Fosroc® Polyurea WPW

constructive solutions

Fast setting, pure polyurea elastomeric waterproof coating for clean drinking water applications

Description

Fosroc Polyurea WPW is a spray-applied, 100% solids, flexible, two-component, rapid curing pure Polyurea system, designed as a waterproofing and protective coating. It combines the advantages of seamless coating with very long life cycles and high durability.

Fosroc Polyurea WPW system offers excellent surface properties and overall physical properties.

Uses

Anti-corrosion, waterproof and protective coating for the internal linings of potable water containment structures.

Advantages

- Environment friendly – 100% solids
- Approved for use in potable water containment structures
- Very fast cure
- Seamless and monolithic, including field joints
- Significantly enhances the durability of reinforced concrete

Specification

Where mentioned in the contract drawings, the protective and waterproofing coating shall be Fosroc Polyurea WPW, a 100% solids, flexible, two component, rapid curing pure Polyurea coating system providing high corrosion resistance, abrasion and thermal shock resistance. The material shall have a valid WRAS certificate for use in direct contact with drinking water up to 60ºC.

Certification

WRAS (Water Regulations Advisory Scheme) Listing Number 1709552 for use with clean drinking water up to 60ºC.

WRAS APPROVED MATERIAL

Properties

Typical Physical properties at 23ºC

Solids by Volume	:	100%
Tensile strength ASTM D412	:	> 14 MPa
Tear Resistance ASTM D624C	:	> 55 N/mm
Elongation ASTM D412	:	> 300%
Shore A ASTM D2240	:	88
Shore D ASTM D2240	:	24
Abrasion (1kg,CS10 wheels) ASTM D4060	:	28 mg /1000 cycles
Abrasion (1kg,CS17 wheels) DIN EN ISO 5470	:	40 mg /1000 cycles
Static Crack Bridging, 8mm 10 cycles, ASTM C836	:	Pass

Clarification of property values

The typical physical properties given above are derived from independent verified testing of Fosroc Polyurea WPW spray-applied with Probler P2 gun in controlled laboratory environment and tested after a minimum of 14 days cure. Results derived from testing field-applied samples may vary dependent on circumstances beyond our control such as the type and condition of equipment utilised, static and dynamic working pressures, application temperatures and weather conditions, film thickness, test and curing conditions and age of samples tested. A water sinking test must be carried out and a “pass” achieved (sample sinks in water) prior to starting spray works.

Processing parameters

Fosroc Polyurea WPW must be applied using a plural 2-component, hot spraying equipment.

Block Temperatures		
Component A	:	+68ºC
Component B	:	+70ºC
Hose Temperature	:	+67ºC
Mix Ratio Weight	:	A 100 to B117
Volume ratio	:	1 : 1
Pressure	:	140 bar
Time to service (water fill)	:	24 hours *

*after appropriate cleaning of the surface with water and mild detergent and thorough rinsing with water

Temperature and humidity conditions:
Air temperature should be between +5ºC and +50ºC. Relative air humidity should be < 85%. Higher humidity levels do not prevent correct polymerization but may make adhesion increasingly difficult to substrates due to the potential for condensation on surfaces.

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Project Log
A Project Log should be maintained for each polyurea site application.

Instructions for use

Surface preparation

All surfaces must be clean, dry and free from contamination. Metal surfaces must be assessed and treated in accordance with ISO 8504.

Concrete
Dry abrasive blasting, wet abrasive blasting, vacuum-assisted abrasive blasting, and centrifugal shot blasting, as described in ASTM D4259, may be used to remove contaminants, laitance, and weak concrete, to expose blow holes, and to produce a sound concrete surface with adequate profile and surface porosity. All blow holes and minor surface imperfections shall be filled with recommended filler prior to application of Primer.

Bare Steel
All welding seams must have a surface finish which ensures that the quality of the paint system will be maintained in all respects. Holes in welding seams, undercuts, cracks, etc. must be avoided. If found, they must be remedied by welding and/or grinding. All weld spatters must be removed. All sharp edges must be removed or rounded off in such a way that the specified film thickness can be built-up on all surfaces. The radius of the rounding must be minimum 2 mm.
The steel must be of first class quality and must not have been allowed to rust more than corresponding to grade B of ISO 8501-1:2007. Any laminations must be removed.
Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85µm, Ry5) (ISO 8503-2).

