Product Data Sheet

TRITON TWS-POLY S

Description

TWS – POLY S is a 2-component polyuria system for elastic membrane application with crack-bridging capability. It is an extra fast-curing system that can only be applied by plural component, heated spray proportioning equipment.

TWS – POLY S can be combined with different geotextiles to obtain on site applied, seamless liners.

Applications

- Waterproofing of concrete structures
- Roof waterproofing
- Sewage and wastewater treatment structures
- On-site applied liners
- Totally seamless secondary containment
- Ponds
- Landfills
- Tunnels
- Canals
- Dam repairs
- **TWS – POLY S** can be completed with an aliphatic polyurethane topcoat to ensure UV protection.

Properties

- Crack-bridging capability
- Highly elastic membrane
- Very fast curing, using plural-component spray proportioning equipment
- Can be pigmented for a choice of colours

Technical Data

Information on the Product before application

	Component A	Component B
Chemical description	Polyamine	Aromatic isocyanate prepolymer
Physical State	Liquid	Liquid
Packaging Note: Pigment is delivered in a third container. See Pigment Spray data sheet for specific details.	Metal container 185 kg	Metal container 211 kg
Flash Point	>100°C	>100°
Colour	Yellow (without pigment)	Yellow

Product Data Sheet

Density	**Temperature (°C)**	**Density (c/cm³)**	**Temperature (°C)**	**Density (g/cm³)**
	20	1.02	20	1.12
	60	1.01	60	1.10

Viscosity Approximate values, Brookfield	**Temperature (°C)**	**Viscosity (mPa.s)**	**Temperature (°C)**	**Viscosity (mPa.s)**
	20	600	20	2000
	30	200	30	1000
	50	60	50	400
	70	40	70	150

A/B ratio

A=100, B=117 by weight
A=100, B=100 by volume

Density and viscosity of the AB mixture

Fast polymerisation (see pot life data)

Colour

Dark yellow, but component A is pigmented by addition of pigment paste delivered with each kit of Triton TWS – Poly S

Pot Life

Gel time mixture A+B (20g)
4s at 25°C
3s at 60°C

Storage

Keep between 10° and 30°C

Use Before

12 months after manufacturing date

Information of the Final Product

Final State

Elastomeric solid membrane

Colour

Available Pigment Spray pastes are blue RAL 5015, grey RAL 7011. Tile Red, Beige RAL1001. Other pastes are available on request.

Gloss (60°)

80-85

Hardness
Shore, ISO 868

87A
35D

Mechanical Properties

Elongation (%)	**Tensile Strength (MPa)**
50	9.8
100	11
200	13
300	15.5
324	16.2

Maximum elongation: 324%
Tensile Strength: 16.2 MPa (UNE EN ISO 527-1/3)
Tear strength: 61.8 N/mm (UNE EN ISO 527-1/3)

Chemical resistance

Immersion test
(0 = not recommended, 5 = best)

Chemical	Conditions	Result
Water	15d, 80°C	5
Salt water (saturation)	15d, 80°C	5
Xylene	7d, 80°C	2
Ethyl acetate	7d, 80°C	1
Isopropyl alcohol	7d, 80°C	0
Sodium Hydroxide (40 g/L)	7d, 80°C	5
Hydrogen peroxide (33%)	7d, 25°C	4
Sulphuric acid (10%)	7d, 80°C	5
Sulphuric acid (30%)	30d, 80°C	4
Bleach	7d, 80°C	4
Ammonia (3%)	7d, 80°C	5
Diesel	16d, 80°C	5
Hydrochloric acid 12M (37%)	7d, 80°C	0
Hydrochloric acid 6M (18%)	7d, 80°C	1
Hydrochloric acid 3M (9%)	7d, 80°C	4
Hydrochloric acid 0.75M (2%)	7d, 80°C	5
Sodium hypochlorite 15%	7d, 80°C	4
Engine oil	7d, 80°C	5
Crude petroleum	21d, 20°C	5
Sulfamic acid 85%	7d, 60°C	4

Adhesion strength

Surface	Adhesion strength (MPa)
Concrete (with epoxy primer)	4.0
Plywood (with epoxy primer)	1.6 (cohesive wood failure)
Steel (with PU Primer)	5.0

UV Adhesion

TWS – POLY S is an aromatic isocyanate based product. A colour change is to be expected under sunlight. This change does not affect its mechanical properties.
Additional UV protection can be provided with a colour topcoat.

Abrasion resistance

10mg (Taber, 1000 c. CS-10, 1kg)

Thermal resistance

Stable up to 180°C
According to low temperature tests, (UNE_EN 495-2001), the membrane can be folded at -45°C without cracking or breaks.

