

# MasterSeal<sup>®</sup> 901

## Methacrylate resin for crack injection

### DESCRIPTION

**MasterSeal 901** is a multi-component, solvent free, water swelling vinyl ester based injection system that cures to form a flexible yet solid material with an excellent bond even to wet substrates. Depending on the degree of availability of moisture, the cured system swells reversibly up to 120% of its volume to act as an effective and permanent seal against ingress of water.

### RECOMMENDED USES

**MasterSeal 901** is recommended for sealing cracks, joints and crevices in concrete, rock and masonry to prevent water ingress. Applications include injection of:

- Cracks, fissures and seams in the rocky strata of mines and tunnels.
- Stabilized cracks and non-moving joints in structural concrete.
- Concrete construction joints using MasterSeal 909 (see separate data sheet).

### FEATURES AND BENEFITS

- Swells in contact with water by up to 120% - prevents water ingress even when the crack width varies.
- Water molecules held by molecular attraction – captured water does not get transported through capillaries.
- Unaffected by cycles of swelling and shrinking – continues to perform over long time, despite exposure to wetting and drying cycles.
- Good bond to damp surfaces – advantage in damp structures.
- Does not form foam or gas with water – the bond with substrates remains intact. Can withstand continuous and high water pressures.
- Adjustable reaction time between 20 and 60 minutes

### PERFORMANCE DATA

	Mixture of Resin
Viscosity at 20°C (mixture of components)	30-40 mPas
Density at 20°C	Approx. 1.07 g/ml
pH-Value at 20°C	>8.5
Colour	Yellow
Solids Content	68%
Chloride Content	<0.01%

### ESTIMATING DATA

The quantity of **MasterSeal 901** required is dependent on the total volume of the void to be grouted, absorption of the substrate, loss and wastage. A trial may be

conducted on a typical area to get an approximate estimation.

### APPLICATION

#### Preparation

When being used in conjunction with **MasterSeal 909**, refer to **MasterSeal 909** technical datasheet for correct surface preparation and application.

#### Cracks or cold joints

Clean the concrete surface along the crack or joint to 2 cm on either side, free from dust, fungus, moss and other such contaminants. Remove all standing water. Remove any concrete layer contaminated with oil or grease at the crack or joint opening to expose a clean substrate. Vacuum clean the surface free from dust. Mask the crack at locations where injection ports are to be glued and seal the rest of crack or joint opening using cementitious plugging compound **MasterSeal 590**. The interval between ports depends upon the severity and extent of crack, the type of structure etc. In the case of a cold joint and that of a crack with openings on both faces of the structural element, seal the openings on all the sides.

Use injection nipples in drilled holes instead of glue-on ports for injection of the resin system. Drill approximately 50 mm deep holes on the crack or joint at required intervals depending on the complexity of the job. In situations where the crack opens out on the opposite faces of a structural element more than 500 mm thick, injection holes may have to be drilled on both these faces. The diameter of the holes should be around 5 mm. Fix injection nipples in each of the drilled holes using **MasterSeal 590**.

#### Mixing (for partial quantities <10kg)

1. 1 liter of resin (Component A) is filled in a mixing container.
2. Add the necessary quantity of accelerator, selected from the metering chart
3. Dissolve one bag of hardener powder in 500ml of water.
4. Add 50ml of this hardener powder in 500ml of water.
5. Thoroughly mix all components.

#### Mixing (for quantities of minimum 10kg)

1. Dissolve one bag of hardener powder in 500ml of water. The hardener powder cannot be directly dissolved in the resin.
2. Mix the 500ml of hardener solution (500ml) and the 10kg unit of resin.
3. Add a partial quantity into a mixing container.
4. Add the necessary quantity of accelerator, selected from the metering chart below.
5. Thoroughly mix all components.

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**Placing** - Do not inject **MasterSeal 901** under severe hydrostatic pressure. Reduce the pressure to minimize the washout of material before injecting. Where hydrostatic pressure exists, it is suggested to increase the accelerator content to achieve the shortest practical gel time (under these circumstances, it may be possible to use only a two line pump).

Due to its long workability time of 20 to 60 minutes, **MasterSeal 901** can be easily processed with one component pumps. The data given in the metering chart are laboratory results, which may differ from actual results on site. Master Builders Solutions therefore recommends carrying out a manual test to determine the exact adjustments before injection work is commenced.

For sealing existing cracks, joints and seams, inject the mixed resin system into the crevices starting from its widest part through the installed ports or nipples. In the case of vertical cracks start from the lowest level. Inject in each port or nipple (keeping all others except the next one closed) until the pressure is built up to the required level. If resin starts issuing out of the open port or nipple, close it. Maintain the injection pressure for 5 minutes to allow total penetration and close the port before releasing the pressure. Continue until all the ports or nipples are injected. 24 hours after the injection, remove all the nipples or ports and fill in the resulting cavities with **MasterSeal 590**.

## CLEANING

Tools and equipment contaminated with uncured **MasterSeal 901** can be easily cleaned using water. Hardened material should be softened by swelling with Thinner No. 1 and can then be removed mechanically without any great difficulty.

## PACKING

**MasterSeal 901** is supplied as a 22.066kg kit:

Resin	:	2 x 10.0kg
Accelerator	:	2 x 1.0kg
Hardener Powder	:	3 x 22g.

## SHELF LIFE

**MasterSeal 901** can be stored in a well enclosed, cool, dark and dry place for 12 months in unopened original packaging.

## PRECAUTIONS

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the Master Builders Solutions Material Safety Data Sheet (MSDS) from our office or our website.

Metering chart: Accelerator in ml		Ambient Temperature								Quantity of accelerator in ml per 1kg of mixed resin
		5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	
Reaction Time	20				77	68	50	42	32	
	30		142	82	65	55	35	30	25	
	40	120	105	72	55	45	30	25	22	
	50	105	80	65	47	37	27	22	20	
	60	95	75	62	42	32	25	20		

**Note for processing in one component pumps: Workability time (pot life) = Reaction Time – (minus) 10 minutes**

The hardener solution will keep its reactivity time for approximately 24 hours. For a re-use at a later time, mixing of a fresh hardener solution will be necessary. We therefore recommend activation only the required quantities for immediate processing.

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### STATEMENT OF RESPONSIBILITY

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