

EVERBUILD SBR BOND

DESCRIPTION

EVERBUILD SBR BOND is a white liquid, which has numerous uses as an admixture, primer, bonding agent and sealer.

Polymer Emulsions of this type have been used extensively over the last 20 years by the building industry as an admixture for cement and concrete applications, including repair and renovation, surfacing of floors and bonding generally. It contains anti-foam to control the density of cementitious mixes.

BENEFITS

- * Greatly improved adhesion to a wide range of substrates including dense concrete, steel, tiles etc.
- *Mixes may be applied in much thinner sections
- *Excellent resistance to water and water vapour
- *A high level of resistance to salt permeation
- *Much improved toughness and flexibility
- *Reduced surface dusting of concrete
- *Greatly improved resistance to many chemicals- ideal for use in dairy parlours etc.
- *Reduced water: cement ratio for equivalent workability
- *Improved frost resistance
- * SBR Bond is also freeze thaw stable.

AREAS FOR USE

- As an admixture for mortar/screeds/renders.
- As a bonding agent for screeds/renders.
- As a primer/sealer in tiling applications.
- As a flexibiliser for cementitious based tile adhesive when tiling on wooden/asphalt floors.
- In addition, SBR Bond has the advantage over PVA bonding aids in that it is not adversely affected in wet conditions and is therefore recommended for exterior use.

LIMITATIONS

- In common with other SBR products, SBR BOND is not suitable for coloured exterior decorative renders which will not be subsequently overpainted. Its poor UV resistance may cause discolouration

SURFACE PREPARATION

All surfaces must be clean, dry and free from dust, grease and other contaminants.

APPLICATIONS

See following pages for specific areas of use and application methods.

HEALTH AND SAFETY

Safe in normal use. Wash splashes off skin. If product enters eyes, rinse with immediately with cold water and seek medical attention if irritation persists.

STORAGE

SBR Bond is best stored at moderate temperatures to avoid the possibility of permanent damage occurring due to prolonged heat or excessive cold. However if frozen, the latex should be thawed slowly. SBR Bond should preferably be stirred before use.

SBR Bond contains sufficient bactericide to preserve the latex under normal storage conditions.

SHELF LIFE

Minimum of 12 months in original unopened containers.

SPECIFIC DATA	
TOTAL SOLIDS	46%
Ph	9
VISCOCITY	100cps (RVT 1/10rpm)
SURFACE TENSION	8 dyne/cm
M.F.F.T	0°C.
S.G.	1.010 kg/ltr
Na20 EQUIVALENT	0.7%
FREEZE/THAW	passes 5 cycles at -10°C - excellent.
CALCIUM IONS	compatible
ALUMINIUM III IONS	compatible
ANTIOXIDANT	added.
BACTERICIDE	added.
TENSILE STRENGTH	N/mm ² at 20% elongation.
TENSILE STRENGTH AT BREAK	2.5N/mm ² .
ELONGATION AT BREAK	500%
SOLUBILITY OF DRY FILM IN TOLUENE	20%

TECHNICAL DATA

SBR BOND - FLOORING APPLICATIONS

This information sheet is concerned with the use of SBR Bond in screeds and toppings over background concrete. Adding SBR Bond to a floor screed or topping gives the following advantages:

- A low water:cement ratio allows a minimum of delay when overcoating is required.
- Reduced permeability to liquids.
- Improved chemical, abrasion and impact resistance .
- Resistance to dusting.
- Thinner screeds, achieving reduction in weight and savings in materials.
- Excellent slip resistance.
- Goods underlay for epoxy surfacing.
- SBR Bond has a long and successful track record of use in the construction industry.

SELECTION OF MATERIALS

To obtain maximum performance from mixes modified with SBR Bond it is important that attention is paid to the quality of the other materials used.

- **Sand** should be well washed and sharp. The grade of sand will depend upon the mix design.
- **Cement** Portland, High Alumina and sulphate resisting cements are compatible with SBR Bond. Portland cement should be fresh but cool. Cement containing air set lumps should not be used.
- **Coarse aggregate** e.g. Granite chippings. These should be dust free.
- **Air entraining agents** These should not be used.

SUBSTRATE REQUIREMENTS

The background must be capable of withstanding all stresses which will be put onto it and contain the appropriate joints. If it is to receive a topping the background should have a compressive strength greater than 30N/MM² and/or a tensile strength greater than 1N/mm².

