BUILD SMART™
Construction Chemicals Pvt. Ltd.
Smart Chemistry for Construction

TECHNICAL DATA FOR BS SMARTBOND 100

Multiple Use Bonding and Repairing System for Concrete & Mortar

Description of BS SmartBond 100

BS SmartBond 100 is an essential multipurpose use chemical in the construction industry. **No construction project is complete without it.**

SmartBond 100 is specifically designed for use with cement compositions. It is used in mortar and concretes as a polymer modifier to increase resistance to cracks, water penetration, improving abrasion resistance and durability. It is commonly used with cement mortars as a reliable bonding agent that also has water resistant properties.

Advantages of BS SmartBond 100

1) Cold Joint Bonding Slurry: For start stop construction and green joints in concrete casting situations.
2) For Repairs of Concrete: Such as spalled concrete, repairs of concrete floors, beams and pre-cast slabs.
3) Installation and bonding of floor screeds and toppings.
4) For creating abrasion resistance in concrete floors and non-dusting property by way of coating.
5) Creation of external rendering plaster with waterproof, weatherproof and frost resistant properties.
6) To create long lasting durable crack resistant plasters in waterproofing and tanking, basements, lift pits and water body areas, effluent tanks and swimming pools.
7) Bonding application may also be done for Installation of tiles, making tile grout and fixing of stones.
8) Creating hard plaster for squash courts to withstand regular impact of squash ball.
9) Creating cove or **"golas"** that do not de-bond later on.
10) Low end waterproofing coating applications.

Key Benefit of BS SmartBond 100

1) Improved flexibility in cured cement based masses.
2) Prevents bleeding and segregation of mortars.
3) Creates high resistance to water penetration in plaster or concrete admixed with BS SmartBond 100.
4) Develops good abrasion resistance for polymerised concrete floors with BS SmartBond 100.
5) Compatible with and good adhesion to a variety of building materials.
6) Similar modulus and thermal expansion properties to concrete.
7) **Non-toxic. Can be used with any construction storing potable water safe for human consumption.**

Technology in BS SmartBond 100

BS SmartBond 100 comes as smooth, milky, copolymer latex liquid, created from styrene and butadiene by high pressure emulsion polymerisation.
This latex compound consists of microscopic particles of synthetic rubber dispersed in an aqueous solution.
This technology of BS SmartBond 100 works on a unique mechanism that greatly enhances the bonding and polymerising the concrete mix matrix.
The product shall have minimum butadiene content of 40% by weight.
The polymer shall be capable of being used as bonding agent and shall have pull-off bond strength not less than 1 MPa.

Properties of BS SmartBond 100

Properties	
Appearance	It is a soft milky white styrene butadiene co-polymer latex compound liquid, compatible with variety of cement blends
pH Level	8 ± 1
Density	1.01 ± 0.01 at 25^0 C
Solid Contents	40%

*Above results are for a typical sample. We strongly advise to carry out site trials before application.

Buildsmart Construction Chemicals Pvt Ltd an ISO 9001:2015 & ISO 14001:2015 Certified Company.

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Reference Properties of Mortar Admixed With BS SmartBond 100

Mortar Mix	
Cement	50 Kg Bag
River Sand (Zone-2)	150 Kg
BS SmartBond 100	10 Kg
Water	10 Litre
Mortar Properties with above mix	
Wet Density	2000 to 2200 Kg/m^3
Compressive Strength	Up-to 31 N/mm^2
Flexural Strength	Up-to 14 N/mm^2
Tensile Strength	Up-to 7.5 N/mm^2
Freeze Thaw Resistance	Excellent
Adhesion to Masses	Excellent to concrete substrates, steel, kiln bricks, AAC bricks, cement bricks, glass etc.
Resistance to Water Pressure (head of 98.5 Feet)	Excellent with zero water penetration through a 15mm test block

*Above results are for a typical mix and will vary depending upon mix constituent available for test. We strongly advise to carry out site mix design and trials.

