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SBR LATEX 141

High performance, styrene butadiene (SBR), latex emulsion for improving cement based mortars & Bonding Agent.

DESCRIPTION

SBR Latex 141 is a white liquid (SBR) styrene-butadiene co-polymer latex, specifically designed for use with Portland cement mixes. The latex consists of microscopic particles of synthetic rubber dispersed in an aqueous solution. It is used as an admixture in mortar and concretes to improve compressive and flexural strengths, improve bond increase resistance to water penetration, improve abrasion resistance and durability. It is used with Portland cement as a reliable water-resistant bonding agent.

PRIMARY USES

The use of **SBR Latex 141** synthetic latex in cement-based slurries and mortars compensates for many deficiencies in the mixes without detracting from their inherent strength and properties. As ordinary mortar dries out, voids are created which make it permeable and weaker. When **SBR Latex 141** is added, **the SBR Latex 141** particles bind together to form continuous films and strands - these bind to the sides of the voids and block up the capillary pores, thus increasing strength and resistance to water penetration.

SBR Latex 141 improved mortars are especially suited for the following:

- **Concrete repair.**
  Repairing spalled, cracked or damaged concrete, floors, beams, columns and precast slabs.
- **Corrosion protection of reinforcing steel.**
  As a bonding slurry or steel primer in concrete repairs.
- **Floor screeds and toppings.**
  Producing abrasion resistant and mild chemical and effluent-resistant, non- dusting floors, and underlays for special finishes, coatings and toppings.
- **Waterproofing and tanking.**
  Basements, lift pits, inspection pits, water towers, liquid tanks, effluent tanks and swimming pools.
- **External rendering.**
  Waterproof, weatherproof and frost resistant render.
- **Fixing slip bricks and tiles.**
  Bedding tiles, fixing or re-fixing slip bricks, bonding new concrete to old.
- **Polymer modified concrete.**
  Production of Polymer Modified Concrete according to ACI 548.3
- **Light Weight EPS bead concrete.**
  Mix stabilization and cohesion improver to reduced surface EPS bead loss.

ADVANTAGES

- Earlier hardening
- Improved flexural strengths
- Greatly reduced shrinkage
- Reduces bleeding
- Lower water-cement ratio increases strengths
- Increased durability and toughness
- Excellent resistance to water penetration
- Improves abrasion resistance and reducing dusting
- Good frost resistance and resistance to salt permeation
- Good resistance to many chemicals and to mineral oil
- Excellent adhesion to steel and concrete - adheres well to brick, glass, asphalt, wood, expanded polystyrene and most building materials
- Long term corrosion protection
- Similar thermal expansion and modulus properties to concrete (unlike resin mortars and primers)
- Non-toxic. Can be used with potable water
- More economical than epoxy or polyester resin mortar

PACKAGING

SBR Latex 141 is supplied in 20 L plastic jerry cans and 200 L drums.

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TYPICAL PROPERTIES*

Unless otherwise stated the typical properties stated below are based on a 3:1 sand/cement mix in which 10 litres of **SBR Latex 141** per 50kg of Type I OPC cement has been incorporated.

+Compressive strength:	40 N/mm² dependent on cement used and workability.
Slant Shear Bond Strength ASTM C1059 / C1042	>9 N/mm²
Freeze thaw resistance:	Excellent.
Water vapour permeability:	Less than 4 gm/m²/24hr, through an 11mm thick test piece.*
Adhesion:	Excellent to concrete, steel, brick, glass, etc.
Co-efficient of thermal expansion:	-20°C to +20°C: 12.8 x 10^{-6} -20°C to +60°C: 12.9 x 10^{-6}
Chemical resistance:	Resists mild acids, alkalis, sulphates, chlorides, urine, dung, lactic acid, sugar, etc.
Resistance to water under pressure - 30m head:	Excellent - no water through a 15mm thick test piece.*

\+ Indicated strengths are typical. Variation in cement used and workability can give increased strengths.

* **SBR Latex 141** added at 10 litre / 50kg cement.

APPLICATION GUIDELINES

SURFACE PREPARATION

Surfaces to which **SBR Latex 141 modified mortars and coatings are** to be applied should be clean, and sound. Remove all laitance, oil, grease, mould oil or curing compound from concrete surfaces using a wire brush, scabbler or other equipment as appropriate. Ensure that reinforcing steel is clean and free from grease, oil, and rust.

