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MasterRoc[®] MP 35I LV

Low viscosity polyurethane resin that foams to stop small to medium water ingress

Description

MasterRoc MP 35I LV is a hydrophobic polyurethane resin designed to be injected into tight cracks. When mixed with the accelerator, MasterRoc MP 35I LV resin reacts with water or moisture to foam and cure to a closed-cell and flexible material that is resistant to most organic solvents, mild acids, alkali, petroleum, and micro-organisms.

Applications

- To stop small to medium water ingress in underground structures
- Filling of voids containing water
- Crack injection of above or below grade structures, including (but not limited to) water/wastewater tanks, storm pipes, manholes, culvert joints, dams, brickwork and natural stones, tunnel linings, concrete foundations, slab on ground, and bridge abutments.
- Geotechnical applications

Features

- Ultra-low viscosity
- Fast reacting
- Excellent bonding to a wide variety of surfaces (including wet, mineral, and metallic)
- Superb elastic properties
- Large foam volume with no shrinkage
- Modification of the foaming action can be achieved by using an accelerator

Benefits

- Ideal for fine crack and fissure penetration
- Highly effective in water stopping applications
- Can accommodate considerable movements of construction components
- Cost effective for stopping water ingress
- Adjustable reaction time (by using the associated accelerator) provides application flexibility

Performance Characteristics

Technical Data

Tested Characteristic	Standard	Typical Value
Density	ASTM D-1622	4.0 lb/ft ³ (64 kg/m ³)
Water Absorption	ASTM D-2127	< 1%
Shear Strength	ASTM C-273	19.6 psi (135 kPa)
Tensile Strength	ASTM D-1623	27.0 psi (186 kPa)
Elongation	ASTM D-1623	50%



MasterRoc MP 35I LV Resin

Density at 68 °F (20 °C):	73 lb/ft ³ (1.17 g/cm ³)
Viscosity at 73 °F (23 °C):	100 mPa.s
Color:	Amber
Application temperature:	40 °F to 105 °F (5 °C to 40 °C)
Foam expansion factor: (0% to 10% accelerator dosage)	35 – 50

MasterRoc MP 35I LV Accelerator

Density at 68 °F (20 °C):	59.9 lb/ft ³ (0.96 g/cm ³)
Color:	Clear to light yellow

Guidelines for Use

Application Procedure: Add MasterRoc MP 35I LV Accelerator (up to 10% by volume of the resin, depending on the required reaction time) to MasterRoc MP 35I LV resin. Mix using a slow speed mixer (400 rpm) for about 3 minutes or until a uniform mixture is achieved.

Inject the mixture using a single component injection pump. The moisture/water in the ground will activate the foaming reaction. In the case of dry ground, flush the space with water before injecting the product.

During injection, MasterRoc MP 35I LV resin will follow the path of least resistance. When the product stops penetrating, it will continue to expand against the limits of the confined space and compress within itself, forming a dense, closed-cell foam.

For vertical cracks, injection should start at the lowest point and work upwards. For horizontal cracks, start at one end and work across. Turn on pump and slowly increase the pressure, up to a maximum of 435 psi (30 bar). Stop pumping for every half gallon (64 oz or 2 liters) injected, and allow 1 - 2 minutes for reaction. Start and stop injection until the packer no longer accepts material, or when the specified pressure has been reached. Move to the next packer and repeat the injection process. Continue injection till crack is full and has been adequately sealed. Monitor the effectiveness of the work and allow to settle for 2 – 3 days before returning to site and completing additional injection if required.

Reaction Time: The reaction time depends on the temperature of the ground and that of the MasterRoc MP 35I LV resin, as well as the accelerator dosage. Table 1 and Table 2 below show the reaction time based on laboratory trials. Field trials should be performed in advance to establish the required reaction time.

Table 1: Reaction time with 5% Accelerator and 10% water

Temperature of the Resin and Water	41 °F (5 °C)	50 °F (10 °C)	59 °F (15 °C)	77 °F (25 °C)
Start of Foaming (seconds)	10	9 - 10	9 - 10	8 - 9
End of Foaming (seconds)	58	56	47	45
Foam Expansion factor (approximate)	35 - 50	35 - 50	35 - 50	35 - 50

Table 2: Reaction time with 10% Accelerator and 10% water

Temperature of the Resin and Water	41 °F (5 °C)	50 °F (10 °C)	59 °F (15 °C)	77 °F (25 °C)
Start of Foaming (seconds)	10 - 11	10 - 11	9	8
End of Foaming (seconds)	47	45	38	32
Foam Expansion factor (approximate)	35 - 50	35 - 50	35 - 50	35 - 50

Cleaning of Injection Equipment: During short breaks or intervals longer than an hour in the injection process, fill the pump and hoses with non-accelerated MasterRoc MP 35I LV resin to avoid blockages.

After the injection process, pump an appropriate cleaning and maintenance agent (such as MasterRoc MP 23I CLN pump cleaner) or an oil containing no moisture, through the pump and injection hoses until MasterRoc MP 35I LV resin is completely flushed out. Store the pump and hoses with the cleaning agent inside and seal all the openings.

Storage and Handling

Shelf Life: MasterRoc MP 35I LV resin and MasterRoc MP 35I LV Accelerator must be stored in airtight containers in a cool, dry place within a temperature range of 40 °F and 95 °F (5 °C and 35 °C). If stored in original containers under the above mentioned conditions, the MasterRoc MP 35I LV products have a shelf life of 12 months. MasterRoc MP 35I LV products must be protected from freezing.

Safety: Standard safety procedures when handling chemical products should be followed (including wearing gloves and safety glasses). Avoid eye and skin contact. If skin contact occurs, wash with plenty of water and soap. In case of eye contact, rinse with plenty of water and seek medical advice. For further information please refer to the Safety Data Sheet or contact your local sales representative.

Uncured products should be prevented from entering local drainage systems and water courses. Spillage must be collected using absorbent materials, such as sawdust and sand, and disposed of in accordance with local regulations.

Packaging

MasterRoc MP 35I LV resin is available in 5-gallon (18.9 L) pails.

MasterRoc MP 35I LV Accelerator is available in 0.6-gallon (2.3 L) bottles.

Related Documents

Safety Data Sheets: MasterRoc MP 35I LV and MasterRoc MP 35I LV Accelerator.

Additional Information

For additional information on MasterRoc MP 35I LV, please 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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