BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET

Sikagard® CRV-20

CHEMICAL-RESISTANT, NOVOLAC VINYL ESTER RESIN COATING, SURFACING AND LINING

PRODUCT DESCRIPTION

Sikagard® CRV-20 is a protective coating/surfacing/lining designed for use where chemical resistance is required on concrete or steel substrates. Typically used in conjunction with Sikagard® WDE Primer, a two-component epoxy primer that provides excellent adhesion to dry or damp concrete substrates. Sikagard® CRV-20 is based upon a modified Novolac Vinyl Ester polymer resin that provides a hard, durable surface with high resistance to a variety of solvents, acids, and oxidizing substances. As a stand-alone coating (without epoxy primer) it has excellent dry heat-resistance up to 140 °C (284 °F). Final surface appearance options include: integral cove base and variable surface texture to produce a range of slip-resistant improved traction finishes.

WHERE TO USE

- Sikagard® CRV-20 may only be used by experienced professionals
- As a smooth, chemical-resistant lining on concrete or steel substrates
- As a textured broadcast surfacing to provide a durable wearing surface in high traffic areas exposed to chemicals
- Protection of containment tanks, machine bases, and plant floors and walls exposed to aggressive chemicals
- Suitable for use in direct exposure and secondary containment areas to provide excellent protection for concrete and steel substrates against a wide range of chemicals

CHARACTERISTICS / ADVANTAGES

- Sikagard® CRV-20 may be applied as a smooth coating or as a heavy-duty build-up surfacing incorporating aggregate
- Both systems are suitable for vertical and horizontal surfaces
- Excellent protection for new or old concrete and properly prepared steel surfaces
- Fast curing: ideal for quick turnaround projects
- Durable, impermeable and seamless surface
- Exhibits excellent impact, abrasion and fatigue-resistance
- Excellent wide-range chemical resistance. See product specific Chemical Resistance Guide

PRODUCT INFORMATION

CSC MasterFormat®	**09 96 35 | CHEMICAL-RESISTANT COATINGS**
Composition / Manufacturing	**A (Resin)**: Vinyl Ester Resin **B (Hardener)**: Benzoyl Peroxide Powder
Packaging	Component A: 3.75 L (1 US gal.) can Component B: 80 g (130 mL) plastic container
Shelf Life	Component A - six months ; component B - 24 months: in original, undamaged and unopened packaging.
Storage Conditions	Store dry between 5 °C and 32 °C (41 °F and 89 °F) off the ground on pallets or similar. Protect Sikagard® CRV-20 from freezing. If frozen, discard.
Appearance / Colour	RAL 7046 Telegrey 2. Special colours (on request). Refer to current price list for availability.
Density	~1.08 kg/L (~9.0 lb/US gal.) A+B Mixed
Viscosity	**A (Resin)**: ~500 cps **B (Hardener)**: Powder **A+B Mixed**: ~500 cps
Volatile organic compound (VOC) content	≤ 60 g/L

TECHNICAL INFORMATION

Abrasion Resistance	Smooth Coating	~0.2 g (~0.007 oz)	(ASTM D4060) CS-17/1000 g (2.2lb)/1000 cycles
	Broadcast Surfacing	~0.1 g (~0.004 oz)	
	Smooth Coating	~1.3 g (~0.045 oz)	(ASTM D4020) H-22/1000 g (2.2 lb)/1000 cycles
	Broadcast Surfacing	~0.8 g (~0.028 oz)	
Tensile Strength	~70 MPa (~10 152 psi)		(ASTM D638)
	Tensile Modulus: ~3520 MPa (~510 533 psi)		(ASTM D638)
Elongation at Break	~3%		(ASTM D638)
Temperature Resistance	**Heat Distortion Temperature:** ~140°C (~284°F)		(ASTM D648)
Chemical Resistance	Consult Sika Canada		

APPLICATION INFORMATION

Consumption

Yield

Concrete Substrates / Smooth Coating:

Primer Coat	Sikagard® WDE Primer	4 m²/L (163 ft²/US gal.) 10 mil w.f.t.
1st Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.
2nd Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.

Maximum build per coat for Sikagard® CRV-20 on vertical surfaces is 10 mil wft. Three coats may be required to produce a smooth coating vertically.

Concrete Substrates / Broadcast Build-Up Surfacing:

Primer Coat	Sikagard® WDE Primer	4 m²/L (163 ft²/US gal.) 10 mil w.f.t.
Aggregate	#32 mesh (spherical) 0.3-0.85 mm	2.5 kg/m² (50 lb/100 ft²)
Broadcast Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.
Aggregate	#32 mesh (spherical) 0.3-0.85 mm	2.5 kg/m² (50 lb/100ft²)
Top Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.

