



PRODUCT DATA SHEET

Edition 03.2020/v1
CSC Master Format™ 09 96 00
HIGH-PERFORMANCE COATINGS

Sikagard® Duroplast® F.R.S.

FABRIC-REINFORCED, LOW-VOC AND LOW ODOUR, UV RESISTANT EPOXY WALL AND CEILING COATING SYSTEM

Description Sikagard® Duroplast® F.R.S. (Fabric Reinforced System) is a high performance, solid colour, glass fibre-reinforced, seamless coating system for walls and ceilings. The fabric reinforcement improves the overall mechanical damage resistance, provides increased resistance to cracking and improved puncture resistance over various substrates. The system consists of multiple layers of Sikagard® Duroplast®-100 N used to embed Sika® Duochem F.R. Mesh which is then top coated with two applications of Sikagard® Duroplast®-150 N. The resultant coating system is a finely textured, easy to clean, UV colour change resistant, ceramic-like finish for interior surfaces.

The system is available in standard white or a wide range of attractive custom colours on request as well as in a range of gloss levels. The epoxy bed coat Sikagard® Duroplast®-100 N and top coat Sikagard® Duroplast®-150 N are formulated to inhibit the growth of bacteria, molds, mildew and fungi for the lifetime of the coating.

Where to Use

- Sikagard® Duroplast® F.R.S. is typically installed to improve long term durability of walls and ceilings in heavy service and demanding environments, such as hospitals, pharmaceutical facilities, laboratories, clean rooms, animal holding areas, commercial kitchens, food and beverage facilities, service corridors, locker rooms and shower areas.
- To create a seamless, joint-free transition between floor to wall and wall to ceiling assemblies, minimizing elevation changes and eliminating gaps to help maintain sanitary conditions.

Advantages

- Fabric reinforcement improves impact resistance and overall mechanical durability
- Durable, seamless surface that is easily cleaned and maintained
- Waterproof and suitable for in-service areas exposed to high humidity
- Aesthetic, fine-textured finish available in standard white and custom colours on request
- Available in three (3) gloss levels; Matte, Satin, and Gloss
- Superior resistance to UV colour change compared to other epoxy coatings
- Long term chemical and abrasion resistance
- High solids, low VOC, low odour permits installation during normal working hours
- Potential of contribution towards LEED®v4 credits. Contact Sika Canada
- Meets the requirements of CFIA and USDA for use in food plants

Technical Data

Packaging	Sikagard® Duroplast®-100 N	18.9 L (5 US gal.) unit
	Sika® Duochem F.R. Mesh	1 m x 50 m roll (3.2 ft x 164 ft) (+/- 1 %) roll
Colour	Sikagard® Duroplast®-150 N	18.9 L (5 US gal.) unit
	Sikagard® Duroplast®-100 N	Special colours
	Sika® Duochem F.R. Mesh	White
	Sikagard® Duroplast®-150 N	RAL 9016 Traffic White/ Special colours available on request
Yield	Bed Coat	
	Sikagard® Duroplast®-100 N	5 m ² /L (202 ft ² /US gal.) at 8 mil w.f.t. / 7.5 mil d.f.t.
	Glass Fabric	
	Sika® Duochem F.R. Mesh	50 m ² (535 ft ²) per roll (+/-1 %)
	Saturant Coat	
	Sikagard® Duroplast®-100 N	5 m ² /L (202 ft ² /US gal.) at 8 mil w.f.t. /7.5 mil d.f.t.
	Smoothing Coat	
	Sikagard® Duroplast®-100 N	5 m ² /L (202 ft ² /US gal.) at 8 mil w.f.t. /7.5 mil d.f.t.
	1st Finish Coat	
2nd Finish Coat	Sikagard® Duroplast®-150 N	5 m ² /L (202 ft ² /US gal.) at 8 mil w.f.t. /4 mil d.f.t.
	Sikagard® Duroplast®-150 N	5 m ² /L (202 ft ² /US gal.) at 8 mil w.f.t. /4 mil d.f.t.

Note: Actual coverage rates and material consumption will depend upon porosity and profile of the substrate. Test areas are recommended to establish correct coverage rates..

