

# Sikalastic®-821

## Liquid Applied Waterproofing Membrane

<b>Product Description</b>	<b>Sikalastic®-821</b> is a two part, elastic, crack-bridging, rapid-curing polyurethane membrane. <b>Sikalastic®-821</b> is for machine application only.
<b>Uses</b>	<ul style="list-style-type: none"><li>■ For use as a waterproofing membrane underneath hot poured asphalt on bridge decks</li><li>■ For use as a waterproofing membrane for other concrete structures and on non-trafficked concrete areas with an additional topcoat for UV-protection</li><li>■ For use as a waterproofing membrane on roofs with an additional topcoat for UV-protection</li></ul>
<b>Characteristics / Advantages</b>	<ul style="list-style-type: none"><li>■ Excellent crack-bridging properties</li><li>■ Highly elastic waterproofing membrane</li><li>■ Fast curing (application with 2-part hot spray equipment)</li></ul>
<b>Tests</b>	
<b>Approval / Standards</b>	Conforms to the requirements of ZTV-BEL-B, Part 3, 1995 edition. Certificate: P 1700-1; incl. shear bond test by the Polymer Institute Dr. Stenner GmbH. The primer Sikagard-186 complies with TL/TP-BEL-EP of ZTV-BEL-B 1/87 and TL/TP-BEL-EP of ZTV-BEL-B (1998 draft). Certificate: P 1678-1 by the Polymer Institute Dr. Stenner GmbH. Conforms to the requirements of DIN 4102, Part 7 "Fire behaviour of building materials and building components. Certificate: 16-29851 by Institute FMFA. Conforms to the requirements of DIN 4062, article 4.7. "Root resistance" Certificate: P 1829 by the Polymer Institute Dr. Stenner GmbH. Conforms to the requirements of EOTA: ETAG 005. Certificate: P 3086 by the Polymer Institute Dr. Stenner GmbH.
<b>External Supervision</b>	The Polymer Institute Dr. Stenner GmbH
<b>Product Data</b>	
<b>Form</b>	
<b>Appearance / Colours</b>	Resin - part A : grey or yellowish Hardener - part B : clear / brownish Grey ~ RAL 7005 or unpigmented (yellowish)
<b>Packaging</b>	Part A : 240 kg drum Part B : 195 kg drum



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## Storage

**Storage Conditions / Shelf Life** 9 months from date of production if stored properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5°C and +30°C.

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## Technical Data

<b>Chemical Base</b>	Polyurethane	
<b>Density</b>	Part A : ~ 1.302 kg/litre Part B : ~ 1.056 kg/litre Mixed resin : ~ 1.09 kg/litre All Density values at +23°C.	(DIN EN ISO 2811-1)
<b>Curing Speed / Rate</b>	From +8°C to +45°C substrate temperature: Start of setting phase after 20 - 25 seconds	
<b>Solid Content</b>	> 98%	
<b>Viscosity</b>	Part A: ~ 5400 - 8000 mPas Part B: ~ 6000 - 8800 mPas	
<b>Layer Thickness</b>	Minimum 2 mm	
<b>Water Vapour Diffusion Coefficient (<math>\mu\text{H}_2\text{O}</math>)</b>	$\mu = 2250$	(DIN EN 495-4)

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## Mechanical / Physical Properties

**Tensile Strength** ~ 4.8 N/mm<sup>2</sup> (28 days / +23°C) (DIN 53504)

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**Shore A Hardness** (DIN 53505)

	At +8°C	At +23°C
After 1 hour	43 - 46	44 - 50
After 24 hours	42 - 58	59 - 63
After 7 days	63 - 67	64 - 67
After 28 days	64 - 68	71 - 73

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**Elongation at Break** ~ 345% (28 days / +23°C) (DIN 53504)

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**Crack-Bridging Capacity** Dynamic crack-bridging properties of up to 0.3 mm at -20°C and static crack-bridging properties of up to 1.0 mm, even after the application of hot poured asphalt, artificial ageing and long term contact with bitumen.  
The indicated properties and characteristic values are not dependent on the curing temperature.

