

# Sikaplan® WP 1140 – 20HL

## Sheet waterproofing membrane – Basement/Tunnel

<b>Product Description</b>	<b>Sikaplan® WP 1140-20HL</b> is a homogeneous sheet waterproofing membrane with a 0.6 mm thick signal layer, based on polyvinylchloride (PVC-P).
<b>Uses</b>	Waterproofing of basements, tunnels and other underground structures
<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ Resistant to ageing</li> <li>▪ Optimized tensile strength and elongation</li> <li>▪ UV-stable (350 MJ/m<sup>2</sup> acc. to EN 12224)</li> <li>▪ Resistant to root penetration</li> <li>▪ Dimensional stable</li> <li>▪ Without DEHP (DOP) plasticiser, based on virgin material</li> <li>▪ Flexible in cold temperatures</li> <li>▪ Heat weldable</li> <li>▪ Can be installed on wet and dry substrates</li> <li>▪ Suitable for contact with acidic soft water (low pH aggressive to concrete surfaces)</li> <li>▪ Resistant to natural aggressive mediums in ground water soil</li> <li>▪ Not bitumen resistant</li> </ul>
<b>Tests</b>	
<b>Standards / Approval</b>	Tested according to testing requirements of EN 13491 (tunnel) and EN 13967 (basement).
<b>Product Data</b>	
<b>Form</b>	
<b>Appearance / Colours</b>	Rolled sheet membrane, homogeneous. Surface: smooth Membrane thickness: 2.00 mm (incl. signal layer 0.60mm) Colour: signal layer: yellow / bottom layer: black
<b>Packaging</b>	Roll size: 2.10 m (roll width) x 20m (roll length) Unit weight: 2.66 kg/m <sup>2</sup>
<b>Storage</b>	
<b>Storage Conditions</b>	Rolls shall be stored in their original package, in horizontal position and under cool and dry conditions. They shall be protected from direct sunlight, rain, snow and ice, etc. The product does not expire during correct storage. Do not stack pallets of rolls during transport or storage.



## Technical Data

<b>Thickness</b>	2.0 (-5/+10%) mm	EN 1849 - 2
<b>Mass per unit area</b>	2.66 (-5 /+10%) kg/m <sup>2</sup>	EN 1849 - 2
<b>Straightness</b>	≤ 75 mm / 10 m	EN 1848 - 2
<b>Visible defects</b>	Pass	EN 1850 - 2
<b>Tensile strength</b>	Machine: 17(±2.0) N/mm <sup>2</sup> Cross: 16.5(±2.0) N/mm <sup>2</sup>	ISO R 527 – 1/3/5 ISO R 527 – 1/3/5
<b>Elongation</b>	Machine: ≥ 300% Cross: ≥ 300%	ISO R 527 – 1/3/5 ISO R 527 – 1/3/5
<b>Tear Strength</b>	Machine: ≥ 42 kN/m Cross: ≥ 42 kN/m	ISO 34 Method B; V=50 mm/min ISO 34 Method B; V=50 mm/min
<b>Resistance to tear (nail shank)</b>	≥ 500 N	EN 12310 – 1
<b>Static Puncture</b>	2.35 (± 0.25) kN	EN ISO 12236
<b>Resistance to Static load</b>	≥ 20 kg	EN 12730 (Method B, 24h / 20kg)
<b>Resistance to impact</b>	≥ 750 mm	EN 12691 : 2005
<b>Joint strength</b>	≥ 1100 N / 50mm	EN 12317 – 2
<b>Burst Strength</b>	≥ 50 %	EN 14151 D=1,0 m
<b>Thermal Expansion</b>	190x10 <sup>-6</sup> (±50x10 <sup>-6</sup> ) 1/K	ASTM D 696-91
<b>Low Temperature Behaviour</b>	≤ - 20 °C	EN 495-5
<b>Weathering</b>	Remaining tensile strength and elongation ≥ 75 %	EN 12224, 350 MJ/m <sup>2</sup> ; ISO 527-3/5/100
<b>Chemical Resistance</b>	A (hydrolyses under acid conditions) Change in elongation: ≤ 10 % B (hydrolyses under alkaline conditions): Change in elongation: ≤ 10 % D (artificial disposal water): Change in elongation: ≤ 10 %	EN 14414: 2004-08; ISO 527-3/5 EN 14414: 2004-08; ISO 527-3/5 EN 14414: 2004-08; ISO 527-3/5
<b>Water tightness to liquid water</b>	Pass	EN 1928 B (24h / 60kPa)
<b>Durability of water tightness against ageing</b>	Pass	EN1296(12weeks) EN 1928 B (24h / 60kPa)
<b>Durability of water tightness against chemicals</b>	Pass	EN 1847 (28d/+23 °C) EN 1928 B (24h / 60kPa)
<b>Accelerated ageing in an alkaline environment, tensile strength</b>	Pass	Appendix C ( 24 weeks / +90 °C) EN 12311 – 2
<b>Water vapour transmission</b>	18 000 μ ( +/- 5000)	EN 1931 (+ 23 °C / 75% r. h)
<b>Resistance to Root Penetration</b>	Pass	EN 14416:2002
<b>Reaction to Fire</b>	Class E	EN ISO 11925-2

