

MasterRoc[®] SLF 50

Soil-conditioning foam for Tunnel Boring Machines

Description

MasterRoc SLF 50 is a foaming agent especially designed to improve the performance and control of the soil through the screw conveyor under the toughest conditions. It is manufactured from natural, renewable resources and is a milestone in terms of environmental compatibility.

MasterRoc SLF 50 foam creates a highly stable foam to hold the face pressure and maintain the rheology of the excavated ground longer than conventional foaming agents. It is designed for silty to sandy soils.

Applications

Soft ground tunneling with tunnel boring machines.

Features

- Generates fine and uniform bubbles
- Creates foams that are highly stable and have long half-life
- Improves soil behavior
- Reduces soil permeability and increases sealing of the face
- Creates plastic deformation properties in the soil
- Lowers inner friction and abrasiveness of the soil at the cutterhead as well as at the screw conveyor
- Reduces stickiness of certain soils

Benefits

- Reduces power consumption
- Enables quick soil extraction
- Reduces wear
- Provides controlled support pressure and increased face stability
- Compatible with highest environmental standards
- Promotes easier 'mucking'

Performance Characteristics

Technical Data

Typical Values

Form	Liquid
Color	Transparent
Density	63.0 ± 1.2 lb/ft ³ at 68 °F (1010 ± 20 kg/m ³ at 20 °C)
pH (3% solution)	9.3 at 68 °F (20 °C)
Viscosity	72 cP (72 mPa.s)

Guidelines for Use

MasterRoc SLF 50 foam can be used with the standard foam generators installed on EPB machines. It can be injected at the cutterhead into the working chamber and screw conveyor. The foam solution can be mixed with air to produce a highly stable foam.

The foam recipe, foam expansion rate, and foam injection rate depend on soil conditions 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 50 foam is used as a 2 to 4% solution in water. If the consistency of the muck needs to be reduced, MasterRoc SWA and SLP polymers can be used in combination with MasterRoc SLF 50 foam 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 50 foam can be used with the standard TBM dosing and foaming equipment.

Storage and Handling

Handling: Do not mix pure MasterRoc SLF 50 foam with any other pure soil conditioning additives as this may cause immediate gel formation. If several foaming products or polymers are used on the TBM, it is preferable to reserve a specific transfer or dosing pump for MasterRoc SLF 50 foam. If a transfer or dosing pump is being used for more than one product, it is recommended to clean the pump with water before switching to other products.

Storage: MasterRoc SLF 50 foam should be stored in unopened, original containers, preferably between 40 °F and 105 °F (5 °C and 40 °C). If stored in original tightly-closed containers, MasterRoc SLF 50 foam will have a shelf life of 12 months. Do not allow the product to freeze. Please contact your local Master Builders Solutions representative prior to the use of any product that has become frozen.

Safety: Standard precautions for handling chemical products should be observed. Avoid eye and skin contact and wear rubber gloves and goggles.

Packaging

MasterRoc SLF 50 foam is available in standard 264 gal (1,000 L) totes. Bulk tanker supply is available on request.

Related Documents

Safety Data Sheets: MasterRoc SLF 50 foam

Additional Information

For additional information on MasterRoc SLF 50 foam, 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.

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