Construction

Sikalastic®-851 R

Two component spray applied roof waterproofing membrane

Product Description

Sikalastic®-851 R is a two component, elastic, crack-bridging, rapid-curing modified polyurethane/ polyurea-hybrid membrane. Sikalastic®-851 R is for machine application only.

Uses

- For use as a waterproofing membrane on flat and pitched roof structures with additional top coat for UV-protection for exposed roofs.
- For use as a waterproofing membrane underneath planting or hard landscaping on podium areas.
- For use as a waterproofing membrane underneath XPS insulation as part of an inverted or vegetative roof system.
- For use as a waterproofing membrane for other concrete structures and on non-trafficked concrete areas with an additional top coat for UV-protection.

Characteristics / Advantages

- Solvent free
- Fast application - application with 2-part hot spray equipment
- Fast curing - over coating with top coat possible after approx. 4 minutes
- Seamless waterproofing membrane
- High Solids - contains no fillers
- Excellent crack-bridging properties
- Highly elastic and crack bridging
- Low viscosity
- Water vapour permeable – allows the substrate to breath
- Good adhesion to most substrates
- 12 months shelf life

Tests

- Test report for root resistance following DIN 4062: report No.: P7934 dated 14/03/2014
- Test report for crack bridging properties following DIN EN 1062-7: report No.: P 9016-E-1 dated 30/09/2014

Approval / Standards

Product Data

Form

Appearance / Colours	ISO - Part A: Resin - Part B: Grey ~ca. RAL 7004	clear / brownish grey or yellowish
Packaging	Part A: Part B:	211 kg drum, 202 kg drum,

Storage

Storage Conditions / Shelf Life	Part A: 12 months Part B: 12 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.

Technical Data

Chemical Base	Modified Polyurethane/ Polyurea-Hybrid
Density	Part A: ~ 1.08 kg/litre Part B: ~ 1.04 kg/litre (DIN EN ISO 2811-1) Mixed resin: ~ 1.00 kg/litre (cured film) All Density values at +23°C
Curing Speed /Rate	From +8°C to +55°C substrate temperature: Start of setting phase after 5 - 10 seconds.
Solid Content	> 99%
Viscosity	Part A: ~ 2300 mPas at +20°C Part B: ~ 2300 mPas at +20°C
Layer Thickness	Minimum 1.5 mm with additional top coat for exposed roofs, minimum 2.0 mm when used as stand-alone waterproofing membrane for green, inverted and ballasted roofs

Mechanical / Physical Properties

Tensile Strength	~ 11.0 N/mm^2	(28 days / +23°C)	(DIN 53504)

Shore A Hardness

	at +8°C	at +23°C
After 1 hour	~ 81	~ 83
After 24 hours	~ 88	~ 88
After 28 days	~ 88	~ 88

Elongation at Break	~ 350%	(28 days / +23°C)	(DIN 53504)

Resistance

Chemical Resistance	Sikalastic®-851 R is generally resistant to: - Bitumen - Alkalis
Thermal Resistance	Sikalastic®-851 R is short-term resistant to hot poured asphalt applied at up to max. +240°C. The elastic properties are maintained at temperatures as low as -30°C.

System Information

System Structure

Coating System	System for exposed roof waterproofing	System for non-exposed roof waterproofing
Build up	Sikalastic®-851 R applied in 1 coat and sealed with 1 coat Sikalastic®-621 or Sikalastic®-445	Sikalastic®-851 R applied in 1 or two coats
Substrates:	Concrete, cement screed, metals, bituminous felt and asphalt in good condition, brick and stones, slates and tiles (unglazed)	
Primer:	Please refer to Sikalastic® Primer chart below	
Total consumption	Waterproofing: Sikalastic®-851 R ≥ 1.5 kg/m^2 UV-Protection: Sikalastic®-621 or Sikalastic®445 ≥ 1.0 kg/m^2	Waterproofing: Sikalastic®-851 R ≥ 2.0 kg/m^2
Dry film thickness	Waterproofing: ~ 1.5 mm UV-Protection: ~ 0.5 mm Total: ~ 2.0 mm	Waterproofing: ~ 2.0 mm Total: ~ 2.0 mm

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

Application Details

Substrate Quality

Cementitious substrates
New concrete should be cured for at least 28 days and should have a pull off strength ≥1.5 N/mm2. Inspect the concrete, including upstands, all areas should be hammer tested. Concrete must be suitably finished, preferably by wood float or steel pan. A power float finish is acceptable where the surface is prepared to avoid laitance (a tamped finish is not acceptable). The surface finish must be uniform and free from defects such as laitance, voids or honeycombing.

Brick and stone
Mortar joints must be sound and preferably flush pointed.

Ceramic tiles (unglazed)
Ensure all tiles are sound and securely fastened, replacing obviously broken or missing sections. The surface of the tiles has to be roughened by mechanical means, tiles must be matt and free of gloss.

Asphalt
Asphalt contains volatiles which can cause bleeding and slight non-detrimental staining. The asphalt must be carefully assessed for moisture and/or air entrapment, grade and surface finish prior to any coating works being carried out.

Bituminous felt
Felt contains volatiles which can cause bleeding and slight non-detrimental staining. Ensure that Bituminous felt is firmly adhered or mechanically fixed to the substrate. Bituminous felt should not contain any badly degraded areas.

