

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

Material 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.

Areas of Application

- 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

Characteristics and Benefits

- Upon curing forms a highly flexible compact resin with good adhesion properties even on damp or 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

Technical Data

MasterRoc MP 304 Resin

Appearance	Clear liquid
Viscosity (20° C)	55 mPa·s
Density (20° C)	1.22 kg/l

MasterRoc MP 304 Accelerator

Appearance	Clear liquid
Viscosity (20° C)	2 mPa·s
Density (20° C)	0.94 kg/l

MasterRoc MP 304 Hardener

Appearance	White solid
Density (20° C)	Approx. 2.6 kg/l

MasterRoc MP 304 Part B

Appearance	White, emulsion-type
Viscosity (20° C)	10 mPa·s
Density (20° C)	1.02 kg/l

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 %

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Application Procedure

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 using 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 inject-ed 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		Gel time at 10°C [min]	Gel time at 20°C [min]
[%]	[g] per 17 l water		
0.24	40	07:30	03:45
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.

Cleaning of Injection Equipment

Equipment can easily be cleaned of uncured material using water (if possible, with a detergent).

Storage

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.

Precautions

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 Master-Roc MP 304 is harmless.

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.

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Disclaimer

The information given here is true, represents our best knowledge and is based not only on laboratory work but also on field experience. However, because of numerous factors affecting results, we offer this information without guarantee and no patent liability is assumed. For additional information or questions, please contact your local representative.

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