

MasterRoc® HCA 20

Cement Hydration Control System for Wet and Dry Sprayed Concrete, Grouting and Cement Injection

Material Description

MasterRoc® HCA 20 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 20 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 20, MasterRoc® SA series of alkali-free accelerators 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 20, 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.

Mixing

Wet-mix sprayed concrete: Premix aggregates with cement and one half of the mixing water. MasterRoc® HCA 20 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 20 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 20 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 20 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.

Technical Properties

Form	Liquid
Color	Red
Specific Gravity (20°C)	1.10 ± 0.02
pH Value	< 2
Solubility in Water	Total
Chloride Content	<0.1 %
Physiological Effect	Corrosive

MasterRoc® HCA 20

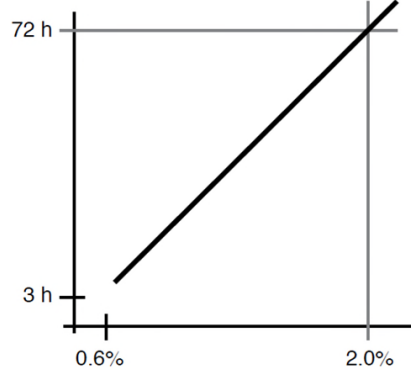
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Packaging

MasterRoc® HCA 20 is available in standard 1000 kg IBC containers or in bulk.

Consumption

Recommended dosage range



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 20 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.

Typical Wet-mix Design for an OpenTime 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 20	0.5 - 2.0 kg
MasterGlenium® superplasticizer	2.4 - 6.0 kg
Water/binder ratio	0.45

Storage and Shelf Life

MasterRoc® HCA 20 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 20 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.

Health and Safety

For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapor until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Disclaimer

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

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