BUILDING TRUST

PRODUCT DATA SHEET

Sikaplan® WP 1100-31 HL2

Sheet waterproofing membrane for basements and tunnels

DESCRIPTION

Sikaplan® WP 1100-31 HL2 is a flexible, homogeneous sheet waterproofing membrane with a ≤ 0.2 mm thick signal layer, based on premium-quality polyvinylchloride (PVC-P).

USES

Waterproofing of tunnels and basement against water ingress

CHARACTERISTICS / ADVANTAGES

- High resistance to ageing
- Based on virgin material with consistent quality
- Without DEHP (DOP) plasticisers
- With thin signal layer to indicate damages
- Optimized flexibility, tensile strength and multi-axial elongation
- Elastic material behaviour
- High resistance to mechanical influences
- Flexible in cold temperatures
- Suitable for contact with acidic soft water and alkaline environments
- Resistant to root penetration and micro-organisms
- Optimized workability, thermally weldable
- Can be installed on damp and even wet substrates
- Temporary UV stability for installation
- Self-extinguishing in fire

APPROVALS / CERTIFICATES

- 'Polymeric geosynthetic barrier for use in tunnels and underground structures. Fluid barrier.' according to EN 13491, Declaration of Performance Nr. 0207042010003100001003, certified by notified factory production control certification body 1213, certificate of conformity of the factory production control 1213-CPR-028, and provided with the CE marking.
- 'Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet' according to EN 13967, Declaration of Performance Nr. 0207041010003100001003, certified by notified factory production control certification body 1213, certificate of conformity of the factory production control 1213-CPD-029, and provided with the CE marking.
- Certified acc. ÖBV/2012 'Richtlinie Tunnelabdichtung' (Tab. 4.6) and SIA 272/2009.
- Environmental safety certificate BBodSchV / M GeokE

PRODUCT INFORMATION

Packaging	Roll size	2.20 m (width) × roll length individual as specified
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.	
Appearance and colour	Surface Colour	smooth signal layer: yellow bottom layer: dark grey
Effective thickness	3.15 (-5 / +0 %) mm incl. signal layer	(EN 1849–2)
Mass per area	4.17 (- 5 / +10 %) kg/m²	(EN 1849–2)

SYSTEM INFORMATION

System structure	Ancillary Products: ▪ Sikaplan® WP Disc ▪ Sikaplan® W Felt PP ▪ Sikaplan® W Tundrain ▪ Sikaplan® WP Protection Sheets ▪ Sika Waterbar® WP for forming compartments, waterproofing of concrete joints and fixations ▪ Sikaplan® WP Tape

TECHNICAL INFORMATION

Resistance to impact	Watertight at 1250 mm drop height (500 g falling weight, Method A)	(EN 12691)
Resistance to static puncture	3.00 (± 0.30) kN	(EN ISO 12236)
Long term compression strength	Watertight at 7.0 N/mm² (50h)	(similar to SIA V280/14)
Tensile strength	17.0 (± 2.0) N/mm² (machine direction) 16.0 (± 2.0) N/mm² (cross direction)	(ISO 527)
Modulus of elasticity in tension	≤ 20 N/mm² (machine/ cross direction)	(ISO 527)
Tensile strain at break	≥ 300 % (machine/ cross direction)	(ISO 527)
Burst strength	≥ 80 % (D=1.0 m)	(EN 14151)
Service temperature	- 10 °C min. /+ 35 °C max.	
Ambient maximum temperature of liquids	+ 35 °C	
Foldability at low temperature	No cracks at -20 °C	(EN 495–5)
Chemical resistance	Saturated Limewash (Test Liquid 2) Reduction of tensile strength and elongation ≤ 20 % 5–6 % Sulfurous acid (Test Liquid 3)	(EN 14415) (23 °C / 90 d)

	Reduction of tensile strength and elongation	≤ 20 %	(EN 1847) (23 °C / 90 d)
	Foldability at low temperatures	No cracks at -20°C	
Behaviour after storage in warm water	Change of tensile strength	< 20 % (machine/ cross)	(SIA V280/13 and OEBV) (50 °C / 8 months)
	Change in elongation	< 20 % (machine/ cross)	
	Change of mass	< 4 %	
	Change of mass	< 10 %	(EN 14415) (70 °C / 360 days)
Resistance to oxidation	Change of tensile strength	≤ 10 %	(EN 14575) (90d/ 85 °C)
	Change in elongation	≤ 10 %	
Microbiological resistance	Change of tensile strength	≤ 15 %	(EN 12225) (16 weeks)
	Change in elongation	≤ 15 %	
Resistance to weathering	Remaining tensile strength and elongation:	≥ 75 % (350 MJ/m2)	(EN 12224)
Dimensional change after heat	< 2.0% (machine/ cross)		(EN 1107-2) (+80 °C / 6 h)
Reaction to fire	Class E		(EN 13501-1)(EN ISO 11925-2)

APPLICATION INFORMATION

Ambient air temperature	+5 °C min.

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 the waterproof lining of tunnels and belowground structures. Particular precautions must be taken in wet conditions, at temperatures below +5°C, and when the relative air humidity (RH) ismore than 80%. The effectiveness of these measures must be proven. Fresh air ventilation must always be ensured, especially when working (welding) in closed rooms and in accordance with all relevant local regulations.
The membrane is not resistant to permanent contact with bitumen, and some types of plastics other than PVC or Sika approved system components.For use over or adjacent to these materials, a separation layer of polypropylene geotextile (≥ 150 g/m²) is required.
The membrane is not UV stabilized and cannot be installed on structures permanently exposed to sunlight and weathering.

ECOLOGY, HEALTH AND SAFETY

REGULATION (EC) NO 1907/2006 - REACH

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in the product data sheet. Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0,1 % (w/w).

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

In-situ concrete: Clean, sound and dry, homogeneous, free from oils and grease, dust and loose or friable particles. Shotcrete: The profile of the shotcrete surface must not exceed a ratio of length to depth of 10:1 and its min. 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 with a Sika® FlexoDrain system. Where necessary to achieve the desired profile/surface, apply a fine sprayed concrete layer on the shotcrete surface with a min. thickness of 5 cm and aggregate diameter not exceeding 4 mm. Steel (girders, reinforcement mesh, anchors, etc.) must also be covered with a minimum 5 cm of fine sprayed concrete.
The surface of the shotcrete and fine sprayed concrete must be clean (no loose stones, nails, wires, etc.). A polypropylene geotextile (≥ 500 g/m²) or a compatible drainage layer must be installed prior to the Sikaplan® WP 1100-31 HL2 membrane installation.

APPLICATION METHOD / TOOLS

The Sikaplan® WP 1100-31 HL2 membrane is installed loose laid and mechanically fastened, or loose laid and ballasted as appropriate in accordance with the separate Sika Method Statement for sheet waterproofing membrane installations (available separately on request). The jointing faces must be dry and free from contaminations. For contaminated/soiled surfaces, follow the instructions for cleaning and preparation etc. in the Sika Method Statement. All membrane overlaps must be welded by using hand welding guns and pressure rollers or automatic heat welding machines, with individually adjustable and electronically controlled welding temperatures (such as the manual Leister Triac PID / automatic: Leister Twinny S / semi-automatic: Leister Triac Drive). Welding parameters, such as speed and temperature shall be established with trials on site, prior to any welding works. The execution of T-joints demands particular preparation of the weld area. In the previously fabricated weld area the overlaps must be chamfered carefully.

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 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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