

MasterRoc FLC 100

A chloride free, powder form admixture for use in the production of grouts to protect post-tensioned cables in prestressed concrete

Material Description

MasterRoc FLC 100 is a product in powder form. It is added at the rate of about 6% by weight of cement to produce a flowable, pumpable, non-shrink, non-segregating, impermeable grout providing high strength and high bond to steel. The most important property **MasterRoc FLC 100** imparts to filling grout is the protection of cables against corrosion from aggressive agents and against stress corrosion. The inadequate protection against corrosion offered by normal grouts is due to:

- a) High capillary microporosity due to high water/cement ratio. Using **MasterRoc FLC 100** the water/cement ratio is about 0.3;
- b) High macroporosity caused by bleed water collecting under strands and in the upper part of the sheath. When bleed water evaporates or is reabsorbed by the cement paste, big cavities form thus providing easy access for corroding substances. With **MasterRoc FLC 100** the volume of bleed water is considerably lower: it ranges from 0 to a maximum of 0.2% depending upon the type of cement used;
- c) Shrinkage of cement paste and consequent cracking. With normal cement grouts final shrinkage varies from 2000 to 3000 microstrain. **MasterRoc FLC 100** allows not only shrinkage to be eliminated completely, but also slight expansion to occur during setting and hardening.

Characteristics and Benefits

- Very high flowability (as measured by the Flow Cone Test) without bleed water or with a very low amount
- High mix water retention
- Shrinkage compensated
- Initial setting time of more than 3 hours at 30°C
- High early and ultimate strengths
- High bond to steel

Performance Data

Owing to its high flowability, a grout made with cement and **MasterRoc FLC 100** assures the complete filling of sheaths, especially among the strands of cables. This ensures maximum protection of steel against corrosion caused by aggressive agents. As this high flowability is obtained with low water/cement ratio, the hardened cement paste is dense, compact, impermeable and, therefore, highly durable. On the other hand, the high cohesion of the fresh mix, together with the freedom from shrinkage, prevents the formation of large cavities, which are often responsible for the penetration of aggressive agents.

Estimating Data

Approximately 68 litres of highly flowable grout are obtained by mixing 100kg of cement, 6kg of **MasterRoc FLC 100** and 34 litres of water.

Application

Introduce approx. 25 litres of water per 100kg of cement into the mixer.

Start the mixer and first add **MasterRoc FLC 100** (6% by the weight of cement) and then cement.

Mix for 3 minutes until a plastic and homogeneous mixture is obtained. Add approx. 7 litres of water and mix further for 2 minutes until the grout is flowable, without lumps and the flow cone empties in approx. 20 seconds. If a high speed mixer is used (about 1500 rpm) the total mixing time can be reduced from 5 to 3 minutes. The necessary mixing water by weight of cement and **MasterRoc FLC 100** is approx. 34% but can range from a minimum of 30% to a maximum of 38% depending upon the cement used: finely ground cement usually requires a higher amount of water. The grout thus obtained can generally be pumped for at least 2 hours, unless the cement used shows rapid or false set. Field testing is recommended with the appropriate cement type.



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The temperature of walls and spaces where the grout is to be pumped should be between 5°C and 40°C for optimum results. If temperature is outside this range, consult your local Master Builders Solutions Technical Sales Representative.

MasterRoc FLC 100 is a chloride-free product, which is specially important in the case of cables. However, chlorides can be introduced into a mix if brackish water or special types of cement are used. Therefore the use of drinkable water (generally containing less than 40 mg/l of chloride) and chloride-free cements (Cl- lower than 0.06% by weight of cement) is recommended.

Though all Portland, pozzolanic or slag cements may be employed, the use of G.P. Cement is recommended in cold weather.

Packaging

MasterRoc FLC 100 is supplied in 7.5kg bags.

Storage & Shelf Life

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

MasterRoc FLC 100 has a shelf life of 3 months.

Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

Disclaimer

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STATEMENT OF RESPONSIBILITY

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NOTE

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