

Best Con - SBR

Water resistant polymer additive / bonding agent, to provide improved adhesion to concrete

Uses

For improving and bonding concrete repair mortars, cementitious floor toppings and screeds, waterproof renders and cementitious slurries. Cementitious mortars are alkaline in nature and will protect embedded steel reinforcement. Mortars produced with Best Con SBR may be used for horizontal, vertical and overhead repair work.

Advantages

- Excellent bond to concrete, masonry, stonework, plaster and blockwork
- Improved tensile and flexural properties allow thinner applications
- Single component liquid can be easily gauged as required
- Improves cohesion and workability
- Improves mortars to provide waterproof repairs, renders and toppings which are highly resistant to freeze/thaw cycling

Description

Best Con SBR is a modified styrene butadiene rubber emulsion which is supplied as a ready to use white liquid. It is designed to improve the qualities of site-batched cementitious mortars and slurries. Being resistant to hydrolysis, it is ideal for internal and external applications in conjunction with cement.

Design Criteria

The application parameters for mortars modified by the use of Best Con SBR will differ depending on the actual mix design used. Generally, however, Best Con SBR mortars can be applied in sections up to 40mm thickness in horizontal locations and up to 15mm in vertical locations. The thickness achievable in overhead locations without the use of formwork is largely dependent on the profile of the substrate. Vertical and overhead sections greater than those stated above may be built up in layers but may sometimes be possible in a single application dependent on the actual size and configuration of the repair area, and the volume of any exposed reinforcing steel. Best Con SBR mortars should not be applied at less than 6mm thickness. Thicknesses up to 40mm in a single application can be achieved by the use of formwork.

Properties

The results listed below were achieved by assessing the mechanical properties of a 3:1 sand:cement mortar containing Best Con SBR in the proportions 4 litres per 20kg cement. The test methods used were in full accordance with BS 6319 at 28 days - air cured.

Compressive strength:	62 MPa
Tensile strength:	3.3 MPa
Flexural strength:	9 MPa
Slant shear bond:	53 MPa
VOC content:	29g / litre
Chemical resistance:	Cementitious materials have limited chemical resistance. The addition of Best Con SBR to cement mortars reduces permeability and therefore helps reduce the rate of attack by aggressive chemicals, acid gases and water

Application Instructions

Preparation

Saw cut or cut back the extremities of the repair locations to a depth of at least 10mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 6mm up to the sawn edge.

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae. Where breaking out is not required, roughen the surface and remove any laitance 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 should then be assessed by a pull-off test.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a bright condition paying particular attention to the back of exposed steel bars. Grit-blasting is recommended for this process.

Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water immediately after grit-blasting to remove corrosion products from pits and imperfections within its surface.

Reinforcing steel priming

Apply 1 full coat of Nitoprime Zincrich to any exposed steel reinforcement and allow to dry before continuing. If any doubt exists about having achieved an unbroken coating, a second application should be made and, again, allowed to dry before continuing.

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Substrate priming

The substrate should be thoroughly soaked with clean water and any excess removed prior to commencement. A slurry primer should be prepared consisting of 1 volume Best Con SBR to 1 volume clean water to 3 volumes fresh cement. To obtain a smooth consistency, the cement should be blended slowly into the premixed liquids. The slurry primer should be stirred frequently during use to offset settlement.

The slurry primer should be scrubbed well into the surface of the concrete. Avoid applying too thickly and avoid 'puddling'. The repair mortar, topping or render must be applied on to the wet slurry primer. If the slurry primer dries before application of the mortar, it must be removed (ground off) and the area reprimed before continuing.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the substrate is likely to remain permanently damp, Best Con EP bonding aid should be used. Contact Best Con for further information.

Mixing

Care should be taken to ensure that Best Con SBR mortars are thoroughly mixed. A forced-action mixer is essential. Mixing at a slow speed (400/500 rpm) in a suitably sized drum using appropriate equipment such as the Ransom 140 x 600 M14 Helical mixing paddle (product code: N4020892-UNIT) fitted to a heavy-duty 1600W mixer, such as Ransom 1602 E (product code: NP7EV160-UNIT) or equivalent is acceptable for small mixes.

A wide range of mix designs is achievable using Best Con SBR.

