

SPRAYCEM 301

Spray Applied Cementitious Repair Mortar

Description

A prepacked one component polymer modified spray applied repair mortar. Spraycem 301 has been designed for machine applications using the dry process and is particularly suitable on large repairs to reinforced concrete structures which have been damaged due to reinforcement corrosion or frost attack. Bridges, retaining walls, tunnels, reservoirs, building facades and marine structures are all suitable structures for repair using Spraycem 301.

Advantages

- Excellent durability and resistance to water, frost and salt attack.
- Rapid strength development without the use of accelerators.
- Excellent high build characteristics.
- Controlled low water/cement ratio.
- Excellent adhesion to correctly prepared substrates.
- One component, only requires addition of water.

Surface Preparation

Concrete substrate should be clean and sound. All loose material and surface laitence must be removed preferably by grit or water blasting. Where spalling is caused by reinforcement corrosion, all steel must be exposed and cleaned to remove all loose scale and rust preferably by grit or water blasting. Prepared steel will be protected by the alkaline nature of the Spraycem 301 as is the case with ordinary concrete but additional protection can be provided by the application of Nucem Primer, if considered necessary.

Spraycem 301 is normally applied to concrete prepared as above which has been thoroughly saturated with water immediately before application.

Nucem Primer may be utilised as a bonding agent between the old concrete and the Spraycem 301 where additional protection is required when the existing concrete contains chlorides. The Nucem Primer should be applied to the thoroughly dampened substrate using a brush, working the material well into the surface. The Spraycem 301 should then be applied immediately wet on wet.

Technical Information

Compressive strengths (N/mm²) cured and tested at 20°C

24 hours	72 hours	7 days	28 days
10-20	20-30	35-45	55-65

Density: 2050-2150 Kg/M³

Yield: 84 x 25 Kg units per M³

Coverage: 55 Kg/M² @ 25mm thickness

Cement Content: Over 400 Kg/M³

Aggregates: Non reactive

Cement: BS 12, Low alkali

Chloride ion content is less than 0.1% by mass of cement.

Tensile Strength: 4.3 N/mm² @ 28 days

Bond Strength: 2-3 N/mm² concrete failure

Coefficient of Thermal Expansion: 12 x 10⁻⁶/°C

Initial Set: Typically 3.5-4.5 hours

Water/Cement: < 0.4

Sulphate Content: < 3.0%

Equivalent Sodium Oxide: 0.136 ppm

Carbon Dioxide diffusion coefficient: $\leq 2.82 \times 10^{-4}$

Water Absorption: 0.13 kg/M³ x h^{0.5}

Static modulus of elasticity: 18000 N/mm²

Flexural Strength: 13.0 N/mm²

Chloride Diffusion coefficient: 6.2 x 10⁻¹³ m²/s⁻¹

Application Instructions

The application of Spraycem 301 is controlled by the nozzle man using conventional dry spray equipment. The material is so designed to ensure application at water/cement ratio of less than 0.4. Above this figure the mortar will slump and adhesion will not be obtained. Any trowelling or profiling of the Spraycem 301 surface should be carried out as soon as practical after spray application.

Curing

Normal curing procedures should be applied immediately after finishing and precautions taken to avoid frost attack. Resin based curing membranes should not be used if the concrete is to receive a subsequent surface coating.

Overcoating

After a suitable curing period the Spraycem 301 may be overcoated with suitable decorative finish.

Packaging

Spraycem 301: 25 kg units (yield 12000 cm³)
Nucem Primer: 1.0 kg units (coverage 3 - 5 m²) and
0.5 kg units (coverage 1.5 - 2.5 m²).

Storage

Spraycem 301 has a shelf life of 12 months when stored unopened at moderate temperatures. Protect from frost.

Health & Safety

Spraycem 301 does not present any undue hazard and is non-toxic, however, as it is alkaline, gloves should be worn and any material should be washed from the skin and eyes before it dries with clean water.

The normal standards of hygiene should be observed and the use of a barrier cream is advisable.

Nucem Primer, like similar products, is capable of irritating unprotected skin. We therefore recommend the use of gloves and barrier cream. Accidental skin contact should be removed using soap and water.

Limitations

The minimum application thickness should be 10mm. Application should not be carried out when the temperature is below 5°C.

Technical Support

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors.

Technical representatives are available throughout the UK to provide further information and arrange demonstrations.



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