PREPARATION OF SURFACES

Floors should be mechanically prepared, eg scabbled or shot blasted, to give an aggregate exposed surface. Dust should be removed by vacuum, not compressed air. All contaminants such as oil, grease, or any surface laitence must be removed to ensure adequate development of bond when the topping is applied. A water drop test is the simplest method to determine whether water repellent contamination is present.

PRIMING

Application of a primer coat is necessary to obtain maximum adhesion of the topping or screed. Full details are set out on the information sheet on SBR Bond Primer Systems.

MIX DESIGN

The mix design depends upon thickness and intended use. However, typically mixes for a 12mm topping or screed are as follows:-

	Screed	Topping
O.P.C.	1	1
Moist Sand	3.5	1.75
3mm washed granite	0	1.75
SBR BOND	0.2	0.2 (i.e. 10 litres per 50kg bag of cement)
Water	As required	As required

All parts are by volume of uncompacted material.

COVERAGE RATE

As a rough guide, 1.2 litres of SBR BOND will cover 1m² of 12mm thickness using the above mixes.

MIXING

Mixing procedures for topping and screeds containing SBR Bond are similar to those used to conventional compositions, with gauging water partly replaced by SBR Bond. However, mixing time should be minimised to limit air entrainment.

Mixing should be carried out in a forced action mixer. The usual procedure is to pre-mix sand and cement in the mixer, pour in the SBR Bond, mix for 1 - 3 mins, then slowly add water to the required consistency.

NB. Over addition of water causes rapid thinning of latex modified mortars owing to the plasticising effect of the latex.

POT LIFE

The mix has a pot life of approximately 30 minutes and batch size should be calculated accordingly.

APPLICATION

1. Apply topping or screed onto wet or tacky primer.
2. Compact and level with screed bar.
3. Finish with steel float. It is essential that the topping or screed is finished as the work proceeds.
4. The topping or screed would be cured for 1 - 2 days using conventional techniques. Curing should be started quickly after application.

Notes:

Joints in the screed or topping should coincide with the joints in the background.

It is easier to lay the mix if the ambient temperature is below 25°C.

If overcoating the screed, oleoresinous floor finishes should be avoided.

If the water drop test indicates the presence of water repellants, it may be more suitable to use and epoxy primer in place of the latex/cement primer.

CLEANING OF EQUIPMENT

All tools should be cleaned immediately after use with water because hardened SBR Bond modified toppings and screeds have excellent adhesion and are therefore difficult to remove. Solvents such as white spirit used with coarse wire wool help to remove partially hardened mortar.

OTHER APPLICATIONS

Information sheets are available which describe the use of SBR Bond in priming, rendering and concrete repair applications.

TECHNICAL DATA

RENDERING

This information sheet is concerned with the use of SBR Bond in rendering.

Adding SBR Bond to a render mix gives the following advantages.

- A reduction in water permeability
- Increased crack resistance
- Greater protection against carbonation
- SBR Bond has a long and successful track record of use in the construction industry.

SELECTION OF MATERIALS

To obtain maximum performance from mixes modified with SBR Bond it is important that attention is paid to the choice of other materials used.

- **Sand** should be well washed and sharp.
- **Cement** Portland, High Alumina and sulphate resisting cements are compatible with SBR Bond. Masonry cement may lead to excessive air entrainment in SBR Bond, mixes. The cement should be fresh but cool and cement containing air set lumps should not be used.
- **Use of lime** If lime is used in the mix, it should not exceed 25% of the cement by volume.
- **Air entraining agents** These should not be used.

PREPARATION OF SURFACES

Before using a SBR Bond modified mortar or concrete it is important to ensure that the surface to which it is to be applied is clean and free from dust and loose material and that the structure has sufficient mechanical strength.

Walls should be wire-brushed and any old paint etc. removed. All contaminants such as oil, grease, or any surface laitence must be removed to ensure adequate development of bond when the render is applied.

PRIMERS

A primer coat is recommended to obtain maximum adhesion of the render. Details on the use of primers are available in the information on primer systems.

MIX DESIGN

The optimum proportions of cement, sand and SBR Bond depend upon the background, application and properties required. The following are typical examples.

