

MasterRoc[®] SLF 419

Biodegradable, highly stable soil conditioning foam for Tunnel Boring Machines (TBM)

Description

MasterRoc SLF 419 is a high-performance foaming agent, specifically designed to improve the performance and control of the soil through the screw conveyor under the toughest conditions. MasterRoc SLF 419 foaming agent is produced from biodegradable raw materials.

Applications

MasterRoc SLF 419 foaming agent is designed to treat silty and sandy soils. The main application is in the TBM soft ground tunneling. MasterRoc SLF 419 foaming agent creates a highly stable fine foam to hold the face pressure and maintain the rheology of the excavated ground longer than the conventional foaming agents.

MasterRoc SLF 419 foaming agent can also be used in hard rock TBM excavation to control dust, and to reduce the abrasive wear in the cutting tools.

Features

- Generates fine, uniform, and stable foam bubbles
- Improves soil behavior and reduces soil permeability
- Creates plastic deformation properties in the soil
- Lowers inner friction and abrasiveness of the soil at the cutterhead
- Reduces stickiness of certain soils
- Reduces dust formation
- Reduces friction and abrasiveness of the cutterhead and the screw conveyor

Benefits

- Provides controlled support pressures
- Increases face stability
- Reduces risk of surface settlement
- Reduces soil blockage and promotes easier 'mucking'

Performance Characteristics

Technical Data

Typical Values

Form	Liquid
Color*	Transparent
Density*	62.4 lb/ft ³ (1.0 g/cm ³)
pH* (3% solution)	7.9

*at 68 °F (20 °C)

Guidelines for Use

Application Procedure: MasterRoc SLF 419 foaming agent can be used with the standard foam generators installed on earth pressure balance (EPB) machines. The foam generated from MasterRoc SLF 419 foaming agent can be injected at the cutterhead, into the working chamber, or onto the screw conveyor. The foam recipe, foam expansion rate, and foam injection rate will depend on the conditions of the soil encountered. When injected by a foam generator, the typical foam expansion ratio (FER) is between 8 and 20, and the foam injection ratio (FIR) is between 30 and 80.

Dosage: Typically, MasterRoc SLF 419 foaming agent is used as a 1% to 3% solution in water. If the consistency of the muck needs to be reduced, MasterRoc SWA and MasterRoc SLP polymers can be used in combination with MasterRoc SLF 419 foaming agent in order to strengthen the foam or to adjust the properties of the excavated soil. For the first use and combination with other soil conditioning agents, please contact your local Master Builders Solutions representative.

Foam Equipment: MasterRoc SLF 419 foaming agent can be used with the standard TBM dosing and foaming equipment.

Do not mix MasterRoc SLF 419 foaming agent with any other soil conditioning additives as this may cause immediate gel formation. If several soil conditioning products are used on the TBM, it is recommended to reserve a specific transfer or dosing pump for MasterRoc SLF 419 foaming agent. If the transfer or dosing pump is being used for more than one product, the pump should be thoroughly cleaned with water before switching to MasterRoc SLF 419 foaming agent.

Storage and Handling

Storage Temperature and Shelf Life: The storage temperature of MasterRoc SLF 419 foaming agent is between 40 °F and 105 °F (5 °C and 40 °C). If stored in the original and tightly closed containers, MasterRoc SLF 419 foaming agent will have a shelf life of 12 months. Do not allow the product to freeze. Consult your local sales representative before using any product that has become frozen.

Safety: Standard precautions for handling chemical products should be observed. Avoid eye and skin contact and wear hand gloves and safety goggles. If contact occurs, rinse with plenty of water. In case of eye contact, seek medical advice. For further information, refer to the Safety Data Sheet.

Packaging

MasterRoc SLF 419 foaming agent is available in bulk and in totes.

Related Documents

Safety Data Sheets: MasterRoc SLF 419 foaming agent

Additional Information

For additional information on MasterRoc SLF 419 foaming agent, please 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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