

## PRODUCT DATA SHEET

# Sikaplan® WP 1100-20 HL AP

### SHEET WATERPROOFING MEMBRANE FOR BASEMENTS AND TUNNELS

#### DESCRIPTION

Sikaplan® WP 1100-20 HL AP is a flexible homogeneous sheet waterproofing membrane with a signal layer, based on premium quality polyvinyl chloride (PVC-P).

#### USES

Waterproofing of tunnels, basements and all kinds of below ground structures against water ingress.

#### CHARACTERISTICS / ADVANTAGES

- High resistance to ageing
- Based on virgin material with consistent quality
- Without DEHP (DOP) plasticizers
- With signal layer to indicate damages
- Optimized flexibility, tensile strength, and multi-axial elongation
- Elastic material behavior
- High resistance to mechanical influences
- Flexible in cold temperatures
- Suitable for contact with acidic soft water and alkaline environment

- 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
- High resistance to aging
- High tensile strength and elongation
- Resistance to natural aggressive mediums in ground water and soil
- Optimized workability, thermally weldable
- Suitable for installation on weak substrate
- Can be installed on damp and wet substrate

#### APPROVALS / STANDARDS

- CE Marking and Declaration of Performance to EN 13491 - Geosynthetic barriers - Fluid barrier in tunnels and associated underground structures
- Tested according to various EN standards

#### PRODUCT INFORMATION

<b>Packaging</b>	2.00 m (width) × roll length 15 m or individual as specified	
<b>Appearance / Colour</b>	<u>Surface</u>	<u>Smooth</u>
	<u>Colour</u>	Signal Layer: yellow Bottom Layer: dark grey
<b>Shelf life</b>	5 years shelf life from date of production if stored properly in undamaged, unopened, original sealed packaging.	
<b>Storage conditions</b>	Rolls must be stored in their original packaging, in a horizontal position in under cool and dry conditions. They must be protected from direct sunlight, rain, snow and ice, etc.	
<b>Effective Thickness</b>	2.00 (-5 / +10 %) mm incl. signal layer	(EN 1849-2)

<b>Straightness</b>	≤75mm / 10m	(EN 1849-2)
<b>Mass per unit area</b>	2.60 (-5 / +10 %) kg/m <sup>2</sup>	(EN 1849-2)

## TECHNICAL INFORMATION

<b>Tensile Strength</b>	17.0 (± 2.0) N/mm <sup>2</sup> (machine direction) 16.0 (± 2.0) N/mm <sup>2</sup> (cross direction)	ISO 527)(EN 12311-2)
<b>Elongation</b>	≥ 300 % (machine/ cross direction)	(ISO 527)
<b>Burst Strength</b>	Pass	(EN 14151)
<b>Resistance to Static Puncture</b>	2.35 (± 0.25) kN	(EN ISO 12236)
<b>Resistance to Impact</b>	Watertight at 750 mm drop height (500 g falling weight, Method A)	(EN 12691)
<b>Resistance to Static Load</b>	Pass	(EN12730:2015 Method A)
<b>Water Vapour Transmission</b>	20 000 (± 5000) μ (+ 23°C/ 75% r. h)	(EN 1931)
<b>Watertightness</b>	Pass (Method B, 24h/ 60 kPa)	(EN 1928:2000)
<b>Foldability at Low Temperature</b>	No cracks at - 35 °C	(EN 495-5)
<b>Tear Strength</b>	≥ 600 N (nail shank)	(EN 12310-1)
<b>Dimensional Change after Heat</b>	< 2.0% (+80 °C / 6 h)	(EN 1107-2)
<b>Durability of Watertightness against Ageing</b>	12 weeks	(EN 1296)
<b>Durability of Watertightness against Chemicals</b>	28d/+ 23°C	(EN 1847)
<b>Reaction to Fire</b>	Class E	(EN 13501-1) (EN ISO 11925-2)
<b>Behaviour after Heat Welding of Overlaps</b>	Shear resistance of welded seam	Break occurs outside of seam (EN 12317-2)
<b>Service temperature</b>	-10 °C / +35 °C max.	
<b>Ambient Maximum Temperature of Liquids</b>	+35 °C	

## SYSTEM INFORMATION

<b>System Structure</b>	<p>Ancillary Products:</p> <ul style="list-style-type: none"> <li>▪ Sikaplan® WP Disc</li> <li>▪ Sikaplan® W Felt PP</li> <li>▪ Sikaplan® W Tundrain</li> <li>▪ Sikaplan® WP Protection Sheets</li> <li>▪ Sika Waterbar® WP for forming compartment, waterproofing of concrete joints in and fixings/terminations to the concrete</li> <li>▪ Sikaplan® WP Tape</li> <li>▪ Sarnacol® 2152</li> <li>▪ Sikaproof® Adhesive</li> </ul>
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# 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 CONSIDERATION

- 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) of more 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 ( $\geq 150 \text{ g/m}^2$ ) 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 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 ( $\geq 500 \text{ g/m}^2$ ) or a compatible drainage layer must be installed prior to the Sikaplan® WP 1100-20 HL AP membrane installation.

### APPLICATION METHOD / TOOLS

The Sikaplan® WP 1100-20 HL AP) membrane is installed loose laid and mechanically fastened, or loose laid and ballasted as appropriate in accordance with the 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.

## 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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### Product Data Sheet

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