Priming

Following correct preparation, the substrate must be primed. For sound, dry concrete and at ambient/substrate temperatures of ≥10^{0}C, prime using Fosroc Nitoprime 31. If this condition or concrete substrate condition is not met (see Limitations), then Fosroc Primer 195 must be used. For steel surfaces use Primer 195, for other surfaces consult Fosroc for advice.
For concrete, suggested application rate is 0.25kg per m^2; for steel substrates, a suggested rate of 0.15kg per m^2. A broadcast of fire-dried sand is recommended for optimum adhesion properties, to give additional mechanical key.
The primer shall be allowed to become touch-dry prior to application of Fosroc Polyurea WPW.
The primer should not be allowed to come into direct contact with clean drinking water.

Spray Equipment

A high pressure spray proportioning machine/ spray gun for plural heated polyurea components such as those manufactured by GlasCraft or Graco should be used for this product, with a high quality spray gun such as Probler P2.

Estimating

Supply:

Fosroc Polyurea WPW	:188 litre drums Part A :188 litre drums Part B :18 litre drums Part A :18 litre drums Part B
Fosroc Nitoprime 31	
Metal containers	: check with Fosroc office
Fosroc Primer 195	
Metal containers	: 20kg packs
Fosroc Nitoprime 150	
Plastic containers	: 1 litre packs

Coverage:

Fosroc Nitoprime 31/ Fosroc Primer 195	: 0.25kg per m^2 (concrete) 0.15kg per m^2 (steel)
Fosroc Polyurea WPW	: 1.5 – 2.0 litres per m^2 (1.5 - 2.0mm thickness) depending on specification

Storage

Fosroc Polyurea WPW has a shelf life of 12 months if kept in a dry, air conditioned store between +5ºC and +30ºC in the original unopened containers. Any changes in colour have no negative effect on reactivity and physical properties of the coating.

Safety handling

Avoid contact with eyes and skin. Wear suitable protective clothing, gloves and eye/face protection at all times. Ensure adequate ventilation and avoid inhalation of vapour and aerosol. Use supplied air hood.
Fosroc Polyurea WPW, Fosroc Nitoprime 31, Fosroc Primer 195 may cause sensitisation.
In case of eye contact, first aid must be administered immediately. The eyes should be held open while flushing with a continuous low pressure stream of water for at least 15 minutes. Seek medical advice immediately. If swallowed, seek medical attention immediately - do not induce vomiting.
The use of barrier creams provides additional skin protection.
Refer to product safety data sheets for detailed information.

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Application

The client/ main contractor must be satisfied that the applicator has suitable equipment and expertise, and will follow the procedures detailed in this datasheet and in the Fosroc Polyurea Method Statement.
Do not dilute Fosroc Polyurea WPW, Fosroc Nitoprime 31 or Fosroc Primer 195 under any circumstances.
Normal recommended minimum applied thickness of Fosroc Polyurea WPW is 1.5mm, using cross-hatch spray pattern.
For field/day joints for applications >12 hours after the previous polyurea coating application, a Nitoprime 150 wipe is required, and allowed to dry prior to fresh polyurea application.
Nitoprime 150 should not be allowed to come into direct contact with clean drinking water.
Use appropriate non-solvent chemical for the flushing of equipment.
In the case of prolonged product storage prior to use, thoroughly mix the amine component with a drum mixer until a homogenous mixture and colour is obtained.

Limitations

Do not proceed with application if atmospheric relative humidity is >85% or if the surface temperature is <3ºC above the dew point.
Concrete substrate must have achieved at least 75% of its design strength. Concrete relative humidity must be ≤75%.
Do not proceed with application if the substrate temperature is, or is anticipated to be, <+5ºC during the application.
For work in exposed areas, do not proceed with application if precipitation is imminent.
If in doubt, contact Fosroc for advice.
Primer should not be allowed to come into direct contact with clean drinking water.
It should be noted that Fosroc Polyurea WPW is an aromatic polyurea; therefore, as with all aromatics, over a period of time significant colour change will occur if exposed to UV rays. This will not cause any negative effect on the physical properties of the product.

Technical support

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

Disposal Considerations

Cured Fosroc Polyurea WPW, cured Fosroc Nitoprime 31, cured Fosroc Primer 195 can be disposed of without restriction. The uncured Part A and Part B components should be disposed of according to local environmental laws and ordinances.
“Drip free” containers should be disposed of according to local environmental laws and ordinances.
Refer to safety data sheets for all relevant information on Fosroc Polyurea WPW, Fosroc Nitoprime 31, Fosroc Primer 195, Fosroc Nitoprime 150.

Information

Fosroc manufactures a wide range of complementary products which include :

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

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.

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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 Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification of information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it. For latest version of this datasheet please contact your local representative.