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## Resistance

**Chemical Resistance** **Sikalastic®-821** is generally resistant to:

- De-icing salts
- Bitumen
- Alkalis

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<b>Thermal Resistance</b>	<b>Sikalastic®-821</b> is short-term resistant to hot poured asphalt applied at up to max. +240°C. The elastic properties are maintained at temperatures down to -30°C.
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## System Information

<b>System Structure</b>	System for bridge decks with hot poured asphalt: Layer thickness: $\geq 2\text{mm}$ Primer : 1 - 2 x Sikagard-186, (lightly broadcast with quartz sand 0.4 - 0.7 mm) Waterproofing : 1 x <b>Sikalastic®-821</b> Tack-coat : 1 x Sikalastic-823 Asphalt : Hot poured asphalt
	Roofing-system, machine applied with UV- exposure: Layer thickness : $\geq 1.5 - 1.8\text{ mm}$ Primer: 1 x Sikafloor®-156, (lightly broadcast with quartz sand 0.4 - 0.7 mm) Waterproofing : 1 x <b>Sikalastic®-821</b> UV-protection: 1 x Sikalastic®-445
	System for structures without UV-exposure (non-trafficked): Layer thickness : $\geq 2\text{ mm}$ Primer : 1 x Sikafloor-156, (lightly broadcast with quartz sand 0.4 - 0.7 mm) Waterproofing : 1 x <b>Sikalastic®-821</b>
	The system configuration as described must be fully complied with and may not be changed.

## Application Details

### Consumption / Dosage

Coating System	Product	Consumption
Levelling-up (optional)	Sikagard®-186 levelling mortar: 1 pbw Sikagard®-186 2 pbw quartz sand 0.1 - 0.3 mm 1 pbw quartz sand 0.7 - 1.2 mm Lightly broadcast with quartz sand, 0.4 - 0.7 mm	$\sim 2.0\text{ kg/m}^2$ at a thickness of 1 mm    $1.0 - 1.5\text{ kg/m}^2$
Bonding bridge (by exceeding the max. waiting time, e.g. overlaps)	1x Sikalastic®-810 + 15 wt.-% Thinner C (Between <b>Sikalastic®-821</b> and <b>Sikalastic®-821/Sikalastic®-822</b> )	$0.05 - 0.09\text{ kg/m}^2$
System for bridge decks with hot poured asphalt	2x Sikagard®-186, lightly broadcast with quartz sand, 0.4 - 0.7 mm  1 x <b>Sikalastic®-821</b>  1 x Sikalastic®-823  1 - 2 x Hot poured asphalt	$0.3 - 0.5\text{ kg/m}^2$ / layer $1.0 - 1.5\text{ kg/m}^2$  $\sim 1.09\text{ kg/m}^2/\text{mm}$  $0.09 - 0.110\text{ kg/m}^2$  $1.5 - 4\text{ cm}$
Roofing-system, machine applied with UV-exposure	1 x Sikafloor®-156, lightly broadcast with quartz sand, 0.4 - 0.7 mm  1 x <b>Sikalastic®-821</b>  1 x Sikalastic®-445	$0.3 - 0.5\text{ kg/m}^2$  $1.0 - 1.5\text{ kg/m}^2$  $\sim 1.8\text{ kg/m}^2$  $\sim 0.8\text{ kg/m}^2$
System for structures without UV-exposure	1 x Sikafloor®-156, lightly broadcast with quartz sand, 0.4 - 0.7 mm  1 x <b>Sikalastic®-821</b>	$0.3 - 0.5\text{ kg/m}^2$  $1.0 - 1.5\text{ kg/m}^2$  $\sim 1.09\text{ kg/m}^2/\text{mm}$

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level and wastage etc.