Example 1 Standard rendering over moderately strong backgrounds, e.g. typical brickwork

O.P.C.	1 part
Moist sand	4.5 parts
SBR Bond	0.2 parts
Water	as required (i.e. 10 litres of latex per 50kg of cement)

Example 2 Waterproof rendering above ground, over strong backgrounds, e.g. dense concrete and also carbonation protection.

O.P.C.	1 part
Moist sand	3 parts
SBR Bond	0.28 parts
Water	as required (i.e. 14 litres of latex per 50kg bag of cement)

All parts are by volume of uncompacted material.

COVERAGE RATES

As a rough guide, 1 litre of SBR BOND will cover 1m² at a 15mm thickness (for mix 1 above)

MIXING

Mixing procedure for renders containing SBR Bond is similar to that used for conventional compositions, with gauging water being partly replaced by the latex and mixing minimised to limit air entrainment.

Mixing should preferably be carried out in a forced action mixer. The usual procedure is to pre-mix sand and cement in the mixer, pour in the latex, mix for 1 to 2 minutes, and then slowly add water to the required consistency.

NB. Over addition of water causes rapid thinning of latex modified mortars owing to the plasticising effect of the latex.

POT LIFE

The mix has a pot life of approximately 1 hour at 20°C and batch size should be calculated accordingly.

APPLICATION

Apply render onto wet or tacky primer. The first coat should be limited to a thickness of approximately 7mm.

Scratch the surface and leave to set before applying the second coat of similar thickness to the first.

For added protection, allow first coat of render to dry overnight and then apply a second coat of primer. While this is still wet or tacky, apply the second coat of render.

The final coat should be trowelled/floated to a smooth finish as the work proceeds.

In severe drying conditions a render should be kept damp for 2 days to allow the cement to cure.

CLEANING OF EQUIPMENT

All tools should be cleaned immediately after use with water because hardened SBR Bond renders have excellent adhesion and are therefore difficult to remove. Solvents such as white spirit used with coarse wire wool help to remove partially hardened mortar.

OTHER APPLICATIONS

Other information sheets are available which describe the use of SBR Bond in priming, flooring and concrete repair applications.

TECHNICAL DATA

SBR BOND CERAMIC TILE ADHESIVES/CEMENT BASED. THIN BED.

1. SIMPLE SITE FORMULATION

The simplest formulation is obtained by mixing SBR Bond and cement in the proportions required to give the right consistency for joints of up to 2mm thickness e.g. one part of SBR Bond by volume to 2.5 parts of Ordinary Portland Cement by volume.

When mixing cement and latex it is best to start with small quantities and gradually increase the latex and cement, whilst stirring continuously. If at any time there is a large excess of latex there is a risk that the mix will contain many lumps.

Porous backgrounds, and porous tile backs should be damped with water prior to the bonding operation. However, there should be no free water on the surface.

2. FACTORY MADE TWO PACK SYSTEM (STARTING FORMULATION)

Economies in material can be obtained by using formulae of the following type:

<u>Dry Pack</u>		<u>Parts by Weight</u>
Ordinary Portland Cement	100	
Fine sand or Limestone		100
Celacol B2/8		1
<u>Wet Pack</u>		
SBR Bond		100
Water		100
Bactericide e.g. Acticide BX		0.1

The proportions of wet mix:dry mix are adjusted to give a mix of the required consistency. The actual proportions will depend on the sand/limestone filler grading.

NOTES:

1. The Celacol is a water retaining agent and its use avoids the need to pre-dampen the background (unless the background has an excessively high suction).

The Celacol could be in the wet pack, instead of in the dry pack, but this complicates the manufacture of the wet pack and also introduces some risk of degradation of the Celacol during storage.

TECHNICAL DATA

SBR BOND TILE AND BRICK SLIP BONDING. THICK BED

1. Use a forced action mixer, e.g. a pan type mixer.
2. Use a washed sharp sand complying with a BS 882 1983 (Medium Grade).
3. Mortar:

Ordinary Portland Cement	50kg
Sand	125kg
SBR Bond	14kg
Water	As required to give a suitable consistency

This mix has a post life of about 40 minutes at 20°C, after which it will start to stiffen.