Directions for use

Surface Preparation

All application surfaces should be clean, sound and free of loose and deleterious matter.
Remove all laitance, oil, grease, de-moulding agent or curing compound from concrete surfaces using wire brush or other such equipment. Ensure that reinforcing steel is clean and free from grease or oil; remove scale and rust.
When repairing spalled or damaged concrete, ensure that the concrete has been chiselled or cut back to a sound surface.

To Make Bonding Slurry with BS SmartBond 100

1) Wet down absorbent surfaces, such as concrete, bricks, stone, etc. Ensure that they are saturated but free of surface water.
2) **Prepare bonding slurry as per following mix ratio**
   a. 1 part SmartBond 100 diluted with
   b. 2 Parts water by weight and
   c. 6 parts cement (or 3 Parts Cement+3 Parts fine Silica) by weight mixed to a lump-free consistency.
3) Using a stiff brush, work the bonding slurry well into the damp surface, ensuring that no pinholes are visible.
4) One 20 Kg Pack of BS SmartBond 100 will generate bonding slurry of 410 to 420 Kg that will cover an area of around 320 to 325 Sq.Ft depending on the substrate.

Mixing Advice on Mortar with BS SmartBond 100

1) Mixing should be preferably carried out in a concrete mixer preferably a pan type mixer.
2) Hand mixing is advised only when the total weight of the mix is less than 25 Kg.
3) Load the mixer with the required quantity of river sand and cement and premix for approximately 1 minute.
4) Add the BS SmartBond 100 & mix for 2 minutes only, to avoid excessive air entrapment.
5) Finally, without delay, add the water slowly until the required consistency is achieved.
6) Owing to the strong plasticising properties of BS SmartBond 100, rapid thinning can occur - avoid adding excessive water.
7) Until the user becomes familiar with its workability the appearance of a BS SmartBond 100 modified mix is tricky; when of correct consistency it may appear to be too dry. However, it will be found that it can be compacted and trowelled satisfactorily.
8) Avoid using excessive water.

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Advice on Application of Polymerised Plaster to Vertical Surfaces:

1) Apply the bonding slurry to the prepared surface.
2) Then apply the BS SmartBond 100 polymerised mortar on the still wet bonding slurry.
3) Apply BS SmartBond 100 modified mortars in coats at a maximum thickness of 6mm per coat. Greater thickness can lead to slumping.
4) Several coats can be applied in fairly rapid succession, usually within 15 to 30 minutes of the previous coat.
5) Close the surface using a wooden float or steel trowel.
6) Another method is to let the first coat of render dry overnight and apply another slurry coat before applying the second coat of render.

Application Advice of BS SmartBond Modified Screeds and Toppings, to Horizontal Surfaces:

1) Screeds, patches, etc., based on SmartBond 100 modified cements, can be laid to any thickness from 60mm down to 6mm minimum.
2) After mixing, the BS SmartBond 100 modified mix should be placed over the still wet bonding slurry, well compacted and struck off to level. It may then be trowelled to the required finish using a wooden float or steel trowel.

Application Advice for Creating an Economical Waterproofing Barrier Coat using BS SmartBond 100

1) Wet down surfaces, ensuring that they are saturated but free of surface water.
2) Prepare a slurry of 1½ to 2 parts cement with ½ to 1 part fine quartz sand to 1 part BS SmartBond 100 by volume, mixed to a lump-free creamy, consistency.
3) Using a stiff brush, work the slurry well into the damp surface, ensuring that no pinholes are visible. Apply second coat at right angle to first, and after first coat have turn totally dry.

Advice on Curing

1) Proper curing of BS SmartBond 100 modified mixes is Important.
2) Water cure the mortars and repairs for 24 hours and then allow to dry out slowly.
3) Initial curing is necessary to provide good curing conditions for the hydration of the Portland cement, then the polymerised mortar must be allowed to dry out to permit the latex particles to combine and form the bonding strands in the mix matrix.

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