BUILDING TRUST

PRODUCT DATA SHEET

Sikaplan® WP 1100-21 HL2

Sheet waterproofing membrane for Basements and Tunnels

PRODUCT DESCRIPTION

Sikaplan® WP 1100-21 HL2 is a flexible, homogeneous sheet waterproofing membrane with a ≤ 0.2mm thick signal layer, based on premium-quality polyvinylchloride (PVC-P).

USES

Waterproofing of tunnels and basements 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
- No seam preparation required
- Can be installed on damp and wet substrates
- Temporary UV stability for installation
- Self-extinguishing in fire

APPROVALS / STANDARDS

- 'Polymeric geosynthetic barrier for use in tunnels and underground structures. Fluid barrier.' according to EN 13491, Declaration of Performance Nr. 0207042010001500001003, 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. 0207041010001500001003, 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 Geok E

PRODUCT INFORMATION

Packaging	Roll size	2.20 m (width) × roll length individual as specified	
Appearance / Color	Surface	smooth	
	Colour	signal layer: yellow bottom layer: dark grey	
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 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	2.10 (-5 / +10 %) mm incl. signal layer		(EN 1849-2)
Mass per Unit Area	2.73 (-5 / +10 %) kg/m²		(EN 1849-2)

TECHNICAL INFORMATION

Tensile Strength	17.0 (± 2.0) N/mm² (machine direction) 16.0 (± 2.0) N/mm² (cross direction)		(ISO 527)(EN 12311-2)
Elongation at Break	≥ 300 % (machine/ cross direction)		(ISO 527)
Tensile Modulus of Elasticity	≤ 20 N/mm² (machine/ cross direction)		(ISO 527)
Burst Strength	≥ 80 % (D=1.0 m)		(EN 14151)
Resistance to Static Puncture	>2.5 kN		(EN ISO 12236)
Impact Strength	Watertight at 750 mm drop height (500 g falling weight, Method A)		(EN 12691)
Long Term Compression Strength	Watertight at 7.0 N/mm² (50 h)		(similar to SIA V280/14)
Low Temperature Bend	No cracks at -20 °C		(EN 495–5)
Dimensional Change after Heat	No blisters (+80 °C / 6 h) Dimensional change: < 2.0 % (machine/ cross direction)		(EN 1107–2)
Resistance to Oxidation	Change of tensile strength:	≤ 10 %	(EN 14575) (90 d/ 85 °C)
	Change in elongation:	≤ 10 %	
Behavior after Storage in Warm Water	Change of tensile strength:	< 20 % (machine/ cross)	(SIA V280/13) (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)
Chemical Resistance	Saturated Limewash (Test Liquid 2)		
	Reduction of tensile strength and elongation	≤ 20 %	(EN 14415) (23 °C / 90 d)
	5–6 % Sulfurous acid (Test Liquid 3)		

	Reduction of tensile strength and elongation	≤ 20 %	(EN 1847) (23 °C / 90 d)
	Foldability at low temperatures	No cracks at -20 °C	
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)
Reaction to Fire	Class E		(EN ISO 11925-2)(EN 13501-1)
Behavior after Heat Welding of Overlaps	Shear resistance of welded seam	Break occurs outside of seam	(EN 12317-2)
	Peel resistance of welded seam	≥ 6.0 N/mm	(EN 12316-2)
Service Temperature	- 10 °C/+ 35 °C max.		
Ambient Maximum Temperature of Liquids	+ 35 °C		

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 compartment, waterproofing systems and sealing joints in and fixings/terminations to the concrete ▪ Sikaplan® WP Tape

APPLICATION INFORMATION

Ambient Air Temperature	+5 °C min.

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 5:1 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 3-5 cm and aggregate diameter not exceeding 8 mm. Steel (girders, reinforcement mesh, anchors, etc.) must also be covered with a minimum of 4 cm fine sprayed concrete. The shotcrete surface 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 1100-21 HL2 membrane application.

APPLICATION METHOD / TOOLS

The Sikaplan® WP 1100-21 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. 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 heat welded 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 must 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.

LIMITATIONS

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 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 measurese 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 materials including bitumen, and some types of plastics other than PVC and 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.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, 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).

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: +1-800-933-7452
Fax: +1-201-933-6225
usa.sika.com

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537