

PRODUCT DATA SHEET

Sikaplan® WT 2251-12 H

TRANSLUCENT SHEET WATERPROOFING MEMBRANE FOR TUNNELS AND BELOW GRUND STRUCTURES

DESCRIPTION

Sikaplan® WT 2251-12 H consists of a flexible polyolefin (FPO), (EVA-based), homogeneous translucent sheet membrane designed for waterproofing tunnel linings, and a non-woven polypropylene geotextile (felt), which is linearly fixed onto the membrane and serves as protection.

USES

The Product is designed for : Waterproofing of tunnels and below ground structures.

CHARACTERISTICS / ADVANTAGES

- Excellent thermal jointing properties
- Highly flexible, also in cold temperatures Strong crack bridging ability
- Fast and simple installation
- Optimized workability, thermally weldable
- Hand welding without extrusion seams
- Can be installed on damp and even wet substrates
- Transparency to indicate welding mistakes
- Optimized flexibility, tensile strength and multi-axial elongation
- Tested to relevant ASTM Standards
- 'Polymeric geosynthetic barrier for use in tunnels and underground structures. Fluid barrier.' according to EN 13491

PRODUCT INFORMATION

Packaging	Roll size 2.10 m (width) x roll length individual and as specified	
Appearance / Colour	Surface	Smooth
	Color	Translucent
Shelf life	5 years shelf life from date of production if stored properly in undamaged, unopened, original sealed packaging	
Storage conditions	Rolls must be stored in their original packaging, in a horizontal position and in cool and dry conditions. They must be protected from direct sunlight, rain, snow and ice, etc. Do not stack pallets of rolls during transport or storage.	
Effective Thickness	1.20 (- 5/+ 10%) mm	(EN 1849-2)
Mass per unit area	1.20 (- 5/+ 10%) kg/m ²	(EN 1849-2)

TECHNICAL INFORMATION

Resistance to Impact	Watertight at 500 mm drop height (500 g falling weight, Method A)	(EN 12691)
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Resistance to Static Puncture	2.30 (± 0.30) kN	(EN ISO 12236)				
Resistance to Root Penetration	Pass	(CEN/TS 14416)				
Tensile Strength	22.0 (± 5.0) N/mm2 (machine/ cross direction)	(ISO 527)				
Modulus of Elasticity in Tension	≤ 55 N/mm² (machine/ cross direction)	(ISO 527)				
Elongation	≥ 600%	(ISO 527)				
Burst Strength	≥ 50% (D=1,0 m)	(EN 14151)				
Tear Strength	≥ 65 kN/m (Method B, V= 50 mm/min)	(ISO 34-1)				
Foldability at Low Temperature	No cracks at - 40°C	(EN 495-5)				
Coefficient of Thermal Expansion	230 x 10 ⁻⁶ (± 50 x 10 ⁻⁶) 1/K	(ASTM D 696-91)				
Reaction to Fire	Class E	(EN ISO 11925-2)				
Resistance to Oxidation	90d/ 85°C) Change of tensile strength: ≤ 20% Change in elongation: ≤ 20%	(EN 14575)				
Microbiological Resistance	Change of tensile strength: ≤ 10% Change in elongation: ≤ 10%	(EN 12225)				
Permeability to Liquid Water	< 10 ⁻⁷ m3 x m ⁻² x d ⁻¹	(EN 14150)				
Service temperature	- 10°C min./+ 40°C max.					
Geotextile properties	Weight	300 g/m² (- 30 g/m²)	400 g/m² (- 40 g/m²)	500 g/m² (- 50 g/m²)	700 g/m² (- 70 g/m²)	(ISO 9864)
	Tensile strength, MD	≥ 20.0 kN/m	≥ 22.0 kN/m	≥ 27.0 kN/m	≥ 35.0 kN/m	(EN ISO 10319)
	Tensile strength, CMD	≥ 15.0 kN/m	≥ 18.0 kN/m	≥ 22.0 kN/m	≥ 25.0 kN/m	(EN ISO 10319)
	Puncture resistance, CBR	≥ 2300 N	≥ 3200 N	≥ 3600 N	≥ 5500 N	(EN ISO 12236)
	Thickness at specified pressure 2 kPa	2.0 mm ± 0.8 mm	2.5 mm ± 0.8 mm	3.0 mm ± 0.8 mm	5.5 mm ± 1.0 mm	(EN ISO 9863-1)

SYSTEM INFORMATION

System Structure

Ancillary products:

- Sikaplan® WT Disc
- Sikaplan® W Felt PP
- Sikaplan® WT Protection Sheet
- Sika Waterbar® WT
- SikaProof®-12 Anchor
- Sikaplan® WT Trumpet Flange

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

IMPORTANT CONSIDERATION

Installation works must only be carried out by Sika-trained contractors experienced in waterproof lining of tunnels and below-ground structures. Precautionary measures must be taken for installation

in wet conditions, at temperatures below +5 °C, and when the relative air humidity (RH) is more than 80%. The effectiveness of these measures must be proven. Fresh air ventilation must always be ensured, in compliance with all relevant local regulations.

The Sikaplan® WT 2251-12 is not UV-stabilized and cannot be installed on structures permanently exposed to sunlight and weathering.

At all block joints (stop-end formwork), membrane protection with an additional plain membrane strip of 50 cm installed over the waterproofing membrane is recommended.

ECOLOGY, HEALTH AND SAFETY

Users must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage, and disposal of chemical products, and contains physical, ecological, toxicological, and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

The profile of the shotcrete surface must not exceed a length-to-depth ratio of 5:1, and its minimum radius must be 20 cm. The shotcrete surface must not contain broken aggregates. Any leaks must be sealed with Sika® waterproof plugging mortar or drained using a Sika® FlexoDrain system.

Where necessary to achieve the desired profile or surface, apply a fine sprayed concrete layer on the shotcrete surface with a minimum thickness of 3–5 cm and aggregate diameter not exceeding 8 mm.

Steel components (girders, reinforcement mesh, anchors, etc.) must also be covered with a minimum of 4 cm of fine sprayed concrete. The shotcrete surface must be clean and free of loose stones, nails, wires, etc.

APPLICATION

IMPORTANT

Strictly follow installation and maintenance procedures

Strictly follow installation and maintenance procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

IMPORTANT

Ventilation in confined spaces

Always ensure good ventilation when applying the Product in a confined space.

For information on application, refer to the Sika Method Statement.

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Product Data Sheet

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LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users can always refer to the most recent version of the local Product Data Sheet for the relevant product, available on our website. The information in any downloaded version is valid as of the time of download.

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