When repairing spalled or damaged concrete, ensure that the concrete has been cut back to sound material. Avoid feather edging around patch repairs by saw cutting to 5 mm.

Always pre-soak absorbent surfaces, such as concrete, brick, stone, etc., ensuring that they are saturated but free of surface water.

Materials for producing SBR Latex 141 modified mortars

For best results use of good quality, consistent materials is recommended.

Sand

Sand should be sharp, washed, well graded and free from excessive fines. For general use select a BS 882 C&M (previously Zone 2) sand. For rendering or plastering on vertical surfaces, select a sand complying with BS 1199 Table 1.

Cement

SBR Latex 141 is compatible with all types of OPC, sulphate resisting Types II and V. For use with other cements, contact C-Stallion Africa Co LTD Technical Services Dept. for advice.

Water

Only clean uncontaminated water should be used.

SBR Latex 141 Usage rates

Table 1 Typical mix designs (parts by weight)

Use	SBR Latex 141	OPC	Sand / Aggregate	Water
Bonding Slurry	**1**	**1.5**	**n/a**	**n/a**
Waterproof Coating	**1**	**2**	**n/a**	**n/a**
Vertical Render	**1**	**5**	**15**	**1**
Concrete Repair	**1**	**5**	**15**	**1**
Floor Screed	**1**	**5**	**7.5 / 7.5**	**1**

MIXING

For use as a bonding slurry or waterproof coating mixing is best achieved using a slow speed drill and paddle. Hand mixing is only permissible when the total weight of the mix is less than 25kg

For renders, repair mortars, and floor screeds and similar aggregate or sand filled mortars, mixing should be in an efficient concrete mixer preferably a forced action pan type.

Charge the mixer with the required quantity of sand, aggregate and cement and premix for approx. 1 minute. Add the **SBR Latex 141** and mix for 2 minutes only, to avoid excessive air entrapment.

Finally, without delay, add the water slowly until the required consistency is achieved - avoid adding excessive water. Beware! Owing to the strong plasticising properties of **SBR Latex 141**, the mix can quickly become too fluid!

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Application as a Bonding Slurry
Prepare a bonding slurry in line with Table 1.
Using a stiff brush, work the bonding slurry well into the damp surface, ensuring that no pinholes are visible.
Maximum thickness: 2 mm.
If a second coat is necessary, it must be applied after the first coat is touch dry. The second coat must be applied at right angles to the first to ensure complete coverage.
Coverage / Usage rate
Approximately 20 L of **SBR Latex 141** mixed with 50kg of OPC Type I cement will give a creamy slurry which will cover 20 square metres of substrate dependent on surface texture and thickness applied.

Application as a vertical render
Apply the bonding slurry to the prepared surface and then apply the **SBR Latex 141** render into the wet bonding slurry.
Apply **SBR Latex 141** modified mortars in coats at a maximum thickness of 5 - 10mm per coat. Greater thickness can lead to slumping. Several coats can be applied in fairly rapid succession, usually within 15 to 30 minutes of the previous coat. Close the surface using a wooden float or steel trowel.
Alternatively, score the surface with a trowel and let the first coat of render dry overnight. Apply another slurry coat before applying the second coat of render.

Application as a Concrete Repair patching mortar

With a stiff brush apply the bonding slurry to the prepared surface and any exposed, prepared reinforcing steel.
Apply the **SBR Latex 141** repair mortar into the wet bonding slurry either using gloved hands or a small hand trowel. Maximum layer thickness should be 25 mm or whatever can be applied without slumping. If greater thicknesses are need score the surface with a trowel and apply immediately after the preceding layer has reached initial set and will not be dislodged. It may then be trowelled to the required finish using a wooden float or steel trowel.

Application as a Floor Screed or Topping
Floor screeds, based on **SBR Latex 141** modified cements, can be laid to any thickness from 40mm down to 12 mm minimum. After mixing, the **SBR Latex 141** 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.
Note: Expansion joints in the sub-floor must be carried through the **SBR Latex 141** modified mix.

