

## Crack injection resin for stopping water flow

### Uses

For injecting into cracks in concrete to temporarily stop the flow of moving water. When used in conjunction with Nitofill UR63\*† provides an effective system for crack sealing in wet conditions.

### Advantages

- Reacts with water to produce water resistant foam to stop water
- Rapid acting, to produce water stop against moving water under pressure
- Re-injectable with Nitofill UR63 to form permanent seal

### Description

Nitofill WS60 two part liquid polyurethane is mixed in the proportions supplied and injected into cracks in concrete. It reacts with moving water to form a foam barrier. Used in conjunction with Nitofill UR63 it forms a permanent seal in cracked concrete.

### Specification clause

#### Water-stopping crack injection resin

The foam water-stopping crack injection resin shall be Nitofill WS60, a two part foaming liquid polyurethane. When mixed in the proportions supplied and injected into cracks in concrete, the resin shall react with moving water to form a foam water-stopping barrier.

The water-stopping injection resin shall have the following properties; pot life, in the absence of water, 6 - 8 hours at 20°C, 3 - 4 hours at 35°C; reaction time with water, 5 - 30 seconds, dependent on temperature; viscosity of 2 - 3 poise, at 20°C; specific gravity of  $1.14 \pm 0.06$ ; foam density of 0.025.

When used in conjunction with Nitofill UR63, a flexible two part polyurethane injection resin, it shall form a permanent seal in cracked concrete.

### Properties

The following properties were obtained at a temperature of 20°C unless otherwise specified.

Test method	Typical results
<b>Pot life in the absence of water</b>	: 6-8 hours @ 20°C 3-4 hours @ 35°C
<b>Reaction time with water</b>	: 5 - 30 seconds dependent on temperature
<b>Specific gravity</b>	: $1.14 \pm 0.06$
<b>Density of foam</b>	: 0.025 g/cc
<b>Viscosity</b>	: 2 - 3 poise @ 20°C

### Design criteria

Nitofill WS60 is designed to stop the movement of water in cracked concrete. Crack widths of between 0.2 mm and 5 mm can be treated dependent on water flow. Nitofill WS60 is not designed as a permanent solution to water movement and must be used in conjunction with other means of permanently stopping the water flow. Other injection resin systems such as Nitofill UR63, Nitofill EPLV\*†, should be considered. Consult the local Fosroc office for further details.

# Fosroc Nitofill WS60

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## Instructions for use

Nitofill WS60 can be applied using either injection packers fixed into holes drilled directly into the crack or drilled diagonally from concrete adjacent to the crack or by the fixing of injection nipples bonded to the surface using Nitomortar FC\*†.

On wide cracks and where there is a large flow of water the use of Renderoc Plug\*†, a rapid setting cement based, water-stopping mortar, should be considered for initial control of water.

## Preparation

If water flow permits, clean the surface adjacent to the cracks and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae.

### *Fixing injection packers*

The injection packers inserted into pre-drilled holes shall be fixed at intervals along the length of each crack. The distance between each packer will depend upon the width and depth of the crack. Spacing shall be close enough to ensure that the resin will penetrate along the crack to the next point of injection. This will normally be between 200mm and 500mm.

Where practical the surface of the cracks between the packers shall be sealed with a band of Nitomortar FC, 30 to 40 mm wide and 2 to 3 mm thick. Both sides of any cracks which go all the way through a wall or slab shall be sealed this way. Please note: Where water flow is severe the Nitomortar FC application can be omitted.

In the case of a wall or slab which is cracked all the way through, packers shall be located on both sides with those at the back placed at midway points between those at the front.

Where applicable, the Nitomortar FC shall be allowed to cure for 8 hours at 35°C. At low ambient temperatures (5°C to 12°C) the curing time will be extended and the applicator shall ensure that the surface sealant has adequately cured prior to continuing.

One end of the injection hose shall be attached to the lowest packer on vertical cracks or to either end of horizontal cracks. Each crack shall be treated in a single, continuous operation. Sufficient material shall, therefore, be made ready prior to the commencement of the work.

### *Nitofill WS60 application*

Thoroughly mix the accelerator with the base resin. Take care to exclude moisture as much as possible and place in an enclosed container after mixing. There will be a skin on the surface but the liquid underneath will be satisfactory for use.

