Sarnafil®

BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET
Edition 08.2017/v1

Sikalastic® 641 Lo-VOC Roofing System

LIQUID-APPLIED, SINGLE-COMPONENT FULLY REINFORCED LO-VOC, LOW-ODOR ROOFING SYSTEM (WITH GLSASS FIBRE OR POLYESTER REINFORCEMENT)

Description

Sikalastic®-641 Lo-VOC roofing systems combine cold-applied, aliphatic, one-component, moisture-triggered polyurethane resins with glass fibre mat or polyester fleece reinforcement to create a seamless membrane and flashing system. System components are:

- Sika® or Sikalastic® Primer - Select primer per substrate material in accordance with Priming Guide.
- Sikalastic®-641 Lo-VOC - Resin used for all systems with polyester fleece reinforcement.
- Sika® Reemat™ Premium - Chopped strand glass fibre mat.
- Sika® Fleece 120, 140, 170 - Non-woven, needle-punched polyester fleece in various weights.

Where to Use

- Sikalastic® RoofPro 10, 15, 20 and 25 year systems, including Sikalastic® RoofPro Built Up, Direct, Plaza Deck/PMA, and Vegetated systems for both new construction and refurbishment.
- Ideal for roofs displaying complex details and geometry or when accessibility is limited.
- Effective and cost efficient life cycle extension of existing roofs
- Highly reflective Sikalastic®-641 Lo-VOC in White (RAL 9016) suitable for cool roofs and solar roof assemblies.
- Waterproofing under tile in a mortar bed.
- Applications involving cementitious and asphalt pavement overlays.
- Suitable for use for applications such as balconies, terraces, walkways, plazas, and similar applications exposed to foot traffic when provided with a supplemental aggregated or flake surfacing.

Advantages

- Proven technology with over 25 year track record.
- One-component - no mixing and ready to use.
- Fully reinforced with highly conformable Sika® Reemat™ or Sika® Fleece.
- Moisture-triggered chemistry that is rapidly weatherproof after application.
- Low odor formulation.
- Highly elastic and crack bridging.
- Seamless and fully adhered.
- Vapor permeable.
- UV-resistant and non-yellowing.
- Abrasion and chemical-resistant.
- Adheres to most common construction materials when suitable primer is used.

Approvals

- FM Approval Standard 4470 for Class 1 Roof Covers - Pending
- Meets ASTM D7311-07: Standard Specification for Liquid-Applied, Single-Pack, Moisture-Triggered, Aliphatic Polyurethane Roofing Membrane.

Typical Data

Technical Data

Packaging	18,9 L (5 gal US) pail
Coulour	White, Pearl Gray, Steel Gray, Mushroom, Copper Green; custom colors available with minimum order
Shelf Life	12 months in original, unopened and undamaged sealed containers. Store dry at temperatures between 2 and 25 °C (35 and 77 °F). Condition material at temperatures between 10 and 25 °C (50 and 77 °F) before using and for ease of application.
Service Temperature	-30 to 80 °C (-22 to 176 °F) intermittent

Properties at 23 °C (73 °F) and 50 % R.H.

Chemical Base	Single component, moisture-triggered, aliphatic polyurethane
Density	1.43 kg/L (11.9 lb/gal)
Curing Mechanism	Moisture-triggered.
Solids Content	89 % by volume / 92 % by weight
Flash Point	93 °C (199 °F)
VOC Content	38 g/L (1.43 kg/L)
Chemical Resistance	Strong resistance to a wide range of reagents, including paraffin, gasoline, fuel oil, white spirit, acid rain, detergents and moderate solutions of acids and alkalis. Some low molecular weight alcohols can soften the material. Contact Sika Canada for specific details.
641 Lo-VOC White (RAL 9016)	
Solar Reflectance (Initial)	SRI (Solar Reflectance Index - Initial)
SRI (Solar Reflectance Index - Initial)	108 (ASTM E1980)(White)
Thermal Emittance	0.86 (ASTM C1371)(White)

Physical Properties – Typical Values	ASTM Test Method	RoofPro-20	RoofPro-20
Reinforcement	-	Sika® Reemat™ Premium	Sika® Fleece-140
Breaking Strength, psi	D751 Proc. B	1030	900
Elongation to Break, %	D751	21	82
Tear Strength, lbf/in	D624	300	200
Static Puncture Resistance	D5602	> 244.65 N (55 lbf)	> 244.65 N (55 lbf)
Note: Data for other RoofPro assemblies available upon request			
Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.			