4. All surfaces to be bonded must be of adequate strength and free from dust, laitence or other contamination.
5. All porous surfaces must be pre-dampened, but there should be no free water on the surface.
6. The surfaces to be bonded including the backs of the tiles/brick slips are brushed with a grout of 1 part SBR Bond and one part of cement by weight, The mortar is applied while the grout is still wet.
7. The mortar is applied by buttering the back of each tile/brick slip to a thickness of 6 - 12mm, the tile/brick slip is then pushed firmly into position. Periodic checks should be made to ensure that the complete contact, and a good bond, is being achieved.
8. Temporary support is provided as necessary to prevent the tiles/brick slips from slipping.
9. Joints between the tiles/brick slips should not be filled until at least 24 hours after placing the units.

FOOTNOTES:

- a) Movement joints are needed in large areas of work.
- b) Sawn bricks are often contaminated with dust. This has to be removed.

TECHNICAL DATA

PRIMER SYSTEMS

This information sheet is concerned with SBR Bond when used with cement as part of a primer system or as a bonding agent. The Application of a primer/bond coat is recommended to obtain reliable adhesion of a subsequently applied render, repair mix or floor topping. In addition, site trials have shown that latex can be very effective in improving the adhesion of plaster to difficult substrates.

Uses

Suggested uses of SBR Bond in primer systems:

- Corrosion protection of steel
- Waterproofing
- General purpose building adhesives
- Bonding agent

SELECTION OF MATERIALS

The Portland cement should be fresh but cold, and cement containing air set lumps should not be used.

PREPARATION OF SURFACES

Before using a SBR Bond based primer it is important to ensure that the surface to which it is to be applied is clean and free from dust and loose material, and has sufficient mechanical strength.

Preparation e.g. wire brushing

It is recommended that concrete or masonry surfaces are well dampened and hour or so before priming (unless already damp, e.g. basement walls) and should be damp but surface dry when the primer coat is applied.

MIX DESIGN

The optimum proportions of cement and SBR Bond depend upon the background, application and properties required. The following is a typical example:

O.P.C.	1 to 2 parts
SBR BOND	1 part

All parts are by volume.

The level of cement may be varied to obtain the required consistency.

COVERAGE RATE

This will depend upon the latex/cement ratio and the background. Typical coverage rate on rough concrete is 0.3 to 0.4 litres of latex per m² per coat.

When used as a coating, as opposed to a bonding agent, the thickness of each coat should not exceed 0.5mm to minimise the risk of cracking.

MIXING

Add the cement gradually to the SBR, stirring continuously.
A slow speed electric drill fitted with a paddle is suitable.

POT LIFE

The mix has a pot life of 2 hours at 20°C.

APPLICATION

When used as a bonding agent below mortars, renders, screeds and toppings the priming mix must be vigorously brushed into the prepared background and the mortar, etc. applied while the priming coat is still wet or tacky, usually this should be within 20 minutes depending on conditions.

CLEANING OF EQUIPMENT

All tools should be cleaned immediately after use with water because hardened primers have excellent adhesion and are therefore difficult to remove. Solvents such as white Spirit, used with coarse wire wool, help to remove partially hardened mixes.

FURTHER INFORMATION

Other information sheets are available which describe the use of SBR Bond in rendering, flooring and concrete repair.

The bonding agent mix complies with the requirements for bonding agents given in BS8204 Part 3 1993 "Code of Practice for Polymer Modified Cementitious Wearing Surfaces".

TECHNICAL DATA

SBR BOND CONCRETE REPAIRS

This information sheet is concerned with the use of SBR Bond in patch repairs of reinforced concrete.

The information given here is suitable for small repair projects. SBR Bond is also suitable for use on larger projects, but these should be considered individually by specialist concrete repair companies.

USES

Use of SBR Bond in the concrete repair system gives the following advantages:

- Improved adhesion to background
- Corrosion protection of the steel
- Improved crack resistance
- Reduced thermal stresses because the coefficient of thermal expansion is similar to that of unmodified concrete.
- Protection of background concrete from carbonation
- Improved durability
- SBR Bond has a long and successful track record of use in the construction industry

DIAGNOSIS

It is important to establish the reasons for concrete failure prior to remedial action. If the problem has been caused by, for example, chlorides, porous concrete or inadequate cover to steel, areas which appear undamaged may deteriorate at a later date.

SELECTION OF MATERIALS

To obtain maximum performance from mixes modified with SBR Bond it is important that attention is paid to the choice of other materials used.

