Expangrout* PU100

Water swellable polyurethane injection grout

Uses

For injecting into cracks in concrete or masonry, either wet or dry to form an elastic seal, and provides an effective system for cracks sealing in wet conditions, and suitable for the injection in defective or honeycombed concrete, concrete joints, cavities in rock or brick construction, pipe intrusions, tunnels and dam, sewers, manholes, waste water tanks etc.

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

Expangrout PU100 is a hydrophilic water cut-off grout based on aliphatic polyurethane, the gel-time of the product is adjustable by the adding a certain percentage of Expangrout PU150 Accelerator.

Upon contact with water Expangrout PU100 reacts to foam while expanding its volume 20 – 30 times.

Unique property of Expangrout PU100

The ***cured material*** is semi-flexible foam and will ***swell/expand*** by up-to ***300%*** of their original dimensions to foam a compression seal in contact with water. So activity of water-stop is more effective.

Expangrout PU100 is extremely well suited for filling of large cavernous spaces and cracks in stone or concrete structures as well as for cutting off running water.
Due to the low viscosity of the material, Expangrout PU100 offers superior penetration in hairline crack injection.

Properties

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

Components	**PU100**	**PU150 Accelerator**
Appearance	Light Yellow	Clear Liquid
Viscosity (cps @ 25 °C)	1,000 ±300	20 - 30
Density (@ 20 °C)	1.065 ±0.015	0.93

Accelerator Ratio

Reaction Properties				
PU150 (w/w %)	0	0.20	0.50	1.0
Cream time (sec)	20-30	15-20	8-10	4-6
Gel time (sec)	120-140	80-90	60-70	50-60
Cure time (min)	5.00	3.50	2.50	2.00

Addition of Expangrout PU150 Accelerator

Depending on the amount of accelerator added and the pressure of injection, Expangrout PU100 reacts to a very dense, closed cell, semi flexible material.

Instructions for use

Expangrout PU100 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 EPFC(B).

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 Expangrout PU100 with 1% PU150 Accelerator which produces a rapid setting water-stopping foam. When the water is stopped the cracks are re-injected with Expangrout PU100.

All cracks must be sealed and injection packers or nipples located in place before Expangrout PU100 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 Expanmortar EPFC(B), 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 Expanmortar EPFC(B) shall be allowed to cure for 6 - 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.

Expangrout PU100 application

Expangrout PU100 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 Expanmortar EPFC(B) and allow to cure. The Expanmortar EPFC(B) can be ground off or softened with a blow lamp and peeled off. Do not allow to burn.

Cleaning

Expangrout PU100 and Expanmortar EPFC(B) should be removed from tools, equipment and mixers with Fospak Solvent 102* immediately after use. Hardened material can only be removed mechanically.

Limitations

Expangrout PU100 is only to be used in dry or damp concrete or masonry, if contact with running water is expected the associate product Expangrout PU100 with Expangrout PU150 Accelerator should be considered. 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.

Estimating

Supply	
Expangrout PU100	: 20 kg. can
Expangrout PU150 Accelerator	: 1 kg can
Expanmortar EPFC(B)	: 1 kg. pack
Fospak Solvent 102	: 5 liter can

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 PU100 contains isocyanate which may cause sensitization by inhalation. During use avoid contact with skin and eyes. Ensure adequate ventilation and avoid inhalation of vapors.

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 provides 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 protective clothing.

Fire

Expangrout PU100 and Expanmortar EPFC(B) are non-flammable.
Fospak Solvent 102 is flammable. Keep away from sources of ignition. No smoking. In the event of fire extinguish with CO_2 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.

Additional Information

Fospak manufactures a wide range of complementary products which include:

- waterproofing membranes & waterstop
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialized flooring materials

Fospak additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. 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**

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