HOW TO USE

Substrate Evaluation

Concrete and cementitious substrates
New concrete shall be allowed to cure a minimum of 28 days. Concrete shall have a minimum compresive strength of 20.7 MPa (3000 psi) and exhibit a minimum tensile bond strength of 1.4 MPa (200 psi). time. Moist or sheet curing methods should be used, as opposed to the use of curing compounds, which may interfere with the bond of the membrane. Inspect the concrete, including upstands, and 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.

Gypsum and Cement based sheathing
Sheathing boards shall be clean, dry and dust-free, and shall be properly secured to the structure. Loose, damaged, or contaminated boards shall be removed and replaced.

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

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.

Bituminous felt
Ensure that bituminous felt is firmly adhered or mechanically-fixed to the substrate. Bituminous felt shall not contain badly degraded areas.

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

Metals
Metals must be in sound condition.

Wooden substrates
Plywood and timber based decks must be in good condition, firmly adhered and mechanically-fixed. All plywood should be identified as conforming to PS 1 for construction and industrial plywood by grade, APA (American Plywood Association) trademark, or equivalent. For maximum smoothness, EXT Type APA, Grade A-C should be used, and the “A” side should be positioned to receive the Sikalastic® resin. Plywood decks to receive resin directly shall be at least 12.7 mm (1/2 in) thick and attached and supported according to APA guidelines, using only non-rusting screw, spiral or coated nail type fasteners. A good practice would be to recess or counter sink fasteners 3 to 6 mm (1/8 to 1/4 in) and fill with Sikaflex® sealant. Suitable edge support to prevent differential deflection between panels shall be provided. Panel edges shall be tongue and groove or supported on solid blocking. Space panels 3 to 4.7 mm (1/8 to 3/16 in) at panel ends.

Paints and coatings
Ensure the existing material is sound and firmly adhered.

Existing Sikalastic® system
The existing Sikalastic® system shall be soundly adhered to the substrate.

Surface Preparation

Concrete and cementitious substrates
Cementitious or mineral-based substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and to achieve an open textured surface (ICRI/CSP 3 - 5). Loose friable material and weak concrete must be completely removed and surface defects such as blowholes and voids must be fully exposed. The amount of embedment coat required may increase over rough or highly porous surfaces.

Repairs to the substrate, filling of joints, blowholes/voids and surface levelling must be carried out. Consult Sika Canada for product recommendations based on project requirements. High spots must be removed by grinding or similar method. Outgassing is a naturally occurring phenomenon of concrete that can produce pinholes in liquid-applied materials. The concrete must be carefully assessed for moisture content, air entrapment, and surface finish prior to any waterproofing work. Particular requirements for priming must also be considered. Installing the primer and membrane either when the concrete temperature is falling or stable can reduce outgassing. It is generally beneficial, therefore, to apply the embedment coat in the late afternoon or evening.

Gypsum and Cement based sheathing
Sheathing boards shall be clean, dry and dust-free. Secure loose boards if in sound condition. Damaged or contaminated boards shall be removed and replaced.

Brick and stone
Power wash and use biodegradeable non-sudsing detergent with clean water rinse as required.

Asphalt
Power wash and use biodegradeable non-sudsing detergent with clean water rinse as required. All major cracks should be sealed to allow continuity of the Sikalastic® system.

Bituminous felt
Power wash and use biodegradeable non-sudsing detergent with clean water rinse as required. Treat blisters by star cutting and removing any underlying water. Allow to dry and re-adhere using suitable adhesive.

Bituminous coatings
Remove any loose or degraded coatings.

Metals
Ferrous metals should be thoroughly cleaned by grinding or blast cleaning prior to priming (SSPC-SP3 to Near White Metal.)
Non-ferrous metals are prepared by removing any deposits of dust and oxidation and abrading to bright metal. Wire brushing can be used for soft metal such as lead. The surface must be clean and free from grease which, if present, must be removed with a solvent wipe or wash with detergent, rinse and dry.

Wooden substrates
Timber and timber based decks require additional reinforcement such as the installation of plywood, approved insulation or cover board. Small timber protrusions and suitable decks may be treated directly, provided that the timber is of exterior quality (e.g., exterior grade plywood, etc.) Fill joints flush with Sikaflex® sealant.

Paints/Coatings
Remove any loose or degraded coatings. Ensure the surface is clean and free from grease.

Sikaplan®/Sarnafil® membranes
Clean membranes with Sarna Cleaner (PVC membranes) and Sarnafil® T Clean (FPO membranes) prior to application of primer.

Existing Sikalastic® Systems
Clean the membrane using a water jet at approximately 140 bar (2,000 psi) and biodegradeable non-sudsing detergent with clean water rinse. Allow to dry.

