

BUILDING CHEMICALS SPECIALISTS

UNIROC MORTAR LA

Single component free - flowing low alkali micro-concrete

USES

UNIROC MORTAR LA is used for the reinstatement of large structural sections of concrete as well as for many smaller locations where difficulties of access make hand or trowel-applied mortars impractical. Its highly fluid nature makes it ideal where compaction and vibration is not practicable due to restricted access or where reinforcement is congested. It is suitable for use where excellent chloride and carbon dioxide resistance is required or for repairs to concrete affected by alkali-silica reaction. **UNIROC MORTAR LA** is alkaline in nature and will protect embedded steel reinforcement.

PRODUCT DESCRIPTION

UNIROC MORTAR LA is supplied as ready to use blend of dry powders, which requires only the site addition of clean water to produce a free-flowing, shrinkage compensated micro-concrete suitable for large volume concrete repairs at nominal thickness in excess of 50 mm. The material is based on Portland cement, graded aggregates and additives which impact controlled expansion in both the plastic and hardened states while minimising water demand.

Advantages

- Dual expansion system compensates for shrinkage in the plastic and hardened states.
- Low alkali content minimises risk of alkali-silica reaction.
- Exceptional bond to concrete substrates without independent primer.
- Self-compacting nature eliminates honeycombing and displaces air without vibration.
- High strength and low permeability provide maximum protection against carbon dioxide and chlorides.
- Contains no chloride admixtures.
- Suitable for placement by pumping or pouring techniques into restricted locations.

PROPERTIES

When 25 kg of **UNIROC MORTAR LA** is mixed with **3.0 - 3.5 litres of clean water** at 20 °C the following results were obtained:

Compressive strength:	12 N/mm ² @ 24 hrs 27 N/mm ² @ 3 days 41 N/mm ² @ 7 days 56 N/mm ² @ 28 days
Bond strength:	63.0 N/mm ² @ 28 days
Modulus of Elasticity:	32.0 kN/mm ² @ 28 days
Coefficient of Thermal Expansion:	9 to 12 x 10 ⁻⁶ /°C
Fresh Wet Density:	Approx. 2270 kg/m ³ depending on actual consistency used
Setting Time:	
Initial set:	6 hours, 30 minutes @ 20 °C
Final set:	9 hours @ 20 °C

APPLICATION

Preparation

The unrestrained surface area of the repair must be kept to a minimum. The formwork should be rigid and tight to prevent loss of material and have properly sealed faces to ensure that no water is absorbed from the repair material. The formwork should include drainage outlets for pre-soaking and if, beneath a soffit, provision for air venting. Provision must also be made for suitable access points to pour or pump the mixed micro-concrete into place.

The substrate surface must be clean and free of any oil, grease or other contamination. Saw cut or cutback the extremities of the repair locations to a depth of at least 10 mm to avoid feather edging and to provide a square edge. Break out the complete repair area to a minimum depth of 50 mm up to the sawn edge. Remove all loose scale and corrosion deposits from corroded steel. Abrasive blasting followed by high pressure water cleaning is recommended for cleaning steel bars. The effectiveness of decontamination should then be assessed by a pull-off test.

Reinforcing steel priming

Apply a full coat of zinc protection and allow drying before continuing.

Mixing

Care should be taken to ensure that **UNIROC MORTAR LA** is thoroughly mixed. For best results a forced action mechanical mixer is used. Mixing in a suitably sized drum using a spiral paddle in a slow speed (400/500 rpm) heavy-duty drill is acceptable. For normal applications measure **3.0 - 3.5 litres of good quality water** and pour three-quarters into the mixer. With the machine in operation, add one full 25 kg bag of **UNIROC MORTAR LA** and mix for 1 minute before adding the rest of the water. Mix for a further 2 to 3 minutes until a smooth even consistency is obtained.

When the drill and paddle mixing method is used, the complete 3.5 litres of water should be placed in the mixing drum. With the paddle rotating, add one full 25 kg bag of **UNIROC MORTAR LA** and mix for 2 to 3 minutes until a smooth even consistency is obtained.

Placement

UNIROC MORTAR LA should be placed within 30 minutes of mixing in order to gain the full benefit of fluidity and of the expansion process. If placing by pump, standard concrete pumping practise should be followed. Pumping should be commenced immediately after the pump and pipeline is grouted with rich cement slurry.

Curing

The formwork should be left in place until the compressive strength of the **UNIROC MORTAR LA** is 10 N/mm² is achieved. **UNIROC MORTAR LA** is a cement-based concrete reinstatement material and in common with all cementitious materials must be cured immediately after the formwork is stripped in accordance with good concrete practise. Immediately after striking the formwork, all exposed faces of the repair should be thoroughly soaked with clean water and then sprayed with a liquid curing membrane. In fast drying conditions, supplementary curing with polythene sheeting must be used. In cold conditions, the finished repair must be protected from freezing.

PACKING AND ESTIMATING

UNIROC MORTAR LA is supplied in **25-kg bags**. The approximate **yield per 25-kg bag is 12 litres**.

STORAGE

UNIROC MORTAR LA has a shelf life of 12 months when kept in a dry store in sealed bags.

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