Shelf Life	1 year in original, unopened packaging under proper storage conditions. Store dry at temperatures between 5 and 32 °C (41 and 89 °F). Condition product to temperatures between 18 and 30 °C (65 and 86 °F) before use.	
Mix Ratio	Sikagard® Duroplast®-100 N	A:B = 4:1
	Sikagard® Duroplast®-150 N	A:B = 2:3
Properties at 23 °C (73 °F) and 50 % R.H.		
Solid Content	Sikagard® Duroplast®-100 N	by weight ~ 97 %
	Sikagard® Duroplast®-150 N	by weight ~ 61.5 % (+/- 5 %)
Pot Life, 250 g (8.8 oz.)	Sikagard® Duroplast®-100 N	~ 45 min
	Sikagard® Duroplast®-150 N	~ 30 min
Recoat Times	Sikagard® Duroplast®-100 N	~ 6 - 24 hours
	Sikagard® Duroplast®-150 N	~ 10 - 48 hours
<i>Drying times will vary according to air and substrate temperature and humidity.</i>		
Elongation at Break	Sikagard® Duroplast®-100 N	~ 3.5 % (not-reinforced)
ASTM D638	Sikagard® Duroplast®-150 N	~ 2.8 %
Pull-off Strength ASTM D723	> 2.5 MPa (> 360 psi) - Substrate failure	
VOC Content	Sikagard® Duroplast®-100 N	< 45 g/L
	Sikagard® Duroplast®-150 N	~ 24 g/L
<i>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.</i>		

HOW TO USE

Surface Preparation

General Substrate Conditions and Moisture Requirements:

Substrates must be sound, clean and dry. Remove sand, dust, dirt, oil, grease, wax, silicone, glue and all other contaminants that may affect the bond of Sikagard® Duroplast®-100 N. Moisture content of all concrete substrates must be no greater than 4 % when measured with a calibrated moisture meter for concrete (Tramex CME/CMExpert). Masonry surfaces, gypsum board and plaster must be below 85 (green zone on the reference scale) when measured with a calibrated electronic moisture meter (Delmhorst Model BD-10). All substrates must be properly prepared, primed, sealed or filled using the applicable Sikagard® Duroplast® product before application of Sikagard® Duroplast®-100 N bed coat.

Concrete vertical	Sikagard® Duroplast® EE
Concrete masonry:	Sikagard® Duroplast® EE
Gypsum board:	Sikagard® Duroplast® PS
Common steel:	Sikagard® Cor-Pro-470

Existing coatings must be removed unless extensive testing confirms compatibility of materials and it is accepted that the existing paint or high performance coating will determine the overall performance of the newly applied coating.

Gypsum Board: To obtain a uniform finish, the joint filler compound must be properly installed, finished and fully cured. Small defects, such as pinholes, ridges and fibre-lift, can become most apparent after finishing coats are applied. Some porous joint filler compounds may require an additional application of Sikagard® Duroplast® PS to seal and prime the overall surface to a uniform appearance. Gypsum board manufactured with recycled paper facings, may require additional preparation such as careful sanding and an additional coat of Sikagard® Duroplast® PS primer/sealer to eliminate high suction spots.

Concrete Masonry: Mortar joints must be at least 28 days old prior to application of Sikagard® Duroplast® EE blockfiller. Remove all traces of efflorescence, loose mortar, mortar spatters, residues, oxidation powder and any other foreign matter by scraping and wire brushing. Bug holes, cracks or irregularities should be filled and levelled with SikaTop® or Sika MonoTop® mortars as appropriate. Consult Sika Canada for recommendations

Concrete Vertical Surfaces: New concrete must be at least 28 days old prior to application of Sikagard® Duroplast® EE blockfiller. Formed concrete surfaces must have all traces of form release agent, bond breaker, curing compounds, laitance, oxidation powder and all other foreign matter removed from the surface. Prepare the concrete to produce an open textured, sandpaper-like finish and uniform surface equivalent to ICRI - CSP 1-2. Bug holes, cracks or irregularities should be filled and levelled with SikaTop® or Sika MonoTop® mortars as appropriate. Consult Sika Canada for recommendations.

Common Steel: All steel to be coated must be dry, clean and stable before applying the coating. Remove all existing treatments such as coatings, sealers, wax, and contaminants i.e. dirt, dust, grease, oils, and foreign matter, which will interfere with the adhesion of Sikagard® Cor-Pro-470. Prepare steel substrates by appropriate mechanical means, such as abrasive blast-cleaning in order to achieve clean white metal profile equivalent to SSPC-SP10, Near White Metal, with a 2 to 4 mils anchor profile and apply Sikagard® Cor-Pro-470 primer immediately, before oxidation of the steel occurs.