Indentation

TWS – POLY S gives at 2mm thickness, a resistance to indentation equivalent to a p4 level (approx. 25kg/cm²) at TH4 (90°C) as directed by EOTA guide ETAG 005.
The combined liner of **TWS – POLY S** and selected geotextiles gives a static indentation resistance higher than 4000 kN (UNE-EN ISO 12236:2007)

Product Data Sheet

Application Guidelines

Support requirements

In order to achieve good penetration and bonding, support must be:
Flat and levelled
Compact and cohesive (pull off test must show a minimum resistance of 1.4 N/mm2).
Even and regular surface
Free from cracks and fissures. If any, they must be previously repaired. Clean and dry, free of dust, loose particles, oils, organic residues or laitance

Support temperature must be between 10°C and 40°C.
Support moisture must be less than 4%

Temperature and humidity conditions

Air temperature should be between 10°C and 40°C. Relative air humidity should be less than 85%.

Support preparation

Concrete substrates must be prepared mechanically using high pressure sand or abrasion, in order to remove the surface and obtain an open pore. Substrates must be primed and levelled until a regular surface is obtained. Sharp irregularities are eliminated using an abrading disc machine.
Eliminate all dust and loose particles from the substrate by brushing or vacuum cleaning. If underlying moisture is suspected, it is recommended to apply 2 coats of epoxy primer, the second one with quartz sand spread over.

Mixing

Stir and homogenise separately both components using suitable mixing equipment before loading into the machine. Add the required pigment paste to the A-component and stir before loading. Recirculate both components while heating up to the required application temperatures.

Application and recommended quantities

TWS – POLY S must be applied using plural component heated spray proportioning equipment.

Recommended temperatures:
Component A: 55-65°C
Component B: 65-70°C

Pressure must be adjusted to 140 bar.

During spraying, check coating thickness to ensure curing evolution is correct.

TWS – POLY S is applied at 1.5-2.0 kg/m², obtaining a 1.5-2.0mm thickness.

Curing Time

TWS – POLY S cures to touch a few minutes after application
Approximate hardness values are provided here as reference

only (1mm polypropylene support, 25°C 50% RH)

Time	Hardness Shore A
5min	28
10 min	40
20 min	55
1 hrs	70
24 hrs	80
4 days	88

Re-Coating

It is recommended to obtain the desired thickness with a single application. If a second coat is necessary, spray it immediately after the first one.

Where an epoxy primer has been previously applied, spray **TWS – POLY S** only after the primer is fully cured.

Return to service

Under most conditions (25°C, 50 RH), the membrane is rain-resistant after 10 minutes.

Cleaning and maintenance

All maintenance work must be carried out regularly on the treated roofs according to the intended use.

This work includes the following tasks:

- Leaf removal
- Grass, dirt, moss and other vegetation removal
- Keep storm water system in good working order
- Ensure gratings are in place, in order to prevent gutter obstructions.
- Check proper condition of several structures (flashing, seams, etc.)
- Verification of possible damage due to improper use

If aesthetic appearance of the roof is an important issue, it is essential to regularly clean the surface with water (some mild detergent may be added), according to the use.
It may be necessary to reapply decorative layers if they are worn out due to traffic, weather, corrosion, etc.
For stain removal, a surface treatment with suitable solvent or isopropyl alcohol may be attempted. Strong acids are totally inadequate. Some solvents may damage the membrane. If this happens, the affected area has to be cut and repaired with a new **TWS – POLY S** application.

Safety

Component B of **TWS – POLY S** contains isocyanates and Component A contains corrosive polyamines that can cause burns. Always follow the safety instructions in the Material Safety Data Sheet. As a general rule, good ventilation, protective clothing and respiratory protection is needed (combined organic vapour filters+particles A2P).

This product must be used only for the applications described here. This product is intended for industrial and professional use. It is not suitable for DIY-type applications.

Environmental Precautions

Empty containers must be handled with the same precautions as if they were full. Treat empty containers as hazardous waste, and transfer them to an authorised waste manager. If the containers still have some material left, do not mix with other product with no knowledge of potential dangerous reactions.

Component A and B may be mixed on a 1/1 ratio in order to get an inert material, but never do it in volumes larger than 5 litres in order to prevent a dangerous heat evolution.

For further information please contact:
Triton Systems Ltd
Units 3 – 5 Crayford Commercial Centre, Greyhound Way, Crayford, Kent DA1 4HF
Tel: 01322 318830 **Fax:** 01322 524017
Email: info@tritonsystems.co.uk
www.tritonsystems.co.uk