

Flexible polyurethane injection resin system

Uses

For injecting into cracks in concrete or masonry, either wet or dry to form an elastic seal. When used in conjunction with Nitofill WS60*† provides an effective system for crack sealing in wet conditions.

Advantages

- Low viscosity allows penetration into the finest cracks
- Good adhesion to dry or moist substrate
- Flexible to withstand differential movement
- Tough to stand up to high hydrostatic pressures
- Cures to an impermeable mass

Description

Nitofill UR63 is a two part solvent-free, low viscosity polyurethane resin system. When mixed in the proportions supplied reacts to form a tough, slightly flexible resin. Nitofill UR63 has a good adhesion to concrete and masonry and when injected into cracks it allows some movement without loss of bond.

Used in conjunction with Nitofill WS60 forms a permanent seal in cracked concrete.

Specification

Water-stopping crack injection resin

The flexible, low viscosity, polyurethane, crack injection resin system shall be Nitofill UR63, a two part solvent-free liquid polyurethane. When mixed in the proportions supplied and injected into cracks in concrete, the resin shall form a slightly flexible and impermeable barrier in both dry and damp conditions.

When used in conjunction with Nitofill WS60, a foaming 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
Pot life	: 40 minutes @ 25°C
ASTM D 2471-99	15 minutes @ 35°C
Reaction time	: 95 minutes @ 20°C 55 minutes @ 35°C
Viscosity	: 3.6 poise @ 20°C
ASTM D 2196-2005	1.0 poise @ 35°C
Specific gravity	: 1.067 @ 25°C
ASTM D1475-98	
Gel time	: 25 minutes @ 35°C
ASTM D 2471-99	60 minutes @ 25°C

Design criteria

Nitofill UR63 is designed to seal and bond cracks in concrete and masonry. Crack widths of between 0.2 mm and 10 mm can be treated dependent on requirements.

Nitofill UR63 is designed as a permanent solution and can be used in conjunction with Nitofill WS60 as a means of permanently stopping the water flow in cracked concrete. Consult the local Fosroc office for further details.

Fosroc Nitofill UR63

Instructions for use

Nitofill UR63 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*.

Preparation

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae.

The surface should preferably be prepared using high pressure water jetting or light abrasive blasting, followed by thorough washing to remove dust and remaining particles. Dirt alone may be removed with wire brushes or similar mechanical means.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should be assessed by a pull-off test.

Blow the cracks and treated surface with oil free air to ensure complete removal of all dust and loose particles. Ensure that the surfaces are blown dry.

In the presence of running water the flow must be stopped using Nitofill WS60 which produces a rapid setting water-stopping foam. When the water is stopped the cracks are re-injected with Nitofill UR63.

All cracks must be sealed and injection packers or nipples located in place before Nitofill UR63 is injected.

Fixing injection packers

The injection packers shall be inserted into pre-drilled holes 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 200 mm to 500 mm.

The surface of the cracks between the packers shall be sealed with a band of Nitomortar FC, 30 to 40mm 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 in this way. In the case of a wall or slab 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.

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 the 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 UR63 application

Thoroughly mix the entire hardener and base resin contents until the liquid becomes clear.

Nitofill UR63 should be used with standard injection equipment having closed containers. The injection pressure should be at least 0.4N/mm² (4 bar).

Only mix sufficient resin that can be used within the pot life of the material.

Making good

Remove the packers and 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 UR63 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.



Fosroc Nitofill UR63

Limitations

Nitofill UR63 is only to be used in dry or damp concrete or masonry, if contact with running water is expected the associate product Nitofill WS60 should be considered.

The minimum application temperature is 5 deg C.

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.

Estimating

Supply

Nitofill UR63	:	1 litre, 20 litre packs
Nitomortar FC	:	1 and 4 litre packs
Fosroc Solvent 102	:	5 litre packs

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. Avoid storage of material under direct sunlight.

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.

Precautions

Health and safety

Nitofill UR63 contains isocyanate which may cause sensitisation by inhalation. During use avoid contact with skin and eyes. Ensure adequate ventilation and avoid inhalation of vapours.

Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye/face protection. 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. Use only in well ventilated areas. In cases of insufficient ventilation wear suitable respiratory protection.

Fire

Nitofill UR63 and Nitomortar FC are non-flammable.

Fosroc Solvent 102 is flammable. Keep away from sources of ignition. No smoking. In the event of fire extinguish with CO₂ 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 UR63

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

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

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
email: bahrain@fosroc.com
email: kuwait@fosroc.com
email: oman@fosroc.com

