Polyurea WPT

constructive solutions

Fast setting, pure polyurea elastomeric waterproof coating

CE 1504-2

Uses

Waterproof and protective coating for concrete and steel in a wide range of environmental conditions.

Typical applications include:

- Below ground waterproofing
- Pipe/ Pipeline coating
- Tank coating
- Sewage treatment plant internal tank lining
- Terraces
- Aquarium lining
- Stadiums
- Landscape & water containment

Advantages

- Environment friendly - zero VOC
- Excellent chemical resistance, thermal stability and UV Resistance *
- Very fast turn-around time.
- Excellent impact, abrasion and puncture resistance
- Seamless and monolithic, including field joints
- Significantly enhances the durability of reinforced concrete
- Low permeability values
- Provides color stability when coated with Nitoproof UVR Topcoat or Nitoproof Aliphatic Top Coat **
- Fire resistance when coated with Nitoproof UVR Topcoat **

* see Chemical Resistance and Colour sections

** see Nitoproof UVR Topcoat data sheet.

Description

Fosroc Polyurea WPT 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 long life cycles and high durability. Fosroc Polyurea WPT consists of two main components.

The system offers excellent surface properties and overall physical properties.

For application and details, see Fosroc Polyurea Application Methodology.

Specification

Where mentioned in the contract drawings, the protective and waterproofing coating shall be Fosroc Polyurea WPT a 100% solids, flexible, two-component, rapid curing pure Polyurea coating system providing high corrosion resistance, abrasion, thermal and waterproofing resistance.

Properties

Solids by volume	%100
Colour	Grey
Initial cure	5 – 10 seconds
Walkable	2 minutes
Light trafficable	24 hours
Fully cured	2-3 days
Hardness	
Shore A (ASTM D2240)	95
Shore D (ASTM D2240)	43
Viscosity	
Component A	613 mPa.s
Component B	930 mPa.s
Density at 25°C	
Component A	1,19 g/ml
Component B	1,10 g/ml
Working temperature	-30°C - +100°C
Tensile strength	
ASTM D 412	> 20 MPa
Elongation	
ASTM D 412	> %380
Abrasion resistance (ASTM D4060)	
1 kg,CS17, 1000 rev	< 45 mg
1 kg,CS10, 1000 rev	< 25 mg
1 kg, H22, 1000 rev	< 100 mg
Tear strength	
ASTM D624C	75 ± 4 kN/m
Application instructions	
Mixing ratio	1 – 1 volume
Equipment temperature	> 70°C – 80 ^{0}C
Hose temperature	> 70°C – 80 ^{0}C
Equipment pressure	120 - 150 bar
Application temperature	+5°C - +35°C

Note: For high&low temperature working consult your local Fosroc Office.

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Clarification of property values

The typical physical properties given above are derived from independent verified testing of Fosroc Polyurea WPT spray-applied in accordance with the Fosroc Polyurea Method Statement 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 spraying

Chemical Resistance (ASTM D3912)

Methanol	NR
Gasoline	LR
Diesel	LR
Toluene	R
MBTE	NR
MBTE %5 / Petrol	LR
Motor Oil	LR
Hydraulic Oil	LR
2-Methybutane	R
Water at 25°C	R
Water at 82°C 14g	R
Sodium chloride %10 at 25°C	R
Sodium chloride %10 at 50°C 14g	R
Sugar %10	R
Sulphuric Acid %5	R
Sulphuric Acid %10	R
Hydrochloric acid %5	R
Hydrochloric acid %10	R
Phosphoric Acid %10	R
Ammonium Hydroxide %10	R
Ammonium Hydroxide %20	R
Sodium hydroxide %10	R
Sodium hydroxide %20	R
Sodium hydroxide %50	LR
Sodium hydroxide %1 at 50°C 14g	LR
Potassium Hydroxide %10	R
Potassium Hydroxide %20	R
Acetic Acid %10	LR

R: Recommended
LR: Restricted Strength Color Fading
NR: Not Recommended

All chemical resistance tests have been determined in a controlled laboratory environment and may be higher than those actually encountered. However, good maintenance procedures are required for successful results.

Project Log

A Project Log should be maintained for each polyurea site application. For details of Project Log requirements refer to the Fosroc Polyurea Method Statement.

Instruction for use

Surface preparation

The long term durability of any resin floor system is determined by the adhesive bond achieved between the flooring material and the substrate. It is most important therefore that substrates are correctly prepared prior to application.

New concrete floors

These should normally have been placed for at least 28 days and have a moisture content of less than 5%. Floors should be sound and free from contamination such as oil and grease, mortar and paint splashes or curing compound residues. Excess laitance deposits are best removed by light mechanical scabbling, grinding or grit/captive blasting followed by vacuum cleaning to remove dust debris.

