

# MasterRoc<sup>®</sup> BA 110

## High-Performance Bentonite for Annular Grout Mixes for Tunnel Boring Machines (TBM)

### Description

MasterRoc BA 110 is a high yield, untreated and organic-free bentonite designed for use in the annular grouts that are injected behind the tunnel segments in TBM projects. Its special characteristics in enhancing viscosity, gel strength, thixotropy, and water retention make the product ideal for controlling the segregation, bleeding, and permeability of the annular grouts.

### Applications

MasterRoc BA 110 product is recommended for TBM projects where high stability of the annular grouts is required. MasterRoc BA 110 product can be used both in fresh water and saltwater grounds.

### Features

- Chemically stable
- Contaminant free
- Mixes quickly to achieve the required viscosity
- Excellent water retention

### Benefits

- Reduces bleeding and segregation
- Ensures high level of lubrication and reduced permeability of the annular grouts
- Has the ability to cool metal parts of the operating machines

### Performance Characteristics

#### Technical data (Typical)

Form	Powder
Color	Brownish
Particle size (ACC TP-1015) sieve	Min. 70% passing No. 200 (75 microns)
Swell index (ASTM D5890)	28 mL/2g
Specific gravity	156 lb/ft <sup>3</sup> (2.5 g/cm <sup>3</sup> )
Bulk density (ACC TP-1005)	
Non-compacted	53 lb/ft <sup>3</sup> (0.85 g/cm <sup>3</sup> )
Compacted	72 lb/ft <sup>3</sup> (1.15 g/cm <sup>3</sup> )
Moisture (ACC TP-2006)	9.3%
Grit (<75 microns)	3.0% (ACC TP-2004, 4.0% Max)
Plate Water Absorption	776.6%

## Guidelines for Use

**Dosage and Application Procedure:** MasterRoc BA I I0 product can be used in the range of 60 - 75 lb/yd<sup>3</sup> (35 - 45 kg/m<sup>3</sup>) of annular grout for TBM applications. Actual dosage rate of MasterRoc BA I I0 product may vary, depending on the ground characteristics and the specific viscosity requirement for the applications. Lab testing prior to the application is highly recommended in order to optimize the mix design of the annular grout. With the above recommended dosage range, performance characteristics of the annular grout mix are expected to be in the following ranges:

Bleeding	<5% at 24 h
Marsh Cone viscosity	30 - 45 s at 1 h

To ensure proper mixing with cement and admixtures, it is recommended that MasterRoc BA I I0 product be pre-hydrated 4 hours before using and to ensure proper hydration of MasterRoc BA I I0 product, it is necessary to impart enough turbulence or shear during mixing.

## Storage and Handling

**Storage Temperature and Shelf Life:** MasterRoc BA I I0 product must be stored in the original packaging in a clean, dry area and must be protected from exposure to moisture. A loss of rheological and filtrate properties may result if the product is not stored as recommended. When properly stored, MasterRoc BA I I0 product has a minimum shelf life of 12 months.

**Safety:** Standard precautions for handling chemical products should be observed. Avoid eye and skin contact and wear 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 BA I I0 product is supplied in 2000 lb (907 kg) and 3800 lb (1724 kg) supersacks, or in bulk.

## Related Documents

Safety Data Sheets: MasterRoc BA I I0 product

## Additional Information

For additional information on the MasterRoc BA I I0 product, 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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