Application

Priming
Refer to Priming Guide to select primer for properly evaluated and prepared substrate. Refer to separate primer Product Data Sheet for for application methods, coverage rates, cure times and recoat windows. Always allow primer to cure thoroughly before applying detail or base resin layer.

Substrate	Remark	Concrete Primer	DTE Epoxy Primer	EP Primer/ Sealer	Contact Sika
CONCRETE	(1)	X	X	X	
LIGHTWEIGHT STRUCTURAL CONCRETE	(1)		X		X
CEMENT, GYPSUM-BASED ROOF BOARDS		X		X	
BRICK, STONE	(3)			X	X
BITUMINOUS SUBSTRATE					
- Asphalt, bituminous felts, bituminous coatings, granulated or smooth SBS & APP cap sheets	(2,3)			X	
SINGLE-PLY ROOFING MEMBRANES					
-HYPALON, TPO, EPDM, PVC	(3)				X
ROOF TILES (UNGLAZED)	(3,4)			X	X
FIBERGLASS	(3)			X	X
POLYURETHANE FOAM: Sprayed or slab stock				X	

METALS					
- Aluminum, galvanized, cast iron, copper, lead, brass, stainless steel, steel, zinc	(3)			X	X
PRE-COATED METAL	(3)				X
PAINTS					
- Paints & coatings	(3)			X	
- Aluminized solar reflective coatings	(3)			X	
WOOD - TIMBER & PLYWOOD	(5)			X	X

(1) New cementitious substrates must be Portland base and be cured min. 14 days.
(2) The presence of volatiles may cause discoloration of Sikalastic® if not properly primed.
(3) Surface evaluation and field adhesion testing.
(4) Glazed tile, consult Sika Canada.
(5) Pressure treated lumber consult Sika Canada

Detailing

Non-structural cracks up to 1.5 mm (1/16 in) - Detail application not necessary. Apply embedment/base resin layer per below.

Non-structural cracks between 1.5 and 6 mm (1/16 and 1/4 in) - Rout and seal with Sikaflex® sealant. Apply 40 - 45 mil resin layer embedded with 76 mm (3 in) Sika® Flexitape Heavy centered over crack. Apply embedment/base resin layer per below.

Cracks and joints between 6 and 25 mm (1/4 and 1 in) - Rout and seal with Sikaflex® sealant. Apply bond breaker tape sufficient to span width of crack or joint followed by 40 - 45 mil resin layer embedded with 152 mm (6 in) Sika® Flexitape Heavy centered over crack or joint. Apply embedment/base resin layer by terminating Sika® Reemat™ at edges of crack or joint overlapping Sika® Flexitape Heavy a minimum of 50 mm (2 in) on both sides.

Joints greater than 25 mm (1 in) - Treat as expansion joint. Consult Sika Canada for recommendations.

Metal seams and plywood/coverboard joints - Apply 40 - 45 mil resin layer embedded with 76 mm (3 in) or 152 mm (6 in) Sika® Flexitape Heavy centered over seam. Apply embedment resin layer per below.

Transitions between dissimilar materials - Apply 40 - 45 mil resin layer embedded with Sika® Flexitape Heavy centered over edge. Apply embedment resin layer per below.

Embedment/Base Resin Layer with Sika Reemat Reinforcement

Mixing not required. Apply Sikalastic®-641 Lo-VOC per RoofPro System Guide at the coverage rate in the RoofPro System Guide with a 12.7 mm (1/2 in) nap phenolic resin core roller. Material can also be squeegee or spray-applied, in which case it should be backrolled prior to embedding Sika® Reemat™. Place Sika® Reemat™ in wet base resin layer overlapping seams a minimum of 50 mm (2 in), placing frayed-edge over cut edge of roll, and apply wet roller to topside to saturate completely. After approximately five (5) minutes, the binder will begin to dissolve allowing the fiber strands to conform to irregular surfaces. Do not over work once the fibers have conformed to the substrate. Allow to cure 12 hours at 70 °F and 50 % R.H. or until tack-free before top resin layer. Keep clean and dry and apply top resin layer within seven (7) days. If window is exceeded clean with non-sudsing detergent and clean water rinse, and allow to dry prior to application of Sikalastic® Reactivation Primer.

Top Resin Layer with Sika® Reemat™ Reinforcement

Mixing not required. Apply Sikalastic®-641 Lo-VOC at the coverage rate in the AR System Guide with a 12.7 mm (1/2 in) nap phenolic resin core roller. Material can also be squeegee or spray-applied, in which case it should also be backrolled. In the case of RoofPro-25 allow the first top resin layer to cure 12 hours at 70 °F and 50 % R.H. or until tack-free before applying second top resin layer. On top of the complete RoofPro system additional resin layers may be applied with aggregate for slip resistance - consult Sika Canada for recommendations. Keep clean and dry and apply additional resin layers within seven (7) days. If window is exceeded clean with non-sudsing detergent and clean water rinse, and allow to dry prior to application of Sikalastic® Reactivation Primer.

