

Expanbond* EP



CONSTRUCTION CHEMISTRY

Epoxy resin concrete bonding agent

Uses

For bonding fresh wet cementitious materials to existing cemen/steel surfaces. For use on horizontal surfaces or on vertical surfaces where mortar or concrete can be supported by formwork. The long 'open' life makes it suitable for use with formwork or where additional steel reinforcement has to be fitted. The product is ideal for roads, bridges, pavements, loading bays and factories, and for bonded or granolithic floor toppings. Expanbond* EP is equally suited to internal and external applications.

Advantages

Expanbond* EP may also be used as part of a repair system where a substrate/repair barrier is required or where the substrate is likely to remain permanently damp

- Can be applied on to dry or damp substrates
- Exhibits high mechanical strength
- Positive adhesion - exceeds that of the tensile strength of the host concrete
- Slow cure allows time to erect steel reinforcement and formwork
- Solvent-free - can be used in enclosed locations

Description

Expanbond* EP is based on solvent-free epoxy resins containing pigments and fine fillers. It is supplied as a two-component material in pre-weighed quantities ready for on-site mixing and use. The 'base' component is white and the 'hardener' component is green, providing visual evidence that adequate mixing has been achieved.

(Expanbond* EPFS, suitable for cold weather working, can be made available when specifically requested.)

Standards compliance

ASTM C881: Type I, II, III, IV and V, grade 2 class E & F.

Specification

Epoxy bonding agent

The bonding agent shall be Expanbond* EP, a two-component solvent-free epoxy resin. The two components shall be differentially pigmented in order to ensure visually that correct mixing has taken place prior to the application. The product shall achieve 70 N/mm² compressive strength, 30N/mm² tensile strength, and water absorption of 0.05%, when tested in accordance to ASTM C881: Type I, II, III, IV and V, grade 2 class E & F.

Properties

Test method : Typical result

Compressive strength (ASTM D695) : 70 N/mm²

Tensile strength (ASTM D638) : 30 N/mm²

Slant Shear Strength (BS 6319, Part 4) : 36 N/mm²

Water Absorption (ASTM D570) : 0.05%

Design criteria

Expanbond* EP is designed with an overlay time of 12 hours at 35°C and 5 hours at 45°C, making it more suitable for use where additional steel reinforcement and formwork has to be fitted or where temperatures are high. The minimum application temperature for Expanbond* EP is 5°C. Consult the local Expanchem office for further information.

Application Aspects

Working Life (2.50 Kg. Pack)

: 160 mins

@ 30°C : 90 mins

@ 35°C : 80 mins

Full cure : 5 days @ 35°C

4 days @ 45°C

Maximum Overlay time : 24 hours @ 20°C

12 hours @ 35°C

5 hours @ 45°C

Minimum overlay time : Overlay when tacky but not



Instructions for use

Preparation

Clean all surfaces and remove any dust, unsound material, plaster, oil, paint, grease, corrosion deposits or algae. Roughen the surfaces, remove any laitance and expose the aggregate by light scabbling or grit-blasting. Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination and soundness of the substrate should then be assessed by a pull-off test.

Mixing

Any steel reinforcement and formwork should be prepared, cut to size and shape, and made ready for assembly before mixing commences.

Care should be taken to ensure that Expanbond* EP is thoroughly mixed. The 'hardener' and 'base' components should be stirred separately before mixing to disperse any settlement.

The entire contents of the 'hardener' tin should then be poured into the 'base' tin and the two materials thoroughly mixed using a suitable slow-speed drill and mixing paddle for 2 minutes until a fully uniform colour is obtained. The sides of the tin should then be scraped and mixing should continue for a further 2 minutes.

Application

Expanbond* EP should be applied as soon as the mixing process has been completed. It should be brush or spray-applied to the prepared surfaces, being sure to achieve an unbroken coating across the entire substrate.

Expanbond* EP should be tacky before the new concrete, screed or mortar is placed.

The maximum overlay times (see Properties) should also be carefully observed. Failure to apply the new concrete, screed or mortar within the maximum over-coating time will result in Expanbond* EP becoming 'hard', thus creating a slip plane rather than a bonding action.

If the maximum overlay time is missed, then the Expanbond* EP must be mechanically removed and a fresh application made. The concrete, screed or mortar should then be applied in accordance with the over-coating minimum and maximum stated above.

As soon as the Expanbond* EP has been applied, any required steel reinforcement and/or formwork should be erected and fixed securely in place.

Cleaning

Expanbond* EP should be removed from tools, equipment and mixers with Expanchem Solvent 102 immediately after use. Hardened material can only be removed mechanically.

High temperature working

Whilst the performance properties of Expanbond* EP 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) Have a ready supply of Expanchem Solvent 102 available for immediate cleaning of tools after use.

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.

Supply

Expanbond* EP : 1 and 2.50 Kg. packs

Expanchem* Solvent 102 : 5 liter cans

Coverage

Expanbond* EP : 3.0 – 3.50 m² / Kg.

Note: The coverage figures for Expanbond* EP products are theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.



CONSTRUCTION CHEMISTRY

Storage

Shelf life

Expanbond* EP has a shelf life of 12 months. Expanchem Solvent 102 has a shelf life of 24 months if kept in a dry store in the original unopened packs.

Storage conditions

Store in dry conditions in the original unopened packs. If stored at high temperatures, the shelf life may be reduced.

Limitations

Expanbond* EP should not be applied when the temperature is below 5°C or is 5°C and falling. If any doubts arise concerning temperature or substrate conditions, consult the local Expanchem Fospak office.

Precautions

Health and safety

Expanbond* EP and Expanchem Solvent 102 should not come in contact with skin or eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection. In case of contact with skin, remove immediately with resin removing cream followed by washing 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

Expanbond* EP is non-flammable. Expanchem Solvent 102 is 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 points

Expanchem Solvent 102 : 33°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., Shahr-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-Harmin 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 Expanchem 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.

www.fospak.com