

MasterRoc SA 160

Alkali free, liquid high performance set accelerator for wet-mixed sprayed concrete

Material Description

MasterRoc SA 160 is a high performance alkali-free set accelerator designed for use in the wet and dry mix spraying process. MasterRoc SA 160 is a liquid additive whose dosage can be varied to the desired setting and hardening times.

Areas of Application

MasterRoc SA 160 is suitable for all applications where high early strength, high final strength, extremely large layer thickness in a single application and high slump (>200mm) are required:

- For temporary and final rock support linings
- In tunnels
- In mining
- Embankment stabilisation

Characteristics & Benefits

MasterRoc SA 160 is the ideal accelerator for wet-mix sprayed concrete for rock support because:

- **The quick setting properties allow:**
 - Overhead layer thicknesses of 150mm in a single application (as with aluminate based accelerators)
 - Works with even high slump (>200mm).
 - Rapid work progress
- **The unique formula:**
 - Provides good early strength development
 - Limits the decrease of final strength, associated with accelerators
- **MasterRoc SA 160 is a liquid product and thus:**
 - Provides easy handling, as well as easy and efficient addition to the sprayed concrete
 - Produces little dust and therefore a better working environment
- **The alkali-free nature of the product:**
 - Improves safety, a major factor
 - Provides an improved working environment
 - Reduces required handling precautions and hence improves economy.

Technical Data

Form	Liquid
Colour	Beige
Density (@ 20°C)	1.44 ± 0.01 g/cm ³
pH value	2.0 – 3.0
Viscosity (Brookfield RVT, Spindle #3 @ 100rpm)	750 mPas ± 250 mPas
Thermal stability	5°C to 35°C
Chloride content	<0.1%

Application

Preparation of Substrate

The substrate must be clean and free from loose particles and only wet to lightly sprinkled.

Sensitivity to Cement

Age: It is recommended to only use fresh cement since the age of the cement can have a negative influence on the setting characteristics of the mix.

Type: MasterRoc SA 160 can be sensitive to the type of cement: With some cements the obtained setting characteristics can be too slow.

We recommend using Normal Portland cements (types GP/HE/SL), which normally give faster setting characteristics than blended or sulphate resistant cement types. However, MasterRoc SA 160 can also work well with composite cement types (blended, fly-ash/slag - types GB/LH/SR).

In any case, it is strongly recommended to do preliminary tests to check the setting time and the 24 hour strength characteristics of the cement type/types used in the project.

Evaluation of setting time and 24 hour strength characteristics (without addition of slump killing system), in a norm DIN mortar.

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Initial Set	Final set	24hr Strength	Rating
2 min.	6-8 min.	18-20 MPa	good
5 min.	8-12 min.	12-15 MPa	ok
>10 min.	>15 min.	<10 MPa	poor

Remark: If the setting times are poor, the 28 day strength is usually good. With a slow setting it is still possible to apply 50-70mm on the wall and 30-50mm overhead.

Mixing

When **MasterRoc SA I60** is used for wet-mix spraying, the w/c+s ratio should be below 0.5, preferably <0.45. Humidity (water) contained in the aggregates must be taken into account!

The lower the w/c+s ratio, the better the results achieved (faster setting, higher early strengths, lower accelerator dosage, larger overhead layer thicknesses).

The effects of a w/c+s ratio >0.5 are slower setting and lower early strengths.

MasterRoc SA I60 is not very sensitive to concrete consistency (slump) and works also well with high slump sprayed concrete (>200mm).

Application

MasterRoc SA I60 is added at the nozzle.

MasterRoc SA I60 is a suspension and therefore not all types of dosing pumps will work properly. To secure a constant and adequate dosage is of crucial importance in order to achieve a good result. We recommend the following dosing pump types:

Work very well: - mono pumps
 - squeeze pumps (Bredel)

Can be used: - membrane pumps
 - gear pumps

Not to be used: - piston pumps
 - all pumps with seat valve system
 - pressure tanks

Do not use a filter on the suction hose as this causes obstructions. Avoid suction directly off the bottom of the drum/container.

Compatibility

Compatibility with MasterRoc HCA 20

MasterRoc SA I60 is compatible with MasterRoc HCA 20 but in order to fully optimise high early strength development, we would recommend preliminary testing with local cements, or consult your local Master Builders Solutions Technical Sales Representative, as the dose rate of the MasterRoc HCA 20 may have to be adjusted to suit local conditions. (These conditions relate to cement types, ambient temperatures and so forth).

Compatibility with other accelerators

Do not mix **MasterRoc SA I60** with other accelerators as this will cause immediate clogging of pumps and hoses.

Cleaning of Dosing Pump

Prior to the use of **MasterRoc SA I60**, the dosing pump, incl. suction hose (filter) and accelerator hose, must be thoroughly cleaned with plenty of water. During the application, the whole pump system should be cleaned with water every day. Failure to do this, can cause blockages in the dosing system. Make sure all operators involved in testing and application are informed.

Estimating Data

The dosage of **MasterRoc SA I60** depends on the temperature of concrete, air and substrate. Another important factor influencing the dosage, is the reactivity of the cement used. Depending on required setting time and early strength requirements, the consumption of **MasterRoc SA I60** normally ranges between 3-10% of the binder weight. Overdosing (>10%) may result in decreased final strength.

Packaging

MasterRoc SA I60 is available in 200 litre drums, 1000 litre pallecons and bulk.



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Storage & Shelf Life

Segregate from metals. Segregate from bases. Segregate from oxidants. Segregate from foods and animal feeds. Containers should be stored tightly sealed in a dry place. Keep away from heat. Protect against moisture. Store protected against freezing. Keep only in the original container. Protect from temperatures below: 0 °C

The packed product must be protected from temperatures below the indicated one.

MasterRoc SA I60 has a shelf life of 6 months.

It is recommended that you consult Master Builders Solutions prior to the use of any products that were frozen. Performance tests should always be carried out before use.

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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