Mixing	<p>Thoroughly pre-stir each component separately to ensure that all solids are distributed throughout and components are consistent within themselves. Empty Component B in the correct mix ratio to Component A into a suitably sized, clean mixing vessel. Mix the combined components at low-speed (200 - 300 rpm) for at least three (3) minutes, using a drill fitted with an <i>Exomixer</i>® type mixing paddle (recommended model) suited to the volume of the mixing container with and to minimize air entrapment.</p> <p>During the mixing operation, and observing good safety practices, ie turning off and removing revolving parts, scrape down the sides and bottom of the mixing container with a flat or straight edge trowel at least once to ensure complete blending of Components A + B.</p> <p>Note: Do not attempt to attend to unmixed material that may gather on the sides of the mixing container while mechanical or electrical parts are in motion.</p> <p>When completely mixed, Sikagard® Duroplast®-100 N or Sikagard® Duroplast®-150 N should be uniform in colour and consistency within themselves. Mix only that quantity of material that can be used within its pot life.</p>
Application	<p>General Application Requirements</p> <p>Any areas of glass or other such surfaces should be covered and masked to protect against contact with the coatings. It is recommended that suitable cleaning rags, Sika® Epoxy Cleaner cleaning solvent and clean water is on hand to remove accidental splashes and return surfaces to being clean.</p> <p>After application and prior to drying, remove masking tape in between each coat to avoid 'ripping' in the finished coating and let surfaces dry completely.</p> <p>All substrates must be properly prepared, primed, sealed or filled using the applicable Sikagard® Duroplast® product before application of Sikagard® Duroplast®-100 N bed coat. See Surface Preparation section on this product data sheet and that for Sikagard® Duroplast®-100 N for complete details.</p> <p>Sequential Application Steps</p> <p>Step One / Bed Coat</p> <p>Starting at the outside edge of the application area, mix and apply a bed coat of Sikagard® Duroplast®-100 N. Apply the material uniformly with a roller to the wall at a coverage rate of 5 m²/L (202 ft²/US gal.) to achieve a uniform 8 mil w.f.t. (7.5 mil d.f.t.).</p> <p>Step Two / Lay-up Glass Fabric</p> <p>Lay up the first panel of Sika® Duochem F.R. Mesh into the 'wet' bed coat, taking care not to entrap air behind the panel. Do not twist the fabric; it must lay flat against the wall. Apply the next panel, 'edge-to-edge' with the adjacent panel. Over lapping the fabric and cutting is typically not required when panels are correctly installed to be straight.</p> <p>Note: Do not use a seam roller on the edges.</p> <p>Step Three / Remove Entrapped Air and Trim</p> <p>Smooth out the panels with a wallpaper smoother or an aluminium-finned ("air-out") roller to ensure complete contact with the 'wet' resin. Work from the centre of the panel to the edge to force out any entrapped air, taking care to remove any surface irregularities. Ensure that the fabric is pressed firmly into corners to avoid hollow areas. Trim and remove excess fabric at the ceiling and base with a sharp knife.</p> <p>Step Four / Saturant Coat</p> <p>Mix and apply a saturant coat of Sikagard® Duroplast®-100 N before the bed coat has hardened. Apply the material uniformly with a roller to the wall at a coverage rate of 5 m²/L (202 ft²/US gal.) to achieve a uniform 8 mil w.f.t. (7.5 mil d.f.t.). Saturation is complete when the entire glassfibre mat has lost its whiteness, appearing slightly translucent and completely embedded in epoxy resin.</p> <p>Step Five / Sand Imperfections</p> <p>Allow overnight cure (minimum 12 hours at 20 °C). Lightly sand the surface where required to remove high points, projections or any other imperfections using 120 - 220 grit sandpaper. Vacuum and wipe surface with lint-free, clean and dry cloth to remove all residual traces of sanding dust before the application of the next layer.</p> <p>Step Six / Smoothing Coat</p> <p>Mix and apply a sealing and smoothing coat of Sikagard® Duroplast®-100 N. Apply the material uniformly with a roller to the wall at a coverage rate of 5 m²/L (202 ft²/US gal.) to achieve a uniform 8 mil w.f.t. (7.5 mil d.f.t.). Allow overnight cure (minimum 12 hours at 20 °C). Lightly sand the surface where required to remove high points, projections or other imperfections using 120 - 220 grit sandpaper. Vacuum and wipe surface with a lint-free, clean and dry cloth to remove all residual traces of sanding dust before the application of the next layer.</p> <p>NOTE: At the completion of Step Six, the Sika® Duochem F.R. Mesh weave pattern should not be visible.</p>

Step Seven / Finish Coats

Mix and apply the first finish coat of Sikagard® Duroplast®-150 N. Apply the material uniformly with a roller to the wall at a coverage rate of 5 m²/L (202 ft²/US gal.) to achieve a uniform 8 mil w.f.t. (4 mil d.f.t.) dependent upon finish chosen. Allow overnight cure (minimum 12 hours at 20 °C). Lightly sand the surface where required to remove high points, projections or other imperfections using 120 - 220 grit sandpaper.

