BUILDING TRUST

PRODUCT DATA SHEET

Sikaplan® WT 2251-10 H

TRANSLUCENT SHEET WATERPROOFING MEMBRANE FOR TUNNELS AND BELOW GRUND STRUCTURES

DESCRIPTION

Sikaplan® WT 2251-10 H consists of a flexible polyolefin (FPO), (EVA-based), homogeneous translucent sheet membrane designed for waterproofing tunnel linings.

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 & JIS 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	1.00 mm (±0.1 mm)	(EN 1849-2) (JIS A 6008)
Mass per unit area	0.94 (- 5/+ 10%) kg/m²	(EN 1849-2)
Specific gravity	<0.94	(JIS K 6733)

TECHNICAL INFORMATION

Resistance to impact	Watertight at 500 mm drop height (500 g falling weight, Method A)	(EN 12224)
Resistance to static puncture	2.30 (± 0.30) kN	(EN ISO 12236)
Resistance to root penetration	Pass	(CEN/TS 14416)
Tensile strength	24.0 (± 5.0) N/mm² (machine/ cross direction) >16MPa	(ISO 527) (JIS K 6733)
Modulus of elasticity in tension	≤ 55 N/mm² (machine/ cross direction)	(ISO 527)
Elongation	≥ 600%	(ISO 527) (JIS K 6733)
Burst strength	≥ 50% (D=1,0 m)	(EN 14151)
Resistance to tear (nail shank)	≥ 65 kN/m (Method B, V= 50 mm/min) >50 kN/m	(ISO 34-1) (JIS K 6301)
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)
Chemical resistance	A (hydrolysis under acid conditions): Change in elongation: ≤ 10% B (hydrolysis under alkaline conditions): Change in elongation: ≤ 10% D (synthetic leachate water): Change in elongation: ≤ 10% % change in mass in Alkali condition : 0.7(+/-10%) - alkali	(EN 14414) (ISO 527) (JIS K 6733)
Resistance to weathering	Remaining tensile strength and elongation: ≥75% (350 MJ/m²)	(EN 12224)
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.	
Surface hardness	85 (+/- 10%)	(JIS K 6733)

SYSTEM INFORMATION

System structure	Ancillary products: ▪ Sikaplan® WT Disc ▪ Sikaplan® W Felt PP ▪ Sikaplan® WT Protection Sheet ▪ Sika Waterbar® WT

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 CONSIDERATIONS

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 2251-10 H 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 METHOD / TOOLS

The Sikaplan® WT 2251-10 H membrane is installed loose-laid and mechanically fastened in accordance with the Sika Method Statement for sheet waterproofing membrane installations (available separately upon request).
The jointing faces must be dry and free from contamination. For contaminated or soiled surfaces, follow the instructions for cleaning and preparation in the Sika Method Statement.
All membrane overlaps must be thermally jointed using a hand welding gun and pressure rollers or automatic heat welding machines with individually adjustable and electronically controlled welding temperatures (such as manual: Leister Triac PID; automatic: Leister Twinny S; semi-automatic: Leister Triac Drive). Thermal jointing parameters, such as speed and temperature, must be established through on-site trials prior to any thermal jointing works.

T-joints require specific preparation of the thermal jointing area. In the previously fabricated weld area, the overlaps must be carefully chamfered. For more detailed instructions, refer to the Sika Method Statement.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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 must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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