent
Milk	: Excellent

(1) Note - acceptable performance up to 7 days immersion

(2) Note - can cause some slight surface discoloration

Consult the local Expanchem Fospak office for specific recommendations to meet varying operating conditions.



CONSTRUCTION CHEMISTRY

Instructions for use

Expancote* PU can be applied on top of a number of different substrates and surfaces; either directly, or by following an initial priming coat. The instructions which follow therefore need to be read carefully to ensure that the correct procedure is adopted in each case.

Surface preparation

All surfaces to be treated with Expancote* PU should be clean, dry and free from dust or other loose material.

Concrete surfaces

All surface laitance should be removed by grit blasting or water jetting, to provide a suitable key. 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 the appropriate Expanmortar** product.

Metal surfaces

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

Fully cured epoxies

Please contact your local Expanchem Fospak office for details on surface preparation required for existing epoxy coatings.

Priming

Priming of any substrate should only be completed using Expanprime* EP302, and is required for applications to metal or concrete. In certain instances, it is possible to apply Expancote* PU directly on top of prepared, existing substrates - contact the local Expanchem Fospak office for details.

Expanprime* EP302 is a two part priming system, and should be mixed and applied in the same fashion as for the Expancote* PU topcoat - see "Mixing" and "Application" sections below. It may be applied at a wet film thickness of between 125 and 190 microns, curing to a dry film thickness of 50 to 75 microns.

Most importantly, however, the priming coat should be completely dry before applying any of the Expancote* PU topcoat. The time for this to occur is typically 4 hours at 20°C, and 2 hours at 35°C - consult the local Expanchem Fospak office for full details and recommendations to suit particular site variations.

Mixing

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

The entire contents of the hardener should be poured into the base container, and the two materials mixed thoroughly until both uniform colour and consistency are obtained.

It is recommended that the two components are mixed together mechanically; using a slow speed, electric drill, with a proprietary mixing paddle attachment. Mixing should be carried out continuously for 3 to 5 minutes. If aerated, allow to stand for 10 to 15 minutes before application.

Important note :

Expancote* PU is a solvent-based product, and should be mixed in an open, well-ventilated area. If subsequent application is to be in a confined or poorly ventilated space, then air-fed respirators must be worn.

Application

Hand application

This can be suitably achieved by brush or roller.

The primer (if used) should be firmly applied and scrubbed well into the surface, ensuring that a continuous film results of uniform thickness.

The Expancote* PU topcoat will cover very readily. In the case of application over Expanprime* EP302 primer, the 'undercoat' should be fully dry before application. In the case of existing epoxy coatings, the 'undercoat' should be fully cured.

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 Fospak office should be contacted prior to application for technical advice.

Cleaning

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



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Repairing and overcoating

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

The existing surface should be 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.

Estimating

Supply

Expancote* PU	: 20 litre packs
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Expanprime* EP302	: 20 litre packs
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Expanchem Solvent 102	: 5 litre packs
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Coverage

The coverage figures quoted are theoretical, and based upon application to a properly prepared substrate.

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.

Expancote* PU	: 7 to 10 m ² /litre
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Expanprime* EP302	: 5 to 8 m ² /litre
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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.

Limitations

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

For applications in confined, or poorly ventilated, spaces the use of respirators is mandatory.

Precautions

Health and safety

Expancote* PU, Expanprime* EP302 and Expanchem Solvent 102 should not come in contact with skin or eyes, nor should they be swallowed.

Avoid inhalation of vapours and ensure adequate ventilation, in particular for Expancote* PU which is a solvent and isocyanate-containing product. Air-fed respirators must be worn if the application is in a confined, or poorly ventilated, space.

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* PU.

Fire

Expancote* EP302 and Expanmortar* FC are non flammable.

Expancote* PU and Expanchem Solvent 102 are flammable.

Do not use near a naked flame.

Flash points

Expancote* PU	: 23°C
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Expanchem Solvent 102:	33°C
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Storage

Shelf life

Expancote* PU and Expanprime* EP302 have a shelf life of 12 months, when stored in warehouse conditions below 25°C.



CONSTRUCTION CHEMISTRY

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.

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