

MasterRoc[®] HCA 10

Cement hydration control system for wet and dry sprayed concrete, grouting and cement injection

Material Description

MasterRoc HCA 10 is a high quality, liquid, non-chloride chemical admixture which controls the dynamics of cement hydration. It delays hydration by suspending the hydration process and enabling re-activation hours or even days later with no loss of quality in the hardened sprayed concrete. When dispensed into wet or dry mixes at the batching plant it fully stabilizes the hydration process by forming a protective barrier around the cement particles. MasterRoc HCA 10 can be used with all types of cement minerals (C3S, S3A, C2S, C4AF and gypsum).

In order to re-activate the hydration process and accelerate the strength gain in mixes stabilized with MasterRoc HCA 10, MasterRoc SA alkali-free accelerator is added at the nozzle or injection point.

Areas of Application

- Tunneling and mining
- Temporary and permanent support
- Slope stabilization
- Annulus grouting (TBM)
- Cementitious injection systems

Characteristics and Benefits

With the use of MasterRoc HCA 10, wet and dry concrete mixes can be kept workable for up to 3 days. This provides considerable benefits in the batching and utilization of the concrete.

- Fully flexible delivery options for sprayed concrete mixes.
- No cleaning of pumps or pipes during work interruptions.
- Complete use of wet and dry mixes – no waste disposal.
- Time and cost saving.

In addition to these benefits related to its function as a hydration control system, it also provides considerable reduction of rebound and dust.

Packaging

MasterRoc HCA 10 is packaged in 210-liter plastic drums and 1000 liter IBCs.

Technical Data

Form	Liquid
Color	Red
Density (at +20°C)	1.10 ± 0.02
pH value	< 2
Solubility in water	Total
Chloride content	< 0.1 %
Physiological effect	Corrosive

Mixing

Wet-mix sprayed concrete: Premix aggregates with cement and one half of the mixing water. Under continuous mixing, add MasterRoc HCA 10 and a high-performance superplasticizer, premixed with the second half of the mixing water, or after all the water has been added. Normal mixing time is sufficient. To avoid slump loss, the recommended minimum water content is 200 l/m³. In the event of unexpected delays, a later addition of 0.2 – 1 % of MasterRoc HCA 10 is possible to prolong storage time for a few hours.

Dry-mix sprayed concrete: Premix aggregates with cement. The water content should be between 3 and 6%. Slowly add manually or with a dosing device the necessary quantity of MasterRoc HCA 10 under constant mixing and continue to mix for 2 to 3 minutes. If evenly distributed over dry-mix material (e.g., by spraying), mixing time can be reduced. The addition of MasterRoc HCA 10 to the fresh mix is ideal. However, it can be added until up to 30 minutes after mixing of the dry-mix material without any problems.

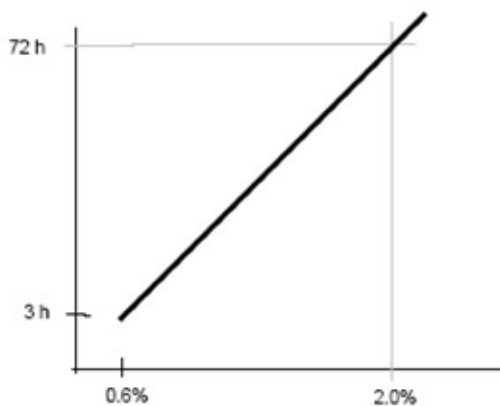
Consumption

Recommended dosage range



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Dosage indicated in this data sheet is only to be used as a guideline. To obtain accurate dosage rates, field tests have to be done with cement and aggregates under local conditions. It is recommended that you consult your local Master Builders Solutions representative.

Normal recommended dosage of MasterRoc HCA 10 varies between 0.2% - 1% by weight of cement. The required dosage depends on type of cement used, w/c ratio, ambient and concrete temperature and targeted open time.

Storage

Minimum storage temperature for MasterRoc HCA 10 is +1°C. If it has frozen, thaw and completely reconstitute with a mild mechanical agitation. Do not use pressurized air for agitation. Please contact your local Master Builders Solutions

representative prior to the use of any products that have frozen.

The maximum storage temperature for MasterRoc HCA 10 is +60°C. Performance tests should always be carried out prior to use.

If stored in tightly closed original containers and under the above-mentioned conditions, it has a shelf life of at least 12 months.

Typical Wet-mix Design for an Open Time of 4-6 Hours

Ordinary Portland Cement	400 kg/m ³
Microsilica	30 kg/m ³
Aggregate 0-8 mm	1710 kg/m ³
MasterRoc HCA 10	0.5 - 2.0 kg
MasterGlenium superplasticizer	2.4 - 6.0 kg
Water/binder ratio	0.45

Safety Precautions

MasterRoc HCA 10 is an irritant fluid. Contact with skin and eyes must be avoided. It is essential that safety glasses and rubber gloves are worn during handling. In case of contact with eyes or skin, flush immediately with plenty of water and seek medical advice.

For further information, see the Material Safety Data Sheet.

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Disclaimer

The information given here is true, represents our best knowledge and is based not only on laboratory work but also on field experience. However, because of numerous factors affecting results, we offer this information without guarantee and no patent liability is assumed. For additional information or questions, please contact your local representative.

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