

MasterRoc[®] SA 545

Alkali-free, non-caustic and non-toxic high-performance powder accelerator for dry-mix sprayed concrete

Material Description

MasterRoc SA 545 is a high-performance alkali-free, non-caustic and non-toxic accelerator for use in the dry-mix sprayed concrete process. It is a powder additive whose dosage can be varied to the desired setting and hardening times.

Areas of Application

MasterRoc SA 545 is suitable for all applications where high early strength, high final strength and very thick sprayed concrete layers are required.

- For temporary and permanent ground support in tunneling and mining
- Slope stabilization
- For repair works

Characteristics and Benefits

- Overhead layer thickness of 10-15 cm in a single application
- Rapid work process
- Good early strength development
- Limits the decrease of final strength
- Improves durability as compared to mixes with traditional accelerators
- Provides an improved working environment
- Reduces salt content in leaching water

Packaging

MasterRoc SA 545 is supplied in 25 kg bags.

Technical Data

Form	powder
Color	white
Bulk density	1030 -1100 kg/m ³
pH value (EN ISO 787-9)	4 ± 1
Chloride content	<0.1%
Physiological effect	Irritant to skin and eyes

Application Procedure

The substrate must be clean and free from loose particles and preferably damp.

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

MasterRoc SA 545 is sensitive to the type of cement. With some cements the obtained setting characteristics can be too slow. This sensitivity can be compensated by reducing the water content. We recommend the use of Portland cements (PC/HPC), which normally give faster setting than blended or sulphate resistant cement types.

In any case, it is strongly recommended to carry out preliminary tests to check the setting and the 24 hour strength characteristics of the cements planned for use in a project.

Evaluation of setting and 24 hour strength characteristics:

Initial set	Final set	24 h 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

Concrete Mix

The minimum cement content with the use of Master-Roc SA 545 is 350 kg per m³. It is normally added to the mix immediately prior to use.

A combination of MasterRoc SA 545 and MasterRoc HCA 10 hydration control admixture prolongs the open time of the mix.

- Dosage: 0.4% by weight of binder of MasterRoc HCA 10 at ambient temperatures of > +20° C.
- At ambient temperatures between +15° C and +20° C only 0.2% by weight of binder should be used.
- Below +15° C MasterRoc HCA 10 should not be used at all.

Consumption

The consumption of MasterRoc SA 545 also depends on the water added, temperature conditions (dry mix and ambient), cement reactivity and on required layer thickness, setting time and early strength development. The consumption is normally in the range of 4 to 8% of binder weight.

Overdosing (> 10%) may result in decreased final strength.



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Storage

If stored dry and in tightly closed original bags, Master-Roc SA 545 has a shelf life of 12 months. If subjected to humidity, the product loses its effectiveness. Any lumps can simply be crushed by hand. Material which is too hard must be discarded.

Precautions

The same precautions as with handling and use of cementitious products should be observed. Avoid eye and skin contact and wear rubber gloves and safety glasses. If contact occurs, rinse with plenty of water. In case of eye contact seek medical advice. For further information, refer to the Material Safety Data Sheet or contact your local Master Builders Solutions representative.

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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