Application of waterproof tanking / render

SBR Latex 141 is ideal for creating an internal waterproof render for new or existing basements, lift pits or water tanks. Walls may be dry or damp but cannot be subject to running water.
Surfaces should be prepared in normal way.
At the junction between floors and walls or other upstands, apply a 25 – 50 mm triangular fillet using the **SBR Latex 141** vertical render mortar mix. Allow to dry for 24 hours. Pre-soak surfaces and then brush apply 2 full coats of the Bonding Slurry Mix described above to a total dry film thickness of 1 mm. Allow the first coat to dry before applying the second coat at right angles to the first. Finally apply a third coat of bonding slurry and while this material is still wet apply a vertical render or floor screed mix depending on whether it is a wall or floor.
If active leaks or moving cracks are present contact your local representative.

Application of waterproof with reinforcement fabric

Pre-treat corners, pipe penetrations, and joints with a strip of reinforcing fabric embedded in a thin coat of SBR Latex 141**.** Apply First Coat of **SBR Latex 141**, Use a brush or roller to apply an even layer (~1 mm wet film thickness). While the membrane is still wet, Lay the reinforcing mesh/fabric into the wet membrane, pressing it in gently with a roller or trowel. Make sure there are no wrinkles or air bubbles. Overlap fabric edges by at least 50 mm. Once the embedded fabric has settled, apply a second coat of SBR Latex 141 over the fabric, fully saturating and covering it.Ensure complete coverage (target dry film thickness is usually 1.5–2 mm total)

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DOSAGE RATE

For all normal use the standard dose of 5ltr of **SBR Latex 141** per 50kg cement is adequate. For extreme conditions and/or when adhesion, waterproofing, water vapour resistance or chemical resistance are critical, the dosage should be increased to 10ltr of **SBR Latex 141** per 50kg cement. For this higher dosage, the extra water addition required is low and, therefore, use of wet aggregate may result in excessive workability.

CLEANING

All tools should be cleaned with water immediately after use. If delayed, use of soap and coarse wire wool may help. Solvents such as white spirit can be used to remove partially hardened mortar.

WATCHPOINTS

1. Never apply **SBR Latex 141** modified mixes to a Bonding Slurry that has been allowed to dry out fully.
2. Always use fresh, cool cement and sharp, clean, well graded aggregate, free of excessive fines.
3. Keep mixing time to a minimum.
4. Until the user becomes familiar with its workability the appearance of a **SBR Latex 141** modified mix is deceptive; when of correct consistency it may appear to be too dry. However, it will be found that it can be compacted and trowelled satisfactorily.
5. Avoid using excessive water.
6. Trowelling should proceed with the work. Do not overtrowel and avoid retrowelling. Protect from too rapid drying out prior to trowelling.
7. Lime (more than 10% cement weight), air entraining agents and masonry cement must not be used in conjunction with **SBR Latex 141**.
8. Do not overdose **SBR Latex 141** as strengths may be adversely affected.

SPECIFICATION CLAUSE

All cementitious mixes stated shall be modified with **SBR Latex 141**, styrene butadiene copolymer latex, manufactured by C-Stallion Africa Co. LTD or similar approved, to the following specification:

Composition	A milky, white styrene butadiene copolymer latex, specifically made for use with Portland cement.
pH	10.5
Specific gravity	1.01
Mean particle size	0.17 micron

The material shall be used in bonding slurries at the rate of approximately 1 volume of **SBR Latex 141** to 1½ to 2 volumes of OPC cement and in cementitious mixes at the rate of 10 litres per 50kg cement, as recommended in the manufacturer's literature.

STORAGE AND SHELF LIFE

Shelf life is 12 months from date of manufacturing in unopened original containers. Product must be kept out of direct sunlight and in a dry, cool, preferably air-conditioned warehouse below 35ºC temperature.
Store clear of the ground on pallets and do not stack pallets.
Protect from frost.

CURING

Correct curing of **SBR Latex 141** modified mixes is important.
Moisture cure for 24 hours and then allow to dry out slowly. (Note that initial curing is necessary to provide good curing conditions for the hydration of the Portland cement, then the latex mortar must be allowed to permit the latex particles to coalesce to form the continuous films and strands.)

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HEALTH AND SAFETY

Avoid contact with eyes and prolonged contact with skin. During application always wear gloves and appropriate clothing to minimise contact. In case of contact with eyes, immediately flush with plenty
of water for at least 15 minutes. Should skin contact occur, wash immediately with soap and water. Seek the advice of a physician should symptoms persist.

QUALITY AND CARE

All products originating from C-Stallion Africa , facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.

* Properties listed are based on laboratory controlled tests.

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