



# FORMPLUS

## Joint Sealing

### **FORMBOND - SBR**

#### **SBR latex, cement admixture and adhesive**

##### **Description**

**FORMBOND-SBR** is a styrene butadiene emulsion for use as an admixture in cementitious compounds. Its use will improve many of the properties of the compound, improvements in many instances superior to those obtained by the use of other emulsions such as PVA's and acrylics, especially under wet conditions of service.

##### **Advantages**

- Excellent adhesion to concrete, brickwork, masonry, renders, and steel,
- Waterproof and weather resistant properties,
- Improved tensile and flexural strengths,
- Greater flexibility,
- Improved resistance to abrasion,
- Reduction in curing shrinkage,
- Reduced preparation on walls and floors prior to application of screeds and renders.

##### **Applications include**

- Water resistant screeds and renders,
- Waterproofing basement structures,
- Underlayment levelling screeds,
- Wear resistant flooring,
- Resurfacing mortars with feather edging properties,
- Concrete repairs,
- Bonding mortars to existing concrete or steel,
- Weather resistant adhesives for brick slips, ceramic tiles, kerbs, coping stones and blocks,
- Grouts for sealing cracks in brickwork and masonry,
- Mortars for spraying by the guniting process,
- Bonding new concrete to old.

There are a host of other application where the use of **FORMBOND-SBR** is advantageous and if further information were required with respect to a specific application our Technical Department would be pleased to advise.

##### **Cement compatibility**

**FORMBOND-SBR** is compatible with all types of Portland Cements including Sulphate Resisting, and with High Alumina Cements.

##### **Surface preparation**

All surfaces must be sound, clean, and free from dust, loose materials, oils, grease and other deposits. Concrete surfaces should be free from laitence and for best results scarification or acid etching is recommended. Cracks in concrete should be cut out to a minimum depth of 25 mm and of sufficient width to enable complete filling with mortar during the resurfacing operation. Steel surfaces such as exposed reinforcing steel should be free from rust and scale; either grit blasting or wire brushing may achieve this.

##### **Priming**

Porous surfaces such as concrete, brick, etc., should be thoroughly damped with clean water just prior to priming, ensuring that no free standing water is remaining. Timber surfaces should be sealed with a 50/50 mixture of **FORMBOND-SBR** and water. Priming Slurry comprising 2 volumes of cement and 1 volume of **FORMBOND-SBR** should be mixed in a bucket by first introducing the cement and then mixing in little by little the **FORMBOND-SBR**. The cement used should be of the same type as used in the topping mix. The Priming Slurry should be applied by brush, scrubbing well on to the surface and ensuring complete coverage of substrate. Coverage of Slurry will be approximately 3.5 m<sup>2</sup> per litre **FORMBOND-SBR**. The Priming Slurry should still be wet at the time of applying the topping mix and areas that have dried should be reprimed.

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### Mixing

Premix the dry materials; add the chosen quantity of **FORMBOND-SBR** diluted if water is to be added to the mix, with half its own volume of water, mix for 2 - 3 minutes and then finally mix in any added water cautiously and little by little until the required consistency is obtained. Added water should be kept to the minimum consistent with adequate workability. For trowellable mortars an even workable mix with a crumbly texture will give best results and whilst appearing to be drier than a conventional water gauged mix will, due to the plasticising effect of **FORMBOND-SBR**, still provide adequate workability. Small quantities where the total weight of the dry materials does not exceed 50 kilos may be satisfactorily mixed by hand. Larger quantities should preferably be mixed in a mechanical mixer and mixed for not more than 5 minutes after addition of **FORMBOND-SBR**.

### Suggested mixes

The mixes given below have been well tried and tested and we recommend they be adhered to wherever possible. Mixes of proportions other than those shown have proved to be suitable for particular purposes but it is advisable not to reduce the quantity of **FORMBOND-SBR** below 9 litres per 50 kg. cement excepting in instances where thickness of application is in excess of 25 mm as indicated below. The amount of mixing water shown for each mix is approximate only and will be dependent on the grading and moisture content of the sand and other factors, but should be kept to the minimum consistent with adequate workability.

#### General Purpose Mortar: Patching, screeding, rendering

Mix:	Cement	50 kilos
	Sand (zone 2)	150 kilos
	<b>FORMBOND-SBR</b>	9 litres
	Water	10 - 12 litres
	Yield (approx.)	0.10 m <sup>3</sup>

Damp and prime prepared surface. Apply to vertical surfaces to a thickness that will not slump, generally up to 8 mm. Apply to horizontal surfaces up to 25 mm. Prime between successive layers.

#### Granolithic Floor Topping: Heavy duty dustless floors

Mix:	Cement	50 kilos
	Sand (zone 2)	75 kilos
	Grano (3-6mm)	75 kilos
	<b>FORMBOND-SBR</b>	9 litres
	Water	10 - 12 litres
	Yield (approx.)	0.11 m <sup>3</sup>

Damp and prime prepared surface. Apply up to approximately 25 mm thickness. Where greater thickness is required reduce **FORMBOND-SBR** to 5 litres and increase water to obtain desired consistency.