Typical designs are detailed below:

1. **Patching and repair mortar:** 20kgs GP Cement + 60kgs grade 16/30 sharp sand + 4 litres Best Con SBR + 3 litres (approximately) clean water. Yield 38 litres. Recommended thickness: 6mm - 40mm
2. **Heavy-duty floor screed:** 20kgs GP Cement + 30kgs 3mm to 6mm crushed rock + 30kgs grade 16/30 sharp sand + 2.5 litres Best Con SBR + 2.5 litres (approximately) clean water. Yield 37 litres. The screed should be of a semi-dry cohesive consistency. Recommended thickness: 10mm - 40mm
3. **Render:** 20kgs GP Cement + 60kgs grade 16/30 sharp sand + 2.5 litres Best Con SBR + 2.5 litres (approximately) clean water. Yield 37 litres. The render should be of a semi-dry cohesive consistency. Recommended thickness: 6mm - 9mm
4. **Bonding mortar for tiles, etc:** 20 kgs GP Cement + 50kgs grade 16/30 sharp sand + 4 litres Best Con SBR + 3 litres (approximately) clean water. Yield 33 litres. Water is adjusted to give a firm mortar. Support where necessary until the mortar is set. Recommended thickness: 6mm to 40mm.

Note: these mix designs are based on the use of dry sand and aggregate. Adjustments must be made to the water demand relative to the moisture content of the sand and aggregate used.

It should also be noted that, due to the frequent inconsistencies of site-stored materials and variable conditions, actual yields and results may differ from those published above.

Weigh the cement, sand and, where required, aggregate into the mixer and dry blend together for 1 minute. With the machine in operation, add the pre-mixed Best Con SBR and clean water. Continue mixing for 3 minutes to ensure complete dispersal into the sand and cement. Make any small adjustment to the quantity of clean water but do not significantly exceed the litreage shown above.

Additional water should be kept to a minimum. Continue mixing up to a maximum of 5 minutes until a smooth and fully homogeneous consistency is achieved with the required workability and application properties. It is critical that allowance is made for the moisture content of the sand and aggregate, particularly where they are stored on site.

Application

For application to all surfaces, Best Con SBR mortars, toppings and renders must be well-compacted on to the primed substrate by trowel. It is frequently beneficial to work a thin layer of the mortar into the slurry primer and then build the mortar on to this layer. Exposed steel reinforcement should be completely encapsulated by the mortar.

Best Con SBR mortars can be applied at a minimum thickness of 6mm and up to 40mm thickness, dependent on the location and configuration of the repair zone. The thickness achievable in overhead locations without the use of formwork is largely dependent on the profile of the substrate. Refer to the recommended thicknesses shown in the 'Mix design' section above. If the recommended thickness is exceeded and sagging occurs, the affected section must be completely removed and reapplied in accordance with the procedure described above. The use of formwork may facilitate achieving the required build. If formwork is used, it should have properly sealed faces to ensure that no water is absorbed from the repair material.

Where thicker sections up to a total thickness of 40mm are to be built up by hand or trowel application, the surface of the intermediate layers should be scratch-keyed and cured with diluted Nitoprime 330. Application of the slurry primer and a further application of Best Con SBR mortar may proceed as soon as this layer has set.

Finishing

Best Con SBR mortars can be finished with a steel, plastic or wood float, or by a damp sponge technique, to achieve the desired surface texture. The completed surface should not be overworked.

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Low temperature working

In cold conditions down to 5°C, the use of warm water (up to 30°C) is advisable to accelerate strength development. Normal precautions for winter working with cementitious materials should then be adopted.

High temperature working

At ambient temperatures above 35°C, the material should be stored in the shade and cool water used for mixing.

Curing

Best Con SBR mortars, toppings and renders are cement-based. In common with all cementitious materials, they must be cured immediately after finishing in accordance with good concrete practice. The use of one of Best Con's Concure curing compounds, sprayed on to the surface of the finished mortar in a continuous film, is recommended. In harsh drying conditions, supplementary curing with polythene sheeting must be used.

Cleaning

Best Con SBR should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Limitations

Best Con SBR mortars, toppings and renders should not be applied when the temperature is 5°C and falling. Neither should they be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour. If any doubts arise concerning temperature or substrate conditions, consult Best Con.

Supply

Best Con SBR 20 litre:	FC323105-20L
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Coverage and yield

Best Con SBR:	Refer to mix designs
Best Con SBR (as slurry primer):	Approximately 2 to 3m ² /litre

Notes: the coverage figures for liquid products are theoretical - due to wastage factors and the variety and nature of possible substrates and mix design used, practical coverage figures will be reduced.

Storage

Best Con SBR should be kept in a dry store in the original, unopened packaging.

Best Con SBR should be protected from frost.

