

Bondkrete EP

Epoxy resin based bonding agent for high bonding concrete repair

Innovative products for your success

Uses

For bonding fresh wet cementitious materials to existing cementitious surfaces and for uses 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.

Bondkrete EP is equally suited to internal and external applications.

Bondkrete 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 or wet.

- 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

Bondkrete 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.

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 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 36 N/mm² tensile strength 30% elongation and 14 N/mm² bond 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.

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 Bondkrete 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 color is obtained. The sides of the tin should then be scraped and mixing should continue for a further 2 minutes.

Application

Bondkrete 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. The coated substrate should be left for a minimum of one hour 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 Bondkrete EP becoming harder, thus creating a slip-plane, rather than a bonding action. If the maximum overlay time is missed, then the Bondkrete 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 Bondkrete EP has been applied, any required steel reinforcement and/or formwork should be erected and fixed securely in place.

High temperature working

Whilst the performance properties of Bondkrete 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 solvent available for immediate cleaning of tools after use.

Limitations

Bondkrete 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 Cemkrete office.

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Properties

Test method typical result

Compressive strength :	70 N/mm ² (ASTM D695)
Tensile strength :	36 N/mm ² (ASTM D638)
Elongation :	31% (ASTM D638)
Slant Shear Strength :	38 N/mm ² (BS 6319, Part 4)
Thermal Compatibility :	Passed (ASTM C884)
Bond strength :	14 N/mm ² (ASTM C882)
Pull off strength :	2.82 N/mm ² (BS 1881: Part 207)
Water Absorption :	0.05% (ASTM D570)
Gel time :	>10 hours @ 20°C 5 hours @ 40°C
Viscosity :	64 Poise (ASTM D2393)
Full cure :	5 days @ 35°C 4 days @ 45°C
Maximum overlay time :	12 hours @ 35°C 5 hours @ 45°C
Minimum overlay time :	1 hour @ all temps

Design criteria

Bondkrete 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.

Bondkrete EP minimum application temperature is 5°C. Consult the local Cemkrete office for further information.

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 scrubbing 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.

Cleaning

Bondkrete EP should be removed from tools, equipment and mixers with solvent immediately after use. Hardened material can only be removed mechanically.

Estimating

Supply Bondkrete EP : 1 and 4 liters packs

Coverage Bondkrete EP : 3.5 - 4.0 m²/litre

Note: The coverage figures for Bondkrete EP products are theoretical - due to wastage factors and the variety and nature of possible substrates the practical coverage figures will be reduced. Bondkrete EP 'fast set' suitable for cold weather working can be made available when specifically requested.

Storage

Shelf life

Bondkrete EP has a shelf life of 12 months in a dry store in the original unopened pack.

Storage conditions

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

Precautions

Health and safety

Bondkrete EP should not come in contact with skin or eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapors. 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 provides 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 Bondkrete EP is non-flammable.

Important Note: Cemkrete warrants its materials free of manufacturing defects and produced as per standard specifications and sold under the terms and conditions of usages, whilst Cemkrete endeavors to ensure that any advice, recommendation, or information, given through its products literatures are reflects of the R&D in-house lab test and practical sites experience and knowledge based feed backs, however, the products are being used under various conditions and applied beyond its control where or how either directly or indirectly at various locations and places at a different stages that of an intended purposes and uses. Therefore, Cemkrete cannot hold warranty or responsible for resultant consequences, such as damages to the property or assets but the product itself.