

MasterRoc[®] SLP 1

Liquid polymer for soil conditioning in Tunnel Boring Machines

Description

MasterRoc SLP 1 is a lubricating polymer in liquid form, that is used to enhance the performance of MasterRoc SLP foam products under difficult ground conditions, e.g. ground containing fine sand, silt, or clay with high water content. It is used where the water content in the soil increases and foam alone is inadequate to modify the soil properties.

Applications

Recommended for use in:

- Poorly-graded and saturated ground in Earth-Pressure Balance (EPB) shield machines
- Soil conditioning in EPB shield machines

Features

MasterRoc SLP 1 liquid polymer has been specifically developed for soil conditioning with shielded TBM excavation. It has excellent performance in restructuring the soil, and is effective in tackling water problems in ground containing fine sand, silt or clay. Generally, when mixed with one of the MasterRoc SLP foam products, MasterRoc SLP 1 liquid polymer:

- Creates plastic deformation properties in the soil which provide an even and controlled support pressure and increased face stability
- Lowers inner friction and abrasiveness of the soil at the cutterhead through to the screw conveyor. This reduces power consumption and wear to the tools
- Requires no mixing equipment (ready-to-use)
- Doses easily and quantity adjusts easily to suit the prevailing soil conditions

Benefits

- Reduces permeability and increases sealing at the face
- Increases cohesion of coarse, clean sands and gravels for smoother soil extraction
- Strengthens viscosifying effect, turning wet soil into a more manageable consistency
- Helps the formation of the “plug” when injected directing into the screw conveyor

Performance Characteristics

Technical Data

Form	Liquid
Color	Transparent
Density at 68 °F (20 °C)	63 lb/ft ³ (1,005 kg/m ³)
pH at 68 °F (20 °C)	6.5 to 7.5
Solubility in water	Total

Guidelines for Use

MasterRoc SLP 1 liquid polymer can be added to the foam solution before or during foam generation or after the foam has been created but before injection into the cutterhead or working chamber. MasterRoc SLP 1 liquid polymer can also be used independently, in which case, it is injected with water or directly into the working chamber or screw conveyor. The quantity of MasterRoc SLP 1 polymer in the foam solution, the foam expansion rate, and the foam injection rate will vary according to the ground conditions.

Dosage: Typically the dosage of MasterRoc SLP 1 liquid polymer is between 0.3 to 3% on the foam solution (0.012 to 0.125 lb/ft³ (0.2 to 2 kg/m³) on the volume of soil excavated). Other dosage levels may be appropriate in certain circumstances so consult your local sales representative.

Storage and Handling

Storage Temperature: The storage temperature of MasterRoc SLP 1 liquid polymer is between 41 °F (5 °C) and 95 °F (35 °C).

Shelf Life: If stored in original tightly closed containers under the above conditions, MasterRoc SLP 1 polymer will have a shelf life of 12 months. Do not allow the product to freeze. It is recommended that your local sales representative be consulted prior to the use of any product that freezes.

Safety: MasterRoc SLP 1 liquid polymer contains no hazardous substances requiring labeling. However, standard precautions for handling chemical products should be observed. Avoid eye and skin contact and wear rubber gloves and goggles. If skin contact occurs, rinse with plenty of water. In case of eye contact, seek medical advice.

Packaging

MasterRoc SLP 1 liquid polymer is available in 274 gal (1,035.3 L) totes.

Related Documents

Safety Data Sheet: MasterRoc SLP 1 liquid polymer

Ask your local sales representative for a copy of the Risk Assessment report on the use of MasterRoc SLP products in tunnels.

Additional Information

For additional information on MasterRoc SLP 1 liquid polymer, contact your local sales representative.

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