<b>Substrate Quality</b>	The concrete substrate must be sound and of sufficient compressive strength (minimum 25 N/mm <sup>2</sup> ) with a minimum pull off strength of 1.5 N/mm <sup>2</sup> . The substrate must be clean dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc. If in doubt, apply a test area first.
<b>Substrate Preparation</b>	Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface. Weak concrete must be removed and surface defects such as blowholes and voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor®, SikaDur® and SikaGard® range of materials. The concrete or screed substrate has to be primed or levelled in order to achieve an even surface. High spots must be removed by e.g. grinding. All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum.
<b>Application Conditions / Limitations</b>	
<b>Substrate Temperature</b>	+8°C min. / +45°C max.
<b>Ambient Temperature</b>	+8°C min. / +45°C max.
<b>Substrate Moisture Content</b>	≤ 4% pbw moisture content. Test method: Sika®-Tramex meter, CM - measurement or Oven-dry-method. No rising moisture according to ASTM (Polyethylene-sheet)
<b>Relative Air Humidity</b>	85% RH max.
<b>Dew Point</b>	Beware of condensation! The substrate and uncured membrane must be at least 3°C above dew point to reduce the risk of condensation or blooming on the membrane finish.
<b>Application Instructions</b>	
<b>Mixing</b>	Part A : Part B = 55 : 45 (by weight) Part A : Part B = 50 : 50 (by volume) Dose and mix with suitable two-part spray equipment. Both components must be heated up to between +50°C and +75°C. The accuracy of mixing and dosage must be controlled regularly with the equipment.
<b>Application Method / Tools</b>	Prior to application, confirm substrate moisture content, r.h and dew point. <i>Primer:</i> Prime prepared concrete with Sikagard®-186. Sikagard®-186 should not just be rolled or poured. In order to avoid the formation of pinholes, the primer must be brushed into the concrete surface, if necessary in two applications. After each application lightly broadcast with quartz sand 0.4 - 0.7 mm. In order to avoid the formation of blisters do not broadcast to excess. <i>Levelling up:</i> Rough surfaces need to be levelled first. Use Sikagard®-186 levelling mortar (see the relevant PDS). <i>Waterproofing:</i> Spray apply with suitable two-part hot spray equipment e.g. Unipre CG 52 BF. (Supplier: UNIPRE GmbH Langwiedenweg 94, 59497 Werl, Germany, Tel.: +49/2922-87840-0, www.unipre.de). Control the film thickness during application using a thickness gauge. <i>Tack coat:</i> Prior to the application of hot poured asphalt, a tack coat of Sikalastic®-823 must be applied by brush, roller or spray. <i>Bonding bridge (intermediate):</i> Uniformly spread 1 x Sikalastic®-810 using a short pile (12 mm) nylon roller or by spray.
<b>Cleaning of Tools</b>	Clean all tools and application equipment with Thinner C immediately after use. Hardened and/or cured material can only be removed mechanically.

**Waiting Time /  
Overcoating**

Before applying **Sikalastic®-821** on Sikagard®-186 allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	1 month <sup>1)</sup>
+20°C	20 hours	
+30°C	16 hours	
+45°C	14 hours	

Before applying **Sikalastic®-821** on **Sikalastic®-821** allow:

Substrate temperature	Minimum	Maximum
+10°C	-	3 hours <sup>2)</sup>
+20°C		2 hours <sup>2)</sup>
+30°C		2 hours <sup>2)</sup>
+45°C		1 hour <sup>2)</sup>

Before applying **Sikalastic®-821** on Sikalastic®-810 allow:

Substrate temperature	Minimum	Maximum
+10°C	3 hours	6 hours <sup>3)</sup>
+20°C	2 hours	4 hours <sup>3)</sup>
+30°C	1 hour	2 hours <sup>3)</sup>
+45°C	40 minutes	1 hour <sup>3)</sup>

Before applying Sikalastic®-810, Sikalastic®-823 or Sikalastic®-445 on **Sikalastic®-821** allow:

