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MasterRoc[®] SA I94

Alkali-Free, Liquid High-Performance Set Accelerator for Sprayed Concrete

Description

MasterRoc SA I94 admixture is a high-performance, alkali-free shotcrete accelerator for use in the wet-mix spraying process. It is a liquid additive whose dosage can be adjusted to achieve the desired setting and hardening times.

Applications

Recommended for use in:

- Temporary and permanent ground support in tunneling and mining operations
- Slope stabilization
- Also suitable for the acceleration of cementitious grouts, such as annulus grout used in TBM tunneling, cement grout used in injections, and cellular concrete used in backfill operations

Features

- Ability to construct thick sprayed concrete linings during one construction sequence
- Unique and advanced formulation
- Fast setting

Benefits

- Allows rapid work progress
- Enables early-age strength development, good long-term strength and enhanced durability
- Very low dust generation during application and hence, better working environment and improved worker safety
- Low rebound (when concrete is sprayed at the correct nozzle angle and distance)

Performance Characteristics

Technical Data

Form	Suspension
Color	Beige to white
Density at 68 °F (20 °C)	1.50 ± 0.03 g/mL
pH (1:1 water solution)	2.5 ± 0.5
Viscosity*	550 ± 150 cP (mPa.s)
Thermal stability	41 °F to 95 °F (5 °C to 35 °C)

*Brookfield, at 68 °F (20 °C). Viscosity is dependent on degree of product agitation and temperature.

Guidelines for Use

Dosage: The dosage of MasterRoc SA 194 admixture depends on the water-cementitious materials ratio (w/cm), reactivity of the cement, and temperature of concrete, ambient air and substrate. The dosage also depends on the required layer thickness, setting time and early strength development.

The dosage of MasterRoc SA 194 admixture normally ranges from 3% to 10% of the binder weight. Overdosing (> 10%) may result in decreased final strength.

Concrete mixes:

- MasterRoc SA 194 admixture can be sensitive to the type of cement. It is recommended that ordinary portland cements be used in the wet sprayed concrete mixes, as against blended or sulfate-resistant cements that result in slower setting times. However, MasterRoc SA 194 admixture also works well with blended cements and in mixes containing fly ash or slag cement. It is strongly recommended that preliminary tests be conducted with the cements planned for use in the project to verify the setting time and the 24-hour strength of the concrete mixes.
- When MasterRoc SA 194 admixture is used for wet mix spraying, the w/cm should be below 0.5, and preferably below 0.45. When targeting extremely high-early strength, the w/cm should be below 0.40. In general, a low w/cm provides faster setting, higher early strength, better durability and lower accelerator dosage. Low w/cm also enables thicker layers of concrete to be sprayed overhead.

Dispensing and Mixing: MasterRoc SA 194 admixture is added at the nozzle. It is essential to have a constant and accurate dosage of MasterRoc SA 194 admixture into the concrete stream.

Works very well with:

- Mono pumps (stator & rotor pumps)
- Peristaltic pumps

Do not use with:

- Piston pumps
- Any pump with ball and seat valves
- Pressure tanks

Do not use a filter on the suction hose as this causes obstructions. Preferably draw the material from the bottom of the container

Application procedure: The substrate should be clean and free from loose particles, and preferably damp.

Cleaning of dosing pump: After the use of MasterRoc SA 194 admixture, the dosing pump and other parts of the system must be thoroughly cleaned with plenty of water. Failure to do this promotes blockages in the dosing system. Make sure that all operators involved in testing and application are fully informed.

Product Notes

Compatibility: MasterRoc SA 194 admixture can be interchanged with most of Master Builders Solutions' alkali-free accelerators. For advice, please contact your local sales representative.

Do not mix or interchange MasterRoc SA 194 admixture with any type of accelerator produced by another manufacturer, as this can cause immediate clogging of dosing pumps and hoses.

Storage and Handling

Storage: MasterRoc SA 194 admixture should be stored at a temperature range of 40 °F to 95 °F (5 °C to 35 °C). The optimum temperature of storage and performance is 68 °F (20 °C). Please contact your local sales representative prior to the use of any product that is frozen.

MasterRoc SA 194 admixture must be kept in closed containers made of plastic, glass fiber, or stainless steel. Do not store in steel containers as the pH can cause corrosion which might affect the performance of the product. Storage containers must be tightly closed at all times to avoid contact with air.

Storage in bulk tanks requires the use of agitation and/or circulation systems.

Fully agitate MasterRoc SA 194 admixture before use after prolonged storage. Mechanical stirring or re-circulation pumping is recommended to agitate the admixture.

Performance testing should always be carried out prior to use of MasterRoc SA 194 admixture after prolonged storage.

Shelf Life: If stored in tightly closed original containers under the above conditions, MasterRoc SA 194 admixture has a shelf life of 6 months. Periodical remixing can extend the shelf life further.

Safety: 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 immediately. For further information, refer to the Safety Data Sheet for MasterRoc SA 194 admixture.

Packaging

MasterRoc SA 194 admixture is supplied in IBC totes, drums, and by bulk delivery upon request.

Related Documents

Safety Data Sheets: MasterRoc SA 194 admixture

Additional Information

For additional information on MasterRoc SA 190 admixture, contact your local sales representative.

Master Builders Solutions creates technologies for the construction industry inspiring people to build better. We are active in ~40 countries and operate 35 production sites with over 1,600 employees. We develop, produce, and market high-quality chemical admixtures, as well as adjacent core technologies, to master the challenges of today and support a decarbonized future. Our people are pivotal and pair leading technologies and a strong brand heritage to surpass our customers' expectations and drive continuous value creation.

Limited Warranty Notice

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