Sikalastic® RoofPro-641 Lo-VOC System Guide with Sika® Reemat™				
	RoofPro-10	**RooftPro-15**	**RoofPro-20**	**RoofPro-25**
Substrates	Concrete or cementitious, metals, woods, single-ply or bituminous, stone			
Primer	Required - see Substrate Priming Guide			
Detailing	Sika Flexitape Heavy centered over seams, transitions and properly treated cracks and joints			
Reinforcement	Sika® Reemat Standard	Sika® Reemat Premium embedded in base resin layer over entire surface		
Sikalastic®-641 Lo-VOC Base Layer	30 mils wet - 53 ft²/US gal.	50 mils wet - 32 ft²/US gal.	50 mils wet- 32 ft²/US gal.	50 mils wet - 32 ft²/ US gal.
Sikalastic®-641 Lo-VOC Top Layer	30 mils wet - 53 ft²/US gal.	20 mils wet - 80 ft²/US gal.	30 mils wet - 53 ft²/US gal.	23 mils wet - 69 ft²/ US gal.
Sikalastic®-641 Lo-VOC Top Layer				23 mils wet - 69 ft²/ US gal.
Total Film Thickness	53 mils dry	62 mils dry	71 mils dry	85 mils dry
NOTE: Coverage rates provided are optimal - coverage rates will vary depending on temperature, surface roughness, porosity and application technique.				

Wet on Wet Application with Sika Fleece Reinforcement
Mixing not required. To primed substrate apply two-thirds (2/3) of the Sikalastic®-641 Lo-VOC (as specified in the RoofPro System Guide) with a 12.7 mm (1/2 in) nap phenolic resin core roller. Immediately place specified Sika® Fleece into wet resin overlapping seams a minimum of 76 mm (3 in) along the edge and 152 mm (6 in), end-to-end. Apply wet roller to topside with light pressure to saturate fleece from bottom and ensure air pockets are completely removed. Immediately apply all of remaining one-third (1/3) of Sikalastic®-641 Lo-VOC resin (as specified in the RoofPro System Guide) to ensure even and complete fleece saturation from topside and uniform texture.

Sikalastic® RoofPro-641 Lo-VOC System Guide with Sika® Fleece reinforcement			
	RoofPro-15	**RoofPro-20**	**RoofPro-25**
Substrate	Concrete or cementitious, metals, wood, single-ply or bituminous, stone		
Primer	Required - see Substrate Priming Guide		
Detailing	Sika® Flexitape Heavy centered over seams, transitions and properly treated cracks and joints		
Reinforcement	Sika® Fleece 120 (US)	Sika® Fleece 140 (US)	Sika® Fleece 170 (US)
Sikalastic®-641 Lo-VOC	70 mils wet - 25 ft²/US gal.	80 mils wet - 20 ft²/US gal.	95 mils wet - 16 ft²/US gal
Total Film Thickness	62 mils dry	71 mils dry	84 mils dry
NOTE: Coverage rates provided are optimal - coverage rates will vary depending on temperature, surface roughness, porosity and application techniques.			

Aggregated or Flake Surfacing
Supplemental aggregate and flake surfacing is required for all applications that will experience direct foot traffic such as balconies, terraces, walkways and plazas, and is recommended for areas that experience maintenance foot traffic. Aggregate surfacing is applied in a supplemental resin layer after the Sikalastic® membrane has been installed and is not applied into the roofing/waterproofing membrane itself.

Seed & Back Roll Option
For maintenance traffic-type applications where enhanced slip resistance is required.

Apply Sikalastic®-641 Lo-VOC resin at 15 mils wet film thickness (w.f.t.) to the installed, cured membrane system. While the supplemental resin application is still wet, seed with kiln-dried, iron-free aggregate. Back roll the surface to encapsulate the aggregate in the Sikalastic® resin.

Full Broadcast & Seal Option
For applications where both enhanced slip resistance and physical protection of the roofing membrane is required.

Apply Sikalastic®-641 Lo-VOC resin at 15 mils (w.f.t.) to the installed, cured membrane system. While the supplemental resin application is still wet, broadcast to rejection (full broadcast, beach) with kiln-dried, iron-free aggregate. Remove excess aggregate after cure. Seal with an additional coat of Sikalastic® resin.

