

MasterRoc[®] MP 304

Low viscosity, fast reacting and highly flexible acrylic resin with adjustable reaction speed for permanent water sealing, joint repair and layer curtaining of concrete and masonry

DESCRIPTION

MasterRoc MP 304 is a highly reactive two-component acrylic sealing resin with a low viscosity for good penetration. The product cures quickly, forming a highly flexible hydrogel with excellent swelling/re-swelling properties. Because of its excellent elongation and flexibility, it is able to compensate limited movement of cracks. The product keeps even after dry periods its excellent water swelling properties.

TYPICAL APPLICATIONS

- Concrete repair – swelling fitted filling of cracks and fissures
- Curtain injection
- Joint repair
- Permanent water sealing of tunnel and shaft concrete linings and masonry
- Injection into damp areas or with standing water
- Stopping of minor water inrush through cracks

ADVANTAGES

- Upon curing forms a highly flexible compact resin with good adhesion properties even on damp and wet surfaces
- The cured resin is resistant to acidic and alkaline solutions as well as many other solvents
- Can swell up to 100% of its initial volume, accommodating structural and ground movement. The swelling is reversible and after dry periods the resin maintains its self-healing properties
- Good bond strength to fractured rock and concrete, even under wet conditions
- Very low viscosity (close to water) allows deep penetration at low pressure into very fine cracks or fissures and long flow paths
- Controlled gel time between 15 seconds and 3:30 minutes at 20°C
- Environmentally friendly: Harmless in contact with groundwater and no emission of dangerous substances

PACKAGING

Standard packaging
MasterRoc MP 304 Resin: 20 kg can
MasterRoc MP 304 Accelerator: 0.5 kg can
MasterRoc MP 304 Hardener: 1.0 kg can
 Optional: **MasterRoc MP 304** Part B 20 kg can

TYPICAL PROPERTIES*

MasterRoc MP 304 Resin

Appearance Clear liquid
 Viscosity (20°C) 55 mPa·s
 Density (20°C) 1.22 kg/l
 VOC content (%) 0 (zero)

MasterRoc MP 304 Accelerator

Appearance Clear liquid
 Viscosity (20°C) 2 mPa·s
 Density (20°C) 0.94 kg/l
 VOC content (%) 0 (zero)

MasterRoc MP 304 Hardener

Appearance White solid
 Density (20°C) Approx. 2.6 kg/l
 VOC content (%) 0 (zero)

MasterRoc MP 304 Part B

Appearance White, Emulsion type
 Viscosity (20°C) 10 mPa·s
 Density (20°C) 1.02 kg/l
 VOC content (%) 0 (zero)

Mixed material (mixing ratio Resin: Part B [water + Hardener] of 1:1 vol.)

Appearance Clear liquid
 Viscosity (20°C) 5 mPa·s
 Density (20°C) 1.16 kg/l
 Gel time (20°C) 15 seconds to 3:45 min

Cured product properties:

Consistency soft-elastic
 Color white
 Elongation at break > 950%
 Water absorption approx. 100%

Cured product properties with the use of Part B:

Consistency rubber-elastic
 Color white
 Elongation at break > 700%
 Water absorption approx. 40%

MasterRoc® MP 304

APPLICATION GUIDELINES

Premix the Resin (20 kg) with 2.5% of Accelerator (0.5 kg) to activate it prior to use.

To prepare Part B, take 17 l of water and dissolve 0.24% (40 g) to 5.88% (1 kg) of hardener powder in the water (the same volume of water as of activated resin). The amount of hardener is adjusted to the needed pot life (see Table 1).

Alternately there is the possibility to use **MasterRoc MP 304** Part B instead of water to increase the strength of the cured product as well as less water absorption and less shrinkage.

We recommend to use **MasterRoc MP 304** Part B in case of renovation of expansion joints as well as crack injection in concrete structures. The reaction times for such application should be > 2 min.

To prepare Part B, take 20 kg of **MasterRoc MP 304** Part B and dissolve 0.24% (40 g) to 5.88% (1 kg) of hardener powder in the Part B. The amount of hardener is adjusted to the needed pot life (see Table 1).

The activated resin and Part B have a pot life of approx. 5 hours at 20 °C. The activated components are injected in the ratio of 1:1 by volume, using a two-component injection pump, equipped with a static in-line mixer.

Table 1: Hardener dosage to adjust gel time

| Amount of MasterRoc MP 304 Hardener [%] | Amount of MasterRoc MP 304 Hardener [g] per 17 l water | Gel time at 10°C [min] | Gel time at 20°C [min] |
|---|--|------------------------|------------------------|
| | | | |
| 1.18 | 200 | 01:30 | 00:40 |
| 3.53 | 600 | 00:40 | 00:20 |
| 5.88 | 1000 | 00:25 | 00:15 |

Please Note: The reaction time is dependent on the temperature of the components and the ground.

MasterRoc MP 304 Retarder

For delayed reaction and use with a single component pump the **MasterRoc MP 304** Hardener can be replaced by the **MasterRoc MP 304** Retarder.

| | |
|----------------------|--------------------------------|
| Consistency | solid |
| Color | yellowish |
| Odor | odorless |
| Spec. density (20°C) | approx. 2.59 g/cm ³ |
| Bulk density (20°C) | approx. 1.15 g/cm ³ |

PACKAGING

0.29kg plastic can

MIXING APPLICATION

MasterRoc MP 304 Retarder is filled into a container of equivalent size to the A component and filled with 17 litre of tap water and mixed for 3 minutes. The ready-for-use, retarded B component remains stable for approx. 5 hours (depending on temperature). Once the A and B components are mixed together the reacted material should be used within 15-20 minutes depending on ambient temperature.

APPLICATION PROCEDURE

One component pump application:
 Mix both components A and B in 1:1 ratio in a dry and clean container with the aid of mixing device until reaching a homogenous appearance, after that the mixture to be decanted in the pump bucket and the lid to be closed tightly.



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Two component pump application:

Both components are taken directly from the original packaging by means of a 2K injection pump and mixed homogeneously through a static mixer.



CLEANING OF INJECTION EQUIPMENT

When the injection processes is complete empty the pump of any remaining material and thoroughly flush it through with water. Remove the water and flush the pump with mineral oil or our cleaning and maintenance agent **MasterRoc MP 23CLN** leaving the working parts full of oil. Failure to follow the above cleaning procedure may lead to pump or line blockages.

STORAGE AND SHELF LIFE

In unopened, tightly closed containers, the components of **MasterRoc MP 304** can be stored for up to 12 months, if kept dry and within a temperature range of +10 °C to +30 °C, protected from sunlight.

HEALTH AND SAFETY

Please refer to the Material Safety Data Sheet for further safety measures.

Avoid contact with skin and eyes by using the required personal protective equipment, such as overalls, gloves and safety glasses.

If contact with skin occurs, wash thoroughly using soap and water. If contact with eyes occurs, rinse thoroughly with water and seek medical advice. The cured **MasterRoc MP 304** is harmless.

MasterRoc MP 304 Retarder is classified as hazardous according to regulation (EC) 1272/2008 (CLP). It is therefore necessary, before beginning processing, to become familiar with the precautions and safety advice as indicated in the material safety data sheet.

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.

* Properties listed are based on laboratory controlled tests.

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