MasterRoc HCA 20

Cement hydration control system for wet and dry sprayed concrete, grouting and cement injection - EN 934-2: T8

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 (C_3S, S_3A, C_2S, C_4AF and gypsum).

In order to re-activate the hydration process and accelerate the strength gain in mixes stabilized with MasterRoc HCA 20, MasterRoc SA alkali-free accelerator is added at the nozzle or injection point.

FIELDS OF APPLICATION

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

FEATURES AND BENEFITS

MasterRoc HCA 20 offers the following 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.

APPLICATION PROCEDURE

Wet-mix sprayed concrete: Premix aggregates with cement and one half of the mixing water. Under continuous mixing, add 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/m^3. 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.

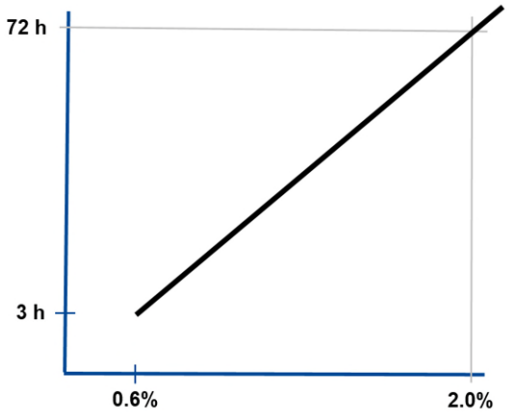
MasterRoc HCA 20 should be used via a secure dispensing system, details of which are available from our local representative.

Typical wet-mix design for an open time of 4 to 6 hours

CEM I	400 kg/m^3
Microsilica	30 kg/m^3
Aggregate 0-8mm	1710 kg/m^3
MasterRoc HCA 20	0.5 - 2.0 kg
MasterGlenium / MasterSure	2.4 - 6.0 kg
Water/cement ratio	0.45

CONSUMPTION

Recommended Dosage Range



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

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DOSAGE

When used purely as a set retarding admixture for concrete, the normally recommended dosage rate of MasterRoc HCA 20 is approximately:

- *By Volume* - 0.18 to 1.82 litres per 100 kg of cement (binder) content.
- *By Weight* - 0.20 to 2.00 kg per 100 kg of cement (binder) content.

The required dosage of MasterRoc HCA 20 depends on several factors: Type of cement used, w/c ratio, ambient and concrete temperature, and targeted open time. We strongly recommend site trials be performed to ascertain the optimum dosage rate for the intended application. Other dosages may be recommended in special cases according to specific job conditions. Consult our Technical Services Department for advice.

PACKAGING

MasterRoc HCA 20 is supplied in 980-litre IBC's and 15-litre containers.

CONTACT DETAILS

Master Builders Solutions UK Ltd,
Swinton Hall Road,
Swinton,
Manchester,
M27 4EU
Tel: +44 (0) 161 727 6300
www.master-builders-solutions.com/en-gb

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Product Data	
Appearance	Pink liquid
Specific gravity @ 20°C	1.10 ± 0.03 g/cm³
pH-value	1.5 ± 1
Alkali content (%)	≤ 2.50 by mass
Chloride content (%)	≤ 0.30 by mass
Corrosion behaviour:	Contains only components according to BS EN 934-1:2008, Annex A.1
Air Content:	Fulfilled
Water reduction:	≥ 112% of Reference mix
Increase in consistence:	Increase of ≥ 120mm from initial slump or ≥ 160mm from initial flow
Retention of consistence:	At 30 mins ≥ Reference mix at initial
Logistics	
Shelf Life	12 months if stored according to manufacturer's instructions in unopened container.
Storage Conditions	Store in original sealed containers and at temperatures between 5°C and 30°C. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.
Handling and Transportation	MasterRoc HCA 20 is a corrosive liquid. When handling MasterRoc HCA 20 safety glasses and rubber gloves should be worn. In case Delvo Stabiliser comes into contact with eyes, skin or clothing, immediately flush with plenty of water for 15 minutes. For skin, wash with soap and water. Wash contaminated clothing before reuse. Do not take internally. For further details refer to the MasterRoc HCA 20 Safety Data Sheet.
Disposal	Refer to MasterRoc HCA 20 Safety Data Sheet

UK CA 0086-CPR-469071 CE 1073-CPR-7420

EN 934-2: T8

Declaration of Performance can be found at www.master-builders-solutions.com/en-gb

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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 vapour 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.

Spillage
Chemical products can cause damage; clean spillage immediately.

DISCLAIMER
"Master Builders Solutions UK Ltd" (the Company) endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, the Company has no control over the selection of its products for particular applications. It is important that any prospective customer, user or specifier, satisfies him/her-self that the product is suitable for the specific application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing the material and when the completed work is to be brought into use.

Accordingly, no liability will be accepted by the Company for the selection, by others, of a product, which is inappropriate to a particular application.

Products are sold subject to the Company's standard conditions of sale and all customers, users and specifiers, should ensure that they examine the Company's latest Product Literature.