#### Thick Bed Adhesive: Fixing slip bricks, heavy tiles, coping stones, kerbs, etc.

Mix:	Cement	50 kilos
	Sand (zone 2 or 3)	125 kilos
	<b>FORMBOND-SBR</b>	15 litres
	Water	6-7 litres
	Yield (approx.)	0.10 m <sup>3</sup>

Damp and prime both surfaces, apply sufficient adhesive to one surface with slight excess, dress together apply pressure, brace where necessary and remove any excess squeezed between joints

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**Thin Bed Adhesive:** Fixing ceramic tiles, mosaics, etc.

Into 1 1/2 volumes of cement, mix in gradually one volume **FORMBOND-SBR** then mix in gradually up to one volume additional cement to the required consistency.

Coverage: @ 3 mm thickness approx. 0.65m<sup>2</sup> per litre **FORMBOND-SBR**.

Damp down prepared surface, soak tiles in water for about 10 minutes then drain off surplus. Apply adhesive to substrate using serrated applicator then bed tiles in adhesive removing any excess squeezed between joints.

**Crack Sealant:**

Sealing cracks in brickwork and masonry.

For details of application technique please consult our Technical Department.

Prepare a gauging liquid of 2 volumes **FORMBOND-SBR** mixed with one volume water. Take 2 volumes cement and mix in gradually one to 1 1/2 volumes gauging liquid, depending upon consistency required. It is important that the sealant should be lump-free and this is best achieved by first mixing in a very small quantity of gauging liquid to form a stiff paste and then mixing in the remainder of the gauging liquid little by little.

Yield (approx) 1 litre **FORMBOND-SBR** when mixed as above will yield approximately 2000 cm<sup>3</sup> of sealant. For estimating purposes experience shows that it is advisable to calculate for five times the nominal volume of the main crack.

### Procedure for Water Resistant Renderings and Screeds

Carry out necessary surface preparation, plug any point leaks using suitable plugging material and damp down. Make up Priming Slurry as described under 'Priming' and scrub well into surface. When slurry coat is touch-dry, approximately 20-30 minutes, apply a second coat. Each coat should be applied at right angles to each other, thickness of each coat should not exceed 2 mm and care should be taken to ensure that complete coverage of substrate is achieved with each coat. The double sealing coat should be allowed to dry out thoroughly for a minimum of 48 hours. Following this an additional coat in instances where high water pressures are expected, a General Purpose Mortar mixed as described above. The mortar should always be applied whilst the primer coat is still wet.

### Cleaning of Equipment

Hardened **FORMBOND-SBR** modified mortars have excellent adhesion therefore all tools should be cleaned immediately after use. If this precaution is overlooked solvents such as white spirit, or preferably **RESOKLENS** obtainable from FORMmast Ltd will assist in removing hardened mortars.

### Storage

In common with other similar type emulsions **FORMBOND-SBR** can become unstable when subjected to extremes of temperature. Therefore protect from freezing and excessive heat. Containers when not in use should be kept sealed.

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### Summary of test results

The physical properties of a cementitious compound are dependent upon many factors. Therefore to arrive at a practical evaluation of the benefits of using **FORMBOND-SBR** all results obtained from tests are compared with those obtained

	Mix 1	Mix 2
Cement OPC	50 kg	50 kg
Sand, zone 2	150 kg	150 kg
FORMBOND	10 l	None
SBR	1 l l	2 l l

**Curing**, Mix 1 was cured @ 23° C and 50% relative humidity and Mix 2 @ optimum conditions of 23° C and 100% humidity.

**Mechanical Properties** Specimens tested after 28 days. Results expressed in N/mm<sup>2</sup>

	Tensile Strength	Flexural Strength	Compressive Strength	Shear Bond Strength	E Modulus
Mix 1	5.5	11.2	29.4	5.1	1.34 x 10
Mix 2	2.6	5.7	30.9	0.9	2.38 x 10

### Abrasion Resistance

Results expressed in % weight change

	Dry	Wet
Mix 1	1.17	2.71
Mix 2	4.83	3.62

### Curing Shrinkage

Results expressed in % linear change

	28 Days	90 Days
Mix 1	0.013	0.018
Mix 2	0.069	0.072

### Resistance to Water Penetration

Specimens 15 mm thick were subjected to constant water pressure equivalent to a 30 metre head of water. After 21 days Mix 1 specimens showed no water penetration whilst Mix 2 specimens showed water penetration within 3 hours.

**Resistance to Freeze/Thaw Cycling** Results expressed in N/mm<sup>2</sup>

#### Initial Residual Flexural Strength

	Flex. Strength	15 cycles	30 cycles	60 cycles
Mix 1	11.1	10.9	11.0	11.0
Mix 2	5.9	4.1	-	-

### Health and safety

Refer to separate **FORMBOND-SBR** Health and Safety leaflet.

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