## System Information

### System Structure

Ancillary products:

- Sikaplan® WP laminated metal for fixing pieces
- Sikaplan® WP Disc 80/10 mm for fixing pieces
- Sikaplan® W Felt PP
- Sikaplan® W Tundrain Typ A
- Sikaplan® WP Protection sheet
- Sika® Waterbars WP, Types AR and DR for fixing pieces and waterproofing concrete joints

## Application Details

### Substrate Quality

In-situ concrete:

Clean, sound and dry or wet, 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 shall be sealed with Sika® waterproof plugging mortar, or drained with Sika® FlexoDrain. 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 cleaned (no loose stones, nails, wires, etc.).

### Substrate Temperature

0°C min. / +40°C max.

### Ambient Air Temperature

+5°C min. / +40°C max.

For installation below +5°C ambient temperature, special measures for safety requirements may be required in accordance with relevant national regulations.

### Ambient max. Temperature of water

+30°C

## Application Instructions

### Application Method / Tools

Installation method:

Loose laid and mechanically fastened, or loose laid and ballasted in accordance with the separate Sika Method Statement for sheet waterproofing membrane installations.

All membrane overlaps shall be welded i.e. 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.

### REACH

**European Community Regulation on chemicals and their safe use (REACH: EC 1907/2006)**

This product is an article within the meaning 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. Therefore, there are no registration requirements for substances in articles within the meaning of Article 7.1 of the Regulation.

Based on our current knowledge, this product does not contain SVHC (substances of very high concern) from the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w).

### Protective Measures

Fresh air ventilation must be ensured, when working (welding) in closed rooms. Local safety regulations must be observed.

<b>Transportation Class</b>	The product is not classified as hazardous good for transport.
<b>Disposal</b>	The material is recyclable. Disposal must be according to local regulations. Please contact your local Sika sales organisation for more information.
<b>Notes on Application / Limitations</b>	<p>Installation works shall only be carried out by Sika® trained contractors, experienced in the lining of tunnels and underground structures.</p> <p>The membrane is not resistant to permanent contact with materials including bitumen, and plastics other than PVC; on these it requires a separation layer of geotextile (&gt; 300 g/m<sup>2</sup>).</p> <p><b>Sikaplan® WP 1140 – 20HL</b> is not suitable as sheet waterproofing membrane for basements or tunnels, when exposed to permanent water temperature exceeding + 30 °C and when exposed to polluted, or waste waters.</p> <p>The water tightness of the structure shall be tested and approved after completion of the membrane installation works according to the requirements of the client's specifications.</p> <p>The membrane is not UV stabilised and cannot be installed on structures permanently exposed to UV light and weathering (6 months <b>MAX</b>).</p>

<b>Value Base</b>	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.
<b>Health and Safety Information</b>	For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.
<b>Legal Notes</b>	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.

All products are manufactured under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.



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