Vacuum and wipe surface to remove all residual traces of sanding dust before the application of the next layer.

Mix and apply the second finish coat of Sikagard® Duroplast®-150 N. Apply the material uniformly with a roller to the wall at a coverage rate of 5 m²/L (202 ft²/US gal.) to achieve a uniform 8 mil w.f.t. (4 mil d.f.t.) dependent upon finish chosen. Protect from dampness, condensation and water contact during the initial 24 hour cure period at 20 °C.

The completed surface of the Sikagard® Duroplast® F.R.S. coating system should be of a uniform, smooth glaze-like appearance, free of surface irregularities.

Clean Up	Collect and contain spills with absorbent product. Discard in accordance with applicable regulations. Once hardened, product can only be removed mechanically. Clean tools and brushes with Sika® Epoxy Cleaner.
Limitations	<ul style="list-style-type: none">▪ Sikagard® Duroplast® F.R.S. systems are best installed by skilled and experience applicators. Consult Sika Canada for advice and recommendations.▪ Prior to application, measure and confirm Substrate Moisture Content, Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point. During installation, confirm and record above values at least once every three (3) hours, or more frequently whenever conditions change (e.g. Ambient Temperature rise / fall, Relative Humidity increase / decrease, etc.)▪ Beware of condensation! The substrate must be at least 3 °C (5 °F) above the Dew Point to reduce the risk of condensation, which may lead to adhesion failure or “blushing” on the finish. Be aware that the substrate temperature may be lower than the ambient temperature.▪ Protect from dampness, condensation and water contact during the initial 24 hour cure period.▪ Maximum Moisture Content of concrete, masonry surfaces, gypsum board and plaster: Moisture content of all concrete substrates must be no greater than 4 % when measured with a calibrated moisture meter for concrete (Tramex CME/CMExpert). Masonry surfaces, gypsum board and plaster must be below 85 (green zone on the reference scale) when measured with a calibrated electronic moisture meter (Delmhorst Model BD-10).▪ Minimum age of concrete / masonry surfaces prior to application: 28 days (depending on curing and drying conditions)▪ Minimum age of SikaTop® or Sika MonoTop® mortar prior to application is three (3) days, depending on curing and drying conditions. Moisture content must be no greater than 4 % when measured with a calibrated moisture meter for concrete (Tramex CME/CMExpert).▪ Ambient Air Relative Humidity: Sikagard Duroplast 100 N - Maximum 85 %. and Sikagard Duroplast 150 N - Maximum 75 % (during application and cure).▪ Material Temperature: Condition material for at least 24 hours at temperatures between 18 and 30 °C (65 and 86 °F)▪ Ambient and Substrate Temperatures (Min. / Max.): 10 / 30 °C (50 / 86 °F). Mixing and Application must adhere to Material, Ambient and Substrate temperatures listed above or a decrease in product workability and slower cure rates will occur. Note: At low temperatures and/or under high humidity conditions, curing times will be extended.▪ Do not apply onto porous surfaces where moisture vapour transmission will occur during application.▪ Apply product to dry, clean, properly cured and prepared surfaces in areas where dust is no longer generated by construction activities, such that airborne particles will not reduce bond of coating or adhere to the surface, affecting the quality of subsequently applied finishes.▪ When over-coating existing coatings, compatibility and adhesion testing is required and existing coating must be acknowledged as determining the adhesion and performance of all subsequently applied materials.▪ Specific product data is available for the component parts of the Sikagard® Duroplast® F.R.S. and must be read in conjunction with the system sheet before application.▪ This product is not designed nor intended for negative side waterproofing.▪ Do not hand mix Sikagard® Duroplast® resin materials; mechanical mixing only.▪ Not suitable for use as a traffic bearing surface or as a roofing material.

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.
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KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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, within their shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: www.sika.ca

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