

MasterRoc[®] SLF 419

High performance foaming agent chemically stable at low temperatures for difficult heterogeneous grounds with variable range of permeability, readily biodegradable for Tunnel Boring Machines (TBM) applications

Material Description

MasterRoc SLF 419 is a highly biodegradable, high-performance foaming agent, specifically designed to improve contractor's tunnelling performance in environments at low temperatures.

Given its ability to remain stable at low temperatures, MasterRoc 419 will greatly help the TBM Operator to control the rheology of the soil without altering the construction performance in such environments.

MasterRoc SLF 419 guarantees a new improved foam stability that guarantees proper EPB counter pressure. Its improved foam properties will ensure better control of the ground pressure, reducing the risk of additional ground settlement at the surface and over excavation.

MasterRoc SLF 419 is an eco-friendly foaming agent, based on biodegradable raw materials.

Areas of Application

MasterRoc SLF 419 is specifically designed for silty to sandy soils in environments at low temperatures, given its ability to ensure chemical homogeneity and stability also in frozen soils. MasterRoc SLF 419 creates a highly stable foam to hold the face pressure and maintain the rheology of the excavated ground longer than conventional foaming agents.

MasterRoc SLF 419 can be used with the standard foam generators installed in all EPB machines. It can be injected at the cutterhead to the front, into the TBM working chamber and in the screw conveyor.

Characteristics and Benefits

Operational

- Due to the high foaming capacity, it will be possible to work with high FER values avoiding the collapse of the foam, compared to standard foaming agents
- You will work with lower FIR values to obtain the desired soil rheology, compared to standard foaming agents
- Improved face excavation support pressure and control
- Improved TBM excavation cycle's time, quality, and cost
- Facilitated muck extraction from tunnel and from the muck pit area
- Improved overall tunnel performance
- Reduced tunnel excavation time
- Reduced TBM maintenance costs

- Optimized muck logistics outside job site
- Minimized over excavation and contractual disputes
- Reduced risk of surface settlement

Technical

- Occurred no separation at low temperatures
- Higher foam stability at low temperatures
- Great performance also at higher temperatures
- Improved soil behavior
- Reduced soil permeability
- Creation of plastic deformation properties in the soil, which increases face stability
- Lower inner friction and lower abrasiveness of the soil at the cutterhead and shield

Packaging

MasterRoc SLF 419 is available in standard 1000 Liters IBCs and bulk.

Technical Data

Form	Liquid
Color	Transparent
Density (g/cm ³ at 20°C)	1.00

MasterRoc SLF 419 exhibits:

- High foamability
- High stability
- High Half Life Drainage Time (HLT)
- Very high mechanical resistance and strength

Application Procedure

MasterRoc SLF 419 is used as aqueous solution with a typical 1 % - 3 % concentration.

Easily injectable by any standard foam generator installed in TBM EPB machines

If the consistency of the muck needs to be reduced, MasterRoc SWA and SLP polymers can be used in combination with MasterRoc SLF 419.

For the first use and combination with other soil conditioning agents, please contact your local Master Builders Solutions representative.



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Dosing System

MasterRoc SLF 419 can be used with the standard TBM dosing and foaming equipment.

Storage

MasterRoc SLF 419 can be stored between 5°C and 40°C. At temperatures below 5 °C the product can become slightly turbid, but this doesn't affect the performance because it remains homogeneous. Do not allow the product to freeze. If stored in original tightly closed containers, it will have a shelf life of 12 months.

Precautions

Standard precautions for handling chemical products should be observed. Avoid eye and skin contact and wear rubber gloves and safety glasses. For further information, refer to the

Material Safety Data Sheet which you can obtain from our local Master Builders Solutions representative.

Ecological Information

MasterRoc SLF 419 is eco-friendly and highly biodegradable as per international standards. Please consult Master Builders Solutions Material Safety Data Sheet.

Product Disposal Information

Deposition of excavated material conditioned with MasterRoc SLF 419 on a landfill for inert materials as per the Council Directive 1999/31/EC dated 26.04.1999 on the landfill of waste (OJ L 182, 16.07.1999) shall be possible in any case.

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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