ELM SBR

Polymer bonding aid and additive for cement mortars, screeds and renders.

Uses

For improving the physical properties of cementitious mixes. Typical uses include, but are not limited to, the following,

- Bonding concrete repair mortars
- Floor toppings and screeds
- Waterproof renders and cementitious slurries
- Bonding agent for slip bricks, ceramic tiles etc.

Advantages

- 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.
- Improved tensile and flexural properties allow thin applications.
- Excellent bond to concrete, masonry, stonework, plaster and block board.
- Contains no chloride admixtures.

Specification

Polymer bonding aid and mortar additive

The polymer bonding aid and site batched mortar shall be modified by the use of Elmrr's SBR, a single component styrene butadiene rubber emulsion.

Description

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

Properties

The result listed below were achieved by assessing the mechanical properties of a 3.1 sand : cement mortar containing Elmrr's SBR in the proportions 10 litres per 50 kg cement against a 3.1 sand: cement control mortar.

Chemical resistance

Cementitious materials have limited chemical resistance. The addition of Elmrr's SBR in cement mortars reduces permeability and therefore helps to reduce the rate of attack by aggressive chemicals, acid, gases and water.

Design Criteria

The application parameters for mortars modified by the use of Elmrr's SBR will differ depending on the actual mix design used, but should always be subject to a minimum applied thickness of 6 mm.

Elmrr's SBR modified mortars can generally be applied in section of up to 40 mm thickness in horizontal locations and 15 mm in vertical location, without the use of formwork. In overhead locations the thickness

achievable without the use of formwork is largely dependent on the profile of the substrate.

Instruction for use

Preparation

Form the extremities of the application area to a depth of at least 10 mm to avoid feather – edging and to produce a square edge. Ensure a minimum depth of 6 mm is observed in the remaining area, up to the previously formed edge.

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae. Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser.

Where breaking out is not required, roughen the surface and remove any laitance by light scabbling or grit blasting. The effectiveness of decontamination should then be assessed by a pull of test.

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 Elmrr's 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 substrate, being careful to avoid 'ponding'. The repair mortar, topping or render must be applied on the wet slurry primer. If the slurry primer dries before application of mortar, it must be removed and the area re-primed before continuing.

Preparation of reinforcement (repairs only)

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.

Mixing

Care should be taken to ensure that Elmer's SBR mortars are thoroughly mixed. A forced action mixer is essential for large volume applications. Mixing is suitably sized drum using an approved spiral paddle in a slow speed (400/500 rpm) heavy – duty drill is acceptable for minor areas.

Weigh the cement, sand and, where required, aggregate into the mixer and dry blend together for one minute. With the machine in operation, add the pre mixed Elmer's 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 literage 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 stored on site.

Application

For application to all surfaces, Elmrr's 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 in to the slurry primer and then build the mortar on to this layer. Exposed steel reinforcement should be completely encapsulated by the mortar.

Elmer's SBR mortars can be applied at a minimum thickness, dependent on the location and configuration of the repair zone. 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. When thicker sections (up to a total thickness of 40 mm) are to be build up by hand or trowel application.

Finishing

Elmrr's 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.

Low temperature working

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

High temperature working

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

Curing

Elmrr's 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.

Over coating with protective decorative finishes

Elmrr's SBR mortar repairs are extremely durable and will provide excellent protection to the embedded steel reinforcement with in the repaired locations.

The surrounding parts of the structure will generally benefit from the application of a barrier /decorative coating to limit the advance of chlorides and carbon dioxide, thus bringing them up to the same protective standard as the repair itself

Cleaning

Elmrr's SBR should be removed from tools, equipment's and mixers with clean water immediately after use. Cured materials can only be removed mechanically

Limitations

Elmrr's SBR mortars, toppings and renders should not be applied when the temperature is below 5°C

Elmrr's SBR mortars should not be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour

Estimating

Supply

Elmrr's SBR : 5 litre, 20 litre& 200 litre drums

Coverage

Note: The actual usage Elmrr's SBR will depend on the mix design used.

Storage

Shelf life

All products have a shelf life of 6 months if kept in a dry store in the original, unopened bags or packs.

Storage conditions

If stored at high temperature and/or high humidity conditions the shelf life may be reduced.

Precautions

Health and safety

Cementitious mortars and slurries modified with Elmrr's SBR contain cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. During use, avoid inhalation of the dust and contact with skin or eyes. Wear suitable protective clothing- eye protection, gloves and respiratory equipment. The use of barrier creams to provide additional skin protection is also advised. In case of contact with skin rinse with plenty of water, then cleanse thoroughly with soap and water. In case of contact with eyes rinse immediately with plenty of clean water and seek medical advice. If swallowed seek medical advice immediately-do not induce vomiting.

Fire

Non- inflammable.

For further information please contact your local Elmrr office.

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