Substrate temperature	Minimum	Maximum
+10°C	90 minutes	1 month <sup>1)</sup>
+20°C	60 minutes	
+30°C	30 minutes	
+45°C	20 minutes	

Before applying Sikalastic®-822 on **Sikagard®-821** allow:

Substrate temperature	Minimum	Maximum
+10°C	90 minutes	3 hours <sup>2)</sup>
+20°C	60 minutes	2 hours <sup>2)</sup>
+30°C	30 minutes	2 hours <sup>2)</sup>
+45°C	20 minutes	1 hour <sup>2)</sup>

Before applying Sikalastic®-822 on **Sikagard®-821** allow:

Substrate temperature	Minimum	Maximum
+10°C	90 minutes	3 hours <sup>2)</sup>
+20°C	60 minutes	2 hours <sup>2)</sup>
+30°C	30 minutes	2 hours <sup>2)</sup>
+45°C	20 minutes	1 hour <sup>2)</sup>

Before applying hot poured asphalt on **Sikalastic®-821** allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours (First an intermediate layer of Sikalastic®-823 must be applied)	1 month <sup>1)</sup> (first an intermediate layer of Sikalastic®-823 must be applied)
+20°C		
+30°C		
+45°C		

Before applying hot poured asphalt on Sikalastic®-823 allow:

Substrate temperature	Minimum	Maximum
+10°C	60 minutes	14 days <sup>1)</sup>
+20°C	45 minutes	
+30°C	30 minutes	
+45°C	20 minutes	

<sup>1)</sup> Assuming that any dirt has been carefully removed and contamination is avoided.

<sup>2)</sup> If the max. waiting time is exceeded then Sikalastic®-810 + 15 wt.-% Thinner C must be applied as a bonding bridge.

<sup>3)</sup> If the max. waiting time is exceeded then Sikalastic®-810 must be applied diluted with max. 20 wt.-% Thinner C.

Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

#### Notes on Application / Limitations

This product may only be used by experienced professionals.

Application is by 2-part hot spray equipment only.

Temperature of the substrate during application and curing: min. +8°C.

**Sikalastic®-821** is not UV light resistant and changes colour under UV exposure. However, the performance and technical properties are not affected providing the exposure is max. 4 weeks. It is therefore advisable to overcoat Sikalastic®-821 with hot poured asphalt as early as possible. Areas not to be overlaid with asphalt and which are permanently exposed to UV light radiation, must be overcoated with a suitable protective coating such as Sikalastic®-445. In wet areas or climatic zones with a permanent air humidity of > 80%, in combination with a permanent air temperature of > +30°C, the adhesion promoter Sikalastic®-810 + 15 wt.-% Thinner C must be used. Please note for areas with permanent water load that **Sikalastic®-821** is water vapour permeable.

Prior to placing the hot poured asphalt, a tack-coat Sikalastic®-823 has to be applied by brush, roller or spray.

Please note: Always apply a test area first.

## Curing Details

### Applied Product ready for use

Temperature	Rain resistant after	Ready for foot <sup>1)</sup> traffic (carefully)	Ready for traffic <sup>2)</sup>
+10°C	~ 5 minutes	~ 90 minutes	~ 24 hours
+20°C		~ 60 minutes	~ 18 hours
+30°C		~ 30 minutes	~ 14 hours
+45°C		~ 20 minutes	~ 12 hours

**Note:**

<sup>1)</sup> Only for inspection or for application of the next layer.

<sup>2)</sup> Only for inspection, application of the next layer or placing of the hot poured asphalt by trucks. Not for permanent traffic.

Times are approximate and will be affected by changing ambient conditions.

### Value Base

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.

### Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

### Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related 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.

### EU Regulation 2004/42 VOC - Decopaint Directive

According to the EU-Directive 2004/42, the maximum allowed content of VOC (Product category IIA / j type **sb**) is 550 / 500 g/l (Limits 2007 / 2010) for the ready to use product.  
The maximum content of **Sikalastic®-821** is < 500 g/l VOC for the ready to use product.



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