

# 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 110 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 110 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 110 product be pre-hydrated 4 hours before using and to ensure proper hydration of MasterRoc BA 110 product, it is necessary to impart enough turbulence or shear during mixing.

## Storage and Handling

**Storage Temperature and Shelf Life:** MasterRoc BA 110 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 110 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 110 product is supplied in 2000 lb (907 kg) and 3800 lb (1724 kg) supersacks, or in bulk.

## Related Documents

Safety Data Sheets: MasterRoc BA 110 product

## Additional Information

For additional information on the MasterRoc BA 110 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.*

### Limited Warranty Notice

Master Builders Solutions Admixtures US, LLC ("Master Builders Solutions") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. MASTER BUILDERS SOLUTIONS MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders Solutions. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. MASTER BUILDERS SOLUTIONS WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders Solutions' present knowledge and experience. However, Master Builders Solutions assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders Solutions reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.