Nitofill WS60 should be used with standard injection equipment having closed containers. When flowing water has stopped re-inject with Nitofill UR63 to give a permanent seal.

### *Making good*

Remove the packers or nipples. Make good any holes or voids with Nitomortar FC and allow to cure. The Nitomortar FC can be ground off or softened with a blow lamp and peeled off. Do not allow to burn.

## Cleaning

Nitofill WS60, Renderoc Plug and Nitomortar FC should be removed from tools, equipment and mixers with Fosroc Solvent 102 immediately after use. Hardened material can only be removed mechanically.

## Limitations

Nitofill WS60 is only to be used for temporary water-stopping. It should not be relied upon for permanent sealing. At high water pressures, on wide cracks Nitofill WS60 may not be capable of stopping water and the local Fosroc office should be consulted. If any doubts arise concerning temperature, application or substrate conditions, consult the local Fosroc office.

## Technical support

Fosroc offers a comprehensive technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

# Fosroc Nitofill WS60

## Estimating

### Supply

Nitofill WS60	:	1 litre, 20 litre packs
Nitomortar FC	:	1 and 4 litre packs
Renderoc Plug	:	10 kg bags
Fosroc Solvent 102	:	5 litre cans

## Storage

### Shelf life

All products have a shelf life of 6 months at 20°C if kept in a dry store in the original, unopened containers.

### Storage conditions

Store in dry conditions in the original, unopened containers. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced to 2 to 3 months. Avoid storage of material under direct sunlight.

## Precautions

### Health and safety

Nitofill WS60 contains isocyanate. May cause sensitisation by inhalation. Nitomortar FC, and Fosroc Solvent 102 should not come in contact with skin or eyes, or be swallowed. During use avoid contact with skin and eyes and inhalation of vapour. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye/face protection. Use only in well ventilated areas, if working in confined areas, suitable respiratory protective equipment must be used.

The use of barrier creams provide additional skin protection. Should accidental skin contact occur, remove immediately with a resin removing cream followed by soap and water. **Do not** use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed seek medical attention immediately - **do not** induce vomiting.

Renderoc Plug contains cement powder which when mixed or becomes damp releases alkalis which can be harmful to skin. During use avoid inhalation of dust and contact with skin and eyes. Wear suitable protective clothing, gloves and eye/face protection.

The use of barrier creams provide additional skin protection. Should accidental skin contact occur, remove immediately with a resin removing cream followed by soap and water. **Do not** use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed seek medical attention immediately - **do not** induce vomiting.

### Fire

Nitofill WS60, Nitomortar FC and Renderoc Plug are non-flammable.

Fosroc Solvent 102 is flammable. Keep away from sources of ignition. No smoking. In the event of fire extinguish with CO<sub>2</sub> or foam. Do not use a water jet.

### Flash points

Fosroc Solvent 102	:	33°C
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For further information, refer to the Product Material Safety Data Sheet.

# Fosroc Nitofill WS60

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## Additional Information

Fosroc manufactures a wide range of complementary products which include :

- waterproofing membranes & waterstops
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following :

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.

\* Denotes the trademark of Fosroc International Limited

† See separate data sheet



## Al Gurg Fosroc Co. LLC

Post Box 657, Dubai  
United Arab Emirates  
[www.fosroc.com](http://www.fosroc.com)

### Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Service. **All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.**

### Head Office

telephone: (+9714) 2039699

fax: (+9714) 2859649

email: [agf@fosroc.com](mailto:agf@fosroc.com)

### Regional offices

Abu Dhabi, Al Gurg Fosroc  
Bahrain, YBA Kanoo  
Kuwait, Boodai  
Oman, Al Amana

telephone: 673 1779  
telephone: 17738200  
telephone: 4817618  
telephone: 24815080

fax: 673 1449  
fax: 17732828  
fax: 4832124  
fax: 24817554

email: [abudhabi@fosroc.com](mailto:abudhabi@fosroc.com)  
email: [bahrain@fosroc.com](mailto:bahrain@fosroc.com)  
email: [kuwait@fosroc.com](mailto:kuwait@fosroc.com)  
email: [oman@fosroc.com](mailto:oman@fosroc.com)