Old concrete floors

A sound, clean substrate is essential to achieve maximum adhesion. As for new concrete floors dry removal of laitance deposits are best removed by light mechanical scabbling, grinding or grit/captive blasting. Oil and grease penetration should be removed by the use of a proprietary chemical degreaser or by hot compressed air treatment. Any damaged areas or surface irregularities should be repaired using one of the Nitoflor EU*† range products.

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).

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Priming

Following correct preparation, the substrate must be primed. For sound, dry concrete and at ambient/substrate temperatures of >10°C, prime using Fosroc Nitoprime 31, Nitoprime 52, Nitoprime UR T or Nitoprime UR DT. For steel surfaces use Fosroc Primer 195, for other surfaces consult Fosroc for advice.

Before applying the coating layer, the application of the primer should be cured. If the surface is extremely porous, a second primer layer may be required.

Sprey Equipment

A high pressure spray proportioning machine/ spray gun for plural heated polyurea components such as those manufactured by WIWA or Graco should be used for this product. A list of appropriate equipment is provided in the Fosroc Polyurea Method Statement.

Coloured top coat

If colour stability is required, a minimum 0.2mm film of Fosroc Nitoproof UVR Topcoat or Nitoproof Aliphatic Top Coat should be applied. See product data sheet.

Topcoat should be applied to the clean, dry Polyurea WPT surface typically 30 - 60 minutes after application of the polyurea, but within 48 hours. If >48 hours has elapsed since polyurea application, polyurea surface should be reactivated using a Fosroc Nitoprime 150 wipe and allowed to dry prior to application of Nitoproof UVR Topcoat. Refer to Fosroc Nitoproof UVR Topcoat product data sheet and Fosroc Polyurea Method Statement for further detail.

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 WPT, Fosroc Nitoprime 31 or Fosroc Primer 195 under any circumstances.

Normal recommended minimum applied thickness of Fosroc Polyurea WPT is 1.5mm, using cross-hatch spray pattern. However, 2.0mm-2.5mm range is recommended. The maximum thickness is 3.0mm. Applied product can be walked on carefully after approximately 2 minutes; is light duty trafficable (e.g. light foot traffic) after approximately 15-20 minutes, heavy duty trafficable after approximately 24 hours.

For temperatures below +5ºC, longer cure times must be anticipated – contact Fosroc for further advice.

When lapping new sprayed coat of Polyurea WPT to existing polyurea surface >12 hours after the existing polyurea surface was applied, a Fosroc Nitoprime 150 wipe is required, and allowed to become touch-dry prior to fresh polyurea application.

Packaging	
Polyurea WPT Component A	225 kg drum
Polyurea WPT Component B	200 kg drum
Nitoprime 31	14 kg packs
Primer 195	20 kg packs
Nitoprime PA-FS	2,5 kg packs
Nitoprime 150	1 lt tin
Nitoproof UVR Topcoat	10 kg packs
Nitoproof Aliphatic Top Coat	10 kg packs
Consumption	
Polyurea WPT	1,5 – 3,0 kg/m^2
Nitoprime 31	350 – 500 gr/m^2
Primer 195 steel	150 gr/m^2
Nitoprime PA-FS Concrete	220 gr/m^2
Nitoproof UVR Topcoat	300 gr/m^2 at 2mm
Nitoproof Aliphatic Top Coat	150 gr/m^2

Note1: Normal recommended coverage is 1.5 litres per m^2. 3.0 litres/m^2 rate is the maximum coverage rate for a single coat application.

Note2: Nitoproof UVR Topcoat should be applied as a minimum 0.2mm film, to achieve 100% opacity.

Cleaning

Sprey equipment has to cleaned according to the instructions of the producer company after use.

Limitations

Do not proceed with application if atmospheric relative humidity is >85% or if the surface temperature is <3°C above the dew point.

For a bonded polyurea coating application, 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 or the ambient temperature is, or is anticipated to be, <+5°C during the application.

For work in exposed areas, do not proceed with application if precipitation is imminent. If in doubt, contact Fosroc for advice.

It should be noted that Fosroc Polyurea WPT 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.

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Storage

Shelf Life

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

Disposal

Cured Fosroc Polyurea WPT, cured Fosroc Nitoprime 31, cured Fosroc Primer 195 and cured Nitoproof UVR Topcoat 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.

Precautions

Health and Safety

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 WPT, Fosroc Nitoprime 31, Fosroc Primer 195 and Fosroc Nitoproof UVR Topcoat 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

Fire

Nitoproof UVR Topcoat, Nitoproof Aliphatic Top Coat are 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.

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

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.

**** Denotes the trademark of Fosroc International Limited***

† See separate data sheet

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