Decorative Quartz & Decorative Flake Options
For applications where enhanced slip resistance, physical protection of the roofing membrane, and a decorative element are required.

Apply Sikalastic®-641 Lo-VOC resin at 15 mils (w.f.t.) to the installed, cured membrane system. While the supplemental resin application is still wet, broadcast to rejection (full broadcast, beach) with colored quartz aggregate or synthetic flakes. Remove excess aggregate/flakes after cure. Seal with a coat of Sikalastic®-748 PA at 15 mils (w.f.t.).

Note: Decorative flakes can also be seeded at less than full broadcast quantities. Remove excess aggregate/flakes after cure. Seal with a coat of Sikalastic®-748 PA at 15 mils (w.f.t.).

Aggregate Selection
Use clean, rounded or semi-angular, oven-dried quartz sand with a minimum hardness of 6.5 per the Moh's scale.

It should be supplied in pre-packaged bags and free of metallic or other impurities. The following size gradations

are recommended:

- 16 - 30 or 20 - 40 mesh for pedestrian traffic systems
- Sika® DecoQuartz Blends or equivalent for Decorative Quartz systems

Flake Selection
Use virgin vinyl flakes, supplied in pre-packaged bags and free from impurities. The following is recommended:

- Sika® DecoFlake Blends or equivalent for Decorative Flake systems

Clean Up
Remove liquid resin immediately with dry cloth. Once cured, resin can only be removed by mechanical means.

Limitations
- To avoid dew point conditions during application, relative humidity must be no more than 95 % and substrate temperature must be at least 3 °C (5 °F) above measured dew point temperatures.
- Minimum ambient and substrate temperature during application and curing of material is 2 °C (36 °F); maximum is 35 °C (95 °F). Surface temperatures must not exceed 60 °C (140 °F). Frequent monitoring of ambient and substrate temperature should always be done when applying polyurethane resins. Note that low temperatures and low humidity will slow down the cure, and high temperatures and high humidity will accelerate it.

- Do not apply on substrates with moisture content greater than 4 % by weight, measured by Tramex Concrete Moisture Meter.
- Minimum age of concrete must be 28 days depending on curing and drying conditions.
- Do not thin with solvents.
- Do not store materials outdoors directly exposed to sunlight and moisture. Cover and protect material with breathable type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Observe temperature storage and conditioning requirements.
- Do not apply to substrate surfaces where moisture vapor transmission will occur during application and cure. This condition may be checked using ASTM D4263 (Polyethylene sheet method).
- Substrate must be dry prior to application. Do not apply to a frosted, wet or damp surface. Allow sufficient time for the substrate to dry after rain or inclement weather, as there is the potential for bonding problems.
- On substrates likely to exhibit outgassing apply during falling ambient and substrate temperature. If applied during rising temperature pinholing or blistering may occur.
- Use sunglasses with UV filter when applying highly reflective Sikalastic®-641 Lo-VOC White (RAL 9016).
- Do not use for indoor applications unless sufficient air flow and ventilation are provided to prevent odors and/or vapors from leaving the immediate work area.
- Precautions should be taken to prevent odors and/or vapors from entering the building/structure, including but not limited to turning off and sealing air intake vents or other means of ingress for odors and/or vapors into the building/structure during product application and cure.
- Not recommended for direct exposure to heavy or frequent foot traffic.
- Do not apply cementitious products, such as tile mortar directly onto Sikalastic®-641 Lo-VOC. See Sikalastic®-624 WP Product Data Sheet.
- Any repairs required to achieve a level surface must be performed prior to application (consult Sika Canada for guidance on various product solutions). Surface irregularities may reflect through the cured system.
- When applying over existing coatings or membranes compatibility and adhesion testing and subsequent approval by Sika Canada is required.
- Opening to traffic prior to cure may result in loss of aggregate or permanent staining and subsequent premature failure.
- On grade concrete decks should not be covered with Sikalastic® RoofPro membrane systems.
- Unvented metal pan, split/sandwich slab with encapsulated membrane and/or insulation, cinder fill decks, and lightweight insulating concrete deck overlays should not be covered with Sikalastic® RoofPro systems without additional deck evaluation and subsequent approval by Sika Canada.
- Do not subject to continuous immersion, i.e., fountains, ponds, pools, or interior of tanks.
- Not recommended for use over ceramic tile.

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 Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

SIKA CANADA INC.
Head Office
601, avenue Delmar
Pointe-Claire, Quebec
H9R 4A9

Other locations
Toronto
Edmonton
Vancouver

1-800-933-SIKA
www.sika.ca

An ISO 9001 certified company
Pointe-Claire: ISO 14001 certified EMS