Bituminous coatings
Bituminous coatings should not have sticky or mobile surfaces, volatile mastic coatings, or old coal tar coatings.

Metals
Metals must be in sound condition.

Substrate Pre-Treatment

Substrate	Primer	Consumption [ml/m^2]
Cementitious substrates	Sika® Concrete Primer or Sikafloor®-161 lightly broadcast with quartz sand, 0.3 - 0.8 mm	≈ 100-200 ≈ 200 - 300
Ceramic tiles (unglazed), and concrete slaps	Sika® Concrete Primer	≈ 100 - 200
Bituminous felt	Not normally required. Only required for high reflectivity applications (Sikalastic® Metal Primer)*	If used: ≈ 100 - 200
Bituminous coatings	Not normally required. Only required for high reflectivity applications (Sikalastic® Metal Primer)	If used: ≈ 100 - 200
Metals Ferrous or galvanised metals,lead, copper, aluminium, brass or stainless steel	Sikalastic®-Metal Primer.	≈ 100 - 200

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

For the Waiting Time /Overcoating you should refer to the PDS of the appropriate cleaner and primer. Other substrates must be tested for their compatibility. If in doubt, apply a test area first.

* Sikalastic® Metal Primer prevents migration of bituminous volatiles and improves long-term reflectivity.

Application Conditions / Limitations

Substrate Temperature	+8°C min. / +55°C max.
Ambient Temperature	+8°C min. / +50°C max.
Substrate Moisture Content	≤ 4% pbw moisture content. Test method: Sika®-Tramex meter, CM - measurement or Oven-dry-method. No rising moisture according to ASTM (Polyethylene-sheet)
Relative Air Humidity	80% r.h. max.
Dew Point	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 of the membrane finish.

Application Instructions

Mixing	Part A : Part B = 1.04 : 1 (by weight) Part A : Part B = 1 : 1 (by volume) Dose and mix with suitable two-part spray equipment. Both components shall be heated up to +70C. The accuracy of mixing and dosage must be controlled regularly with the equipment.
Application Method / Tools	Prior the application of Sikalastic®-851 R the priming coat must have cured tack-free. For the waiting time / overcoating please refer to the PDS of the appropriate primer. Damageable areas should be protected with tape or plastic wrapping. *Waterproofing:* Spray apply Sikalastic®-851 R with suitable two-part hot spray equipment. Possible suppliers of spray equipment are Gama, Graco, Isotherm, WiWa, Reaku etc. Material temperature: +70°C

UV Protection:

One layer of Sikalastic®-621 or Sikalastic®-445 applied either by roller or airless spray.

For more detailed application engineering information pls. refer to the appropriate method statement.

Cleaning of Tools

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®-851 R on Sikafloor®-161 allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	1 month [1])
+20°C	12 hours	
+30°C	8 hours	
+45°C	6 hours	

Before applying Sikalastic®-851 R on Sikalastic®-851 R allow:

Substrate temperature	Minimum	Maximum
+10°C	4 Min	3 hours [2])
+20°C		
+30°C		1 hour [2])
+45°C		

Before applying Sikalastic®-621 or Sikalastic®-445 on Sikalastic®-851 R

Substrate temperature	Minimum	Maximum
+10°C	4 Min	24 hours [2])
+20°C		
+30°C		24 hours [2])
+45°C		

[1]) Assuming that any dirt has been carefully removed and contamination is avoided.

[2]) If the max. waiting time is exceeded Sika® Concrete Primer has to be applied with a consumption rate of 100g/m^2 as adhesion promotor between the layers.

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

Notes on Application / Limitations

For professional use only.

Application is by 2-part hot spray equipment only.

For spray application the use of protective health and safety equipment is mandatory.

Always refer to the manufacturer's instructions before use the tools and mixing equipment.

Products shall only be applied in accordance with their intended use.

Do not apply Sikalastic®-851 R on substrates with rising moisture.

On substrates likely to exhibit outgassing, apply during falling ambient and substrate temperatures. If applied during rising temperatures "pin holing" may occur from rising air.

Product shall be used in conjunction with a safe system of work. Ensure an adequate assessment of all site risks has been conducted prior to work commencing. Refer to the product safety datasheet for further guidance.

Do not use Sikalastic®-851 for indoor applications.

Sikalastic®-851 R 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®-851 R with UV-protective top coat as early as possible. In wet areas or climatic zones with

a permanent air humidity of > 80%, in combination with a permanent air temperature of > +30°C, Sika® Concrete Primer must be used as adhesion promoter.
Please note: Always apply a test area first.

Curing Details

Applied Product ready for use

Temperature	Rain resistant after	Ready for foot[1] traffic (carefully)	Ready for traffic[2]
+10°C	~ 5 minutes	~ 8 minutes	~ 24 hours
+20°C		~ 5 minutes	~ 18 hours
+30°C		~ 4 minutes	~ 14 hours
+45°C		~ 4 minutes	~ 12 hours

Note:
[1] Only for inspection or for application of the next layer.
[2] Only for inspection, application of the next layer or placing of the asphalt overlay 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 shall 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®-851 R** is < 500 g/l VOC for the ready to use product.

LEED

Sika certifies, that the VOC of **Sikalastic®-851 R** conforms with the LEED v3 IEQ credit 4.2 Low Emitting Materials- and falls below the limit of 250g/L (less water) defined for group Roof Coatings.

Construction

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