



CONSTRUCTION CHEMISTRY

Expangrout WS60

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 Expangrout 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-inject able with Expangrout UR63 to form permanent seal

Description

Expangrout 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 Expangrout 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 Expangrout 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 ± 0.06 ; foam density of 0.025.

When used in conjunction with Expangrout 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
Pot life in the absence of water	: 6-8 hours @ 20°C 3-4 hours @ 35°C
Reaction time with water	: 5 - 30 seconds dependent on temperature
Specific gravity	: 1.14 ± 0.06
Density of foam	: 0.025 g/cc
Viscosity	: 2 - 3 poise @ 20°C

Design criteria

Expangrout 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.

Expangrout 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 Expangrout UR63, Expangrout EPLV* , should be considered. Consult the local Fospak office for further details.



CONSTRUCTION CHEMISTRY

Instructions for use

Expangrout 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 Expanmortar FC.

On wide cracks and where there is a large flow of water the use of Expanmortar 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 Expanmortar 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 Expanmortar 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 Expanmortar 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.

Expangrout 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.

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

Making good

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

Cleaning

Expangrout WS60, Expanmortar Plug and Expanmortar FC should be removed from tools, equipment and mixers with Fospak Solvent 102 immediately after use. Hardened material can only be removed mechanically.

Limitations

Expangrout 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 Expangrout WS60 may not be capable of stopping water and the local Fospak office should be consulted. If any doubts arise concerning temperature, application or substrate conditions, consult the local Fospak office.

Technical support

Fospak 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.



CONSTRUCTION CHEMISTRY

Estimating

Supply

Expangrout WS60	:	1 liter pack
Expanmortar FC	:	1 and 4 liter packs
Expanmortar Plug	:	10 kg bags
Fospak Solvent 102	:	5 liter 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.

Precautions

Health and safety

Expangrout WS60 contains isocyanate. May cause sensitization by inhalation. Expanmortar FC, and Fospak 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.

Expanmortar 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

Expangrout WS60, Expanmortar FC and Expanmortar Plug are non- flammable.

Fospak 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

Fospak Solvent 102	:	33°C
--------------------	---	------

For further information, refer to the Product Material Safety Data Sheet.



CONSTRUCTION CHEMISTRY

Additional Information

Fospak manufactures a wide range of complementary products which include:

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

Fospak additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fospaks 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 Fospak office - as below.

* Denotes the trademark registered

REGIONAL SALES OFFICES IN PAKISTAN:

Fospak (Pvt) Ltd.

Head Office

702, Business Avenue,
Block-6, PECHS.
Shahra-e-Faisal,
Karachi, Pakistan
Tel # +92-21-4528477, 4529859
Fax # +92-21-4522436
Email info.khi@fospak.com.pk

Lahore Sales Office

2nd Floor Sarwar Shaheed Plaza,
Cavalry Ground,
Main Boulevard,
Lahore Cantt, Lahore.
Tel # +92-42-6675773
Fax # +92-42-6675838
Email info.lhr@fospak.com.pk

Rawalpindi Sales Office

1st Floor, Al-Harmain Plaza,
Main Murree Road,
Rawalpindi
Tel # +92-51-9290592
Fax # +92-51-9290590
Email info.isb@fospak.com.pk