- **Sand** should be well washed and sharp. The grade of sand will depend upon the thickness of each layer to be applied.
- **Cement** Portland, High Alumina and sulphate resisting cements are compatible with SBR Bond. Masonry cement may lead to excessive air entrainment in SBR Bond, mixes. Portland cement should be fresh but cool. Cement containing air set lumps should not be used.
- **Air entraining agents** These should not be used.
- **Other additives** Should only be used after seeking further advice from EVERBUILD BUILDING PRODUCTS LIMITED

MIX DESIGNS

Primer Mix

The mix design for the primer coats can be found in the separate sheet on primer systems.

Mortar Mix

The following mortar mix is suitable for most repairs to concrete with a compressive strength greater than 25N/mm² and where cover to the steel is above 15mm.

O.P.C	1 Part
Moist Sand	2.5 parts
Latex	0.2 parts (i.e. 10 litres of latex pre 50kg bag of cement)
Water	As required

All parts are by volume of uncompacted material.

Note: The latex level should be increased to 0.3 parts in the following cases:

- i) if the background concrete contains chlorides
- ii) if the final cover to steel will be 10 - 15mm
- iii) in conditions of severe exposure

COVERAGE RATE

In the above mix a 50kg bag of cement with 125kg of sand will yield approximately 0.08m³ of mix.

MIXING

Mixing procedures for repair mortars containing SBR Bond are similar to those used for conventional compositions, with gauging water being partly replaced by the latex and mixing minimised to limit air entrainment.

Mixing should be carried out in a forced action mixer. The usual procedure is to pre-mix sand and cement in the mixer, pour in the latex, mix for 1 - 2 minutes, and then slowly add water to the required consistency.

NB. Over addition of water causes rapid thinning of latex modified mortars owing to the plasticising effect of the latex.

POT LIFE

The mix has a pot life of approximately 30 minutes and batch size should be calculated accordingly.

PREPARATION OF SURFACES

A. Removal of unsound concrete

- Clean back mechanically to good sound concrete, preferably

behind any exposed steel reinforcement. The concrete should be cut back so that the mortar can be applied to a thickness of at least 5mm at the edges of the repair to avoid feather edging. Provide at least 10mm of cover to the reinforcement.

B. Preparation

- Depending on the size of the repair, abrasive blasting or wire brushing of steel is then necessary.
- The steel should be washed with clean water and allowed to dry. Chemical cleaners and rust treatments should not be used.

Note: If corrosion of steel appears excessive, and engineer's opinion should be sought.

C. Priming Steel

- Brush primer coat on to the steel and allow to dry. This coat should be applied within 24 hours of preparation of the old concrete and steel.

D. Brush

- 16 - 36 hours after application of first primer coat to the steel dampen surface of background concrete and allow to surface dry.
- Brush second coat of primer on to steel and background.

E. Apply Mortar

- Whilst second coat of primer is still wet or tacky, apply the repair mortar, making sure that it is well packed behind exposed steel.NB. The second coat of primer will only remain tacky for about 20minutes depending upon ambient conditions.
- Where conditions require more than one layer of mortar, scratch surface of first layer and leave to just set before applying the second coat of similar thickness to the first.
- For added protection, allow first layer of mortar to dry overnight and then apply a coat of primer. While this is still wet or tacky, apply the second coat of mortar.

F. Smoothing off

- The final coat should be trowelled/floated to a smooth finish as the work proceeds.
- In severe drying conditions a repair should be kept damp for 2 days to allow the cement to cure.

- A surface coating may then be applied over the whole area when the moisture content of the mortar is sufficiently low.

Notes:

1. If the final cover to the steel will be less than 10 mm, another type of mortar may be considered, e.g. epoxy.
2. Epoxy primers may be more suitable where a long open time is needed, e.g. for shuttering. However, the steel will need a much higher standard of cleaning, or a layer of latex primer may be applied before using the epoxy primer.

CLEANING OF EQUIPMENT

All tools should be cleaned immediately after use with water because hardened SBR Bond modified repair mixes have excellent adhesion and are therefore difficult to remove, Solvents such as white spirit used with coarse wire wool help to remove partially hardened mortar.

FURTHER INFORMATION

The Concrete Society Technical Report No. 26 contains further information on the repair of reinforced concrete.

OTHER APPLICATIONS

Information sheets are available which describe the use of SBR Bond in priming, rendering and flooring applications.