



EmO Grout UW

Non-shrink cementitious grout for underwater installations

Uses

EmO Grout UW is used for free flow or pumped grouting applications under water or in tidal zones. There will be no significant 'wash-out' of the cement phase. Applications include bridge columns, quay pillars, concrete piling, slipways and dams.

Advantages

- No risk of significant 'wash-out' of cement phase when placed underwater.
- Displaces water effectively
- Gaseous expansion system compensates for shrinkage and settlement in the plastic state.
- High early and ultimate strength and exceptional resistance to freeze-thaw cycling ensure durability of the hardened grout.
- Chloride free
- Pre-packed needing only on-site addition of water

Description

EmO Grout UW is supplied as a ready to use powder. The addition of a controlled amount of clean water produces a free-flowing grout. The grout exhibits exceptional resistance to 'washing-out' of the cement phase when placed in stationary or moving water.

EmO Grout UW is a blend of graded fine aggregate and chemical additives which

impart controlled expansion, water reduction and non 'wash-out' characteristics. The aggregate grading minimizes segregation and bleeding whilst assisting the flow characteristics.

Typical properties

The following properties were obtained at a water : powder ratio of 0.22 at 20⁰c

Compressive strength

(BSEN 196-1)

3 days	:	30 N/mm ²
7 days	:	44 N/mm ²
28 days	:	53 N/mm ²

Setting time

(BSEN 196-3)

Initial	:	7 – 8 hours
Final	:	10 – 12 hours

Fresh wet density : 1800 kg/m³

Application instructions

Preparation

The substrate surface must be free from oil, grease or any loosely adherent material. If the concrete surface is defective or has laitance, it must be cut to a sound base. Substrates which are permanently immersed should be sand-

blasted or cleaned with a high pressure water jet. Non-immersed or intermittently immersed substrates can be prepared using these techniques.

Formwork

The formwork should be constructed to be leak proof as EmO Grout UW is a free flowing grout, using form rubber strip or mastic sealant beneath the formwork and between joints.

Mixing and placing

Mixing

Measure accurately 5.5 liters of water for each 25 kg bag in to the mixer. Slowly add the EmO Grout UW whilst mixing continuously. When all the powder is added mix continuously for 5 minutes ensuring a smooth even consistency is obtained.

Placing

Place the grout within 15 minutes of mixing to gain the full benefit of the expansion process. Continuous grout flow is essential. The mixed grout should be poured or pumped through a flexible tube, having a minimum diameter of 50mm, to the lowest point in the form. Care must be taken at the start of the grouting operation to restrict the grout flow so that water is not entrapped. The tube may be raised as necessary to reduce any back pressure. It should not be raised above the surface level of the grout.

EmO Grout UW can be placed in thickness up to 75mm in one pour when used above water. When used underwater, the heat sink effect in this environment will allow thickness of up

to 150mm to be placed. For thicker sections, up to 200 mm above water and 400 mm underwater, it is necessary to fill out EmO Grout UW using a clean rounded well graded aggregate ranging from 4 to 12mm. the ratio of aggregate added should not exceed 1:1 by weight. For such mixes a concrete mixer should be used.

Curing

Curing will not be required in intermittently or totally submerged situations. However, when cast above water, exposed areas should be thoroughly cured with EmO Cure curing membrane, continuous application of water and /or wet hessian.

Cleaning

EmO Grout UW exhibits excellent water resistant characteristics, due to this reason the equipment used for mixing will be difficult to clean. The use of hot water for cleaning purposes will assist.

Limitations

EmO Grout UW must not be applied below 5⁰c

Estimating

Supply

EmO Grout UW : 25 KG bags

Yield

Approx. 14.5 liters when mixed with 5.5 liters of water

Storage

Shelf life

All products have a shelf life of 12 months if kept in a dry store in the original, unopened bags or packs.

Storage conditions

Store in dry conditions in the original, unopened bags or packs. If stored at high temperatures and/or high humidity conditions, the shelf life may be reduced to 4 to 6 months.

Precautions

Health and safety

EmO Grout UW contains cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. During use, avoid inhalation of dust and contact with skin and eyes. Wear suitable protective clothing, gloves, eye protection and respiratory protective equipment. The use of barrier creams provides additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse 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 attention immediately — do not induce vomiting.

Fire

EmO Grout UW is non-flammable. For further information, refer to the Product Safety Data Sheet.

Additional information

ELMRR manufactures a wide range of products specifically designed for the

repair and refurbishment of damaged reinforced concrete. This includes hand-placed and spray grade repair mortars, fluid micro-concretes, chemical resistant epoxy mortars and a comprehensive package of protective coatings. In addition, a wide range of complementary products is available. This includes joint sealants, waterproofing membranes, High quality precision grouts, anchoring and specialised flooring materials.

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