Steel Substrates / Smooth Coating:

1st Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.
2nd Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.

Maximum build per coat for Sikagard® CRV-20 on vertical surfaces is 10 mil. Three coats may be required to produce a smooth coating vertically.

Steel Substrates / Broadcast Build-up Surfacing:

NOTE: Sikagard® WDE Prime Coat shown below is only required on steel substrates to produce a thicker wear coarse layer in areas subject to heavy traffic.

Primer Coat	Sikagard® WDE Primer	4 m²/L (163 ft²/US gal.) 10 mil w.f.t.
Aggregate	#32 mesh (spherical) 0.3-0.85 mm	2.5 kg/m² (50 lb/100 ft²)
Broadcast Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.
Aggregate	#32 mesh (spherical) 0.3-0.85 mm	2.5 kg/m² (50 lb/100 ft²)
Top Coat	Sikagard® CRV-20	2.6 m²/L (105 ft²/US gal.) 15 mil w.f.t.

Product Temperature	Condition product at temperatures between 18 °C and 24 °C (65 °F to 75 °F) before using.
Ambient Air Temperature	Minimum 15 °C (59 °F) Maximum 30 °C (86 °F)
Relative Air Humidity	Maximum 85 % (during application and cure)
Dew Point	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 floor finish. Be aware that the substrate temperature may be lower than the ambient temperature.
Substrate Temperature	Minimum 15 °C (59 °F) Maximum 30 °C (86 °F) Mixing and application attempted at material, ambient and/or substrate temperature conditions less than 18 °C (65 °F) will result in a decrease in product workability and slower cure rates.
Substrate Moisture Content	Moisture content of a concrete substrate at the time of application of Sikagard® WDE Primer must be < 6 % (pbw-part by weight) as measured with a Tramex® CME/CM Expert type concrete moisture meter on mechanically prepared surface according to this product data sheet (preparation to ICRI / CSP 3 - 4). Do not apply to concrete substrate with moisture levels exceeding 6 % (pbw – part by weight) as measured with Tramex® CME/CMExpert type

	concrete moisture meter. If moisture content of concrete substrate exceeds 6 % (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter,use Sikafloor®-81 EpoCem®CA on horizontal surfaces and Sikagard®-75 EpoCem®CA on walls and overhead applications. **NOTE:** Vinyl Ester materials do not bond well to damp substrates. Sikagard® CRV-20 must be applied over a concrete substrate primed with Sikagard® WDE Primer as recommended in the "Application" section.	
Pot Life	~12 minutes (Novolac Vinyl Ester Resin + Benzoyl Peroxide Powder)	
Curing Time	**Tack-free Time**	~35 minutes
	Traffic Exposure	~4 hours
	Chemical Exposure	~24 hours
	Curing time will vary according to air and substrate temperatures and relative humidity. Freshly applied material should be protected from dampness, condensation and water for at least 24 hours. Mechanical, chemical & physical properties will be fully achieved at full cure.	
Waiting Time / Overcoating	**CRV 20 to CRV 20**	Minimum ~1.5 hours Maximum ~24 hours

BASIS OF PRODUCT DATA

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.
Properties tested at 23 °C (73 °F) and 50 % R.H. unless stated otherwise.

LIMITATIONS

- Sikagard® CRV-20, as a primary or secondary containment system, is best installed by skilled and experienced applicators. Consult Sika Canada Technical Service for advice and recommendations.
- Prior to application, measure and confirm the following: 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.).
- Do not apply Sikagard® to concrete substrate containing aggregates susceptible to ASR (Alkali Silica Reaction) due to risk of natural alkali redistribution below the Sikagard® product after application. If concrete substrate has or is suspected to have ASR (Alkali Silica Reaction) present, do not proceed. Consult with design professional prior to use.
- Any aggregate used with Sikagard® systems must be non-reactive and oven-dried.
- This product is not designed for negative side waterproofing.
- Typically not recommended for exterior slabs on grade where freeze/thaw conditions may exist.
- Do not apply onto porous surfaces where moisture vapour transmission will occur during application.
- Do not apply to surfaces where moisture vapour can condense and freeze.
- Do not apply to polymer modified cement mortars (PCC) that may expand when sealed with an impervious resin.
- Direct-fired gas or kerosene heaters produce by-products that can have adverse effects on the curing product. To avoid this occurrence, heaters must be exhausted to the exterior of the building to avoid defects such as amine blush, whitening, loss of adhesion or other surface deficiencies.
- While the material is supplied in colours, it is not intended and should not be used as a decorative finish, but as a chemical resistant barrier. In addition to discolouration due to ultraviolet light, exposure to some chemicals may result in a change in the appearance of the finish, with loss of gloss values, change in colour and or staining. This however, does not necessarily constitute a compromise of this protective surfacing.

ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Concrete: Concrete substrates must be clean and sound. Remove any dust, laitance, grease, oil, dirt, curing agents, impregnations, wax, foreign matter, coatings and detritus from the surface by appropriate mechanical means, in order to achieve a profile equivalent to ICRI-CSP 3-4 for floors and ICRI-CSP 2-3 for walls. The compressive strength of the concrete substrate should be at least 25 MPa (3625 psi) at 28 days and at least 1.5 MPa (218 psi) in tension at the time of application of Sikagard® WDE Primer and Sikagard® CRV-20.

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® CRV-20. Prepare steel substrates by appropriate mechanical means, such as abrasive blastcleaning in order to achieve clean white metal profile equivalent to SSPC-SP10, Near White Metal, 2 to 4 mil anchor profile and apply coating immediately, before oxidation of the steel occurs.

MIXING

Do not hand mix Sikagard® materials. Mechanically mix only. Sika recommends mixing only full units because it is difficult to accurately split in to smaller quantities.
Do not thin this product. Addition of thinners (e.g. water, solvent, etc.) will slow cure and reduce ultimate properties of this product. Use of thinners will void any applicable Sika® warranty
Pre-stir resin component thoroughly and do not allow mixed material to stand and settle. Failure to pre-stir and keep product agitated will result in variation in gloss levels appearance and performance.
Sikagard® CRV-20 is supplied as two-components: a resin and a powder. Thoroughly stir Component A to ensure all solids, including pigments, are evenly dispersed. While stirring, periodically check interior of can with stir-stick or similar to again ensure dispersal and distribution of solids throughout resin. Add Component B to pre-stirred Component A and thoroughly mix for one (1) minute with a low-speed drill (200-300 rpm) to minimise air entrapment. Use an Exomixer®-type mixing paddle (recommended model) of suitable size for the mixing vessel. During the mixing operations, scrape down the sides and bottom of the container with a flat- or straight-edge trowel at least once to ensure complete mixing. When completely mixed, Sikagard® CRV-20 should be uniform in colour and consistency.

APPLICATION

See "Yield Section" of this Product Data Sheet for specific application thickness and number of coats recommended.
Concrete Substrates / Smooth Coating: This provides a smooth, easy-to-maintain system.
Primer Coat: Apply Sikagard® WDE Primer onto concrete substrate using a brush, roller or squeegee to a uniform coverage without ponding. Allow primer to cure for a minimum of 6 hours at 20 °C (68 °F) or 10 hours at 10 °C (50 °F) before over-coating with Sikagard® CRV-20.
1st Coat: Once the Sikagard® WDE Primer has cured, apply Sikagard® CRV-20 using a brush, roller or squeegee to a uniform coverage without ponding.
2nd Coat: Once 1st coat is tack-free, apply a second coat of Sikagard® CRV-20 using a brush, roller or squeegee to a uniform coverage without ponding.
NOTE: If over-coating of Sikagard® WDE Primer with Sikagard® CRV-20 is attempted before the necessary curing-time has elapsed, the reactive components in the Sikagard® CRV-20 will act as a solvent, softening the Sikagard® WDE Primer, retarding or stopping the cure of the Sikagard® CRV-20. For additional information, see Sika's "Sikagard® CRV 10 and CRV-20 - Properties and Application Guidelines" Technical Bulletin.
Concrete Substrates / Broadcast Build-up Surfacing: This method produces a durable, textured, slip-resistant, improved traction finish.
Primer Coat: Apply Sikagard® WDE Primer onto concrete substrate using a brush, roller or squeegee to a uniform coverage without ponding. Broadcast the selected aggregate (selected for texture) into the wet primer to rejection.
Broadcast Coat: Once the primer coat has sufficiently cured to allow foot-traffic, sweep-up and vacuum the loose, unbonded aggregate. Apply the broadcast coat of Sikagard® CRV-20 using a notched squeegee or trowel and backroll to a uniform coverage. Broadcast the selected aggregate (selected for texture) into the wet resin to rejection.
Top Coat: Once the broadcast coat has sufficiently cured to allow foot-traffic, sweep-up and vacuum the loose unbonded aggregate. Apply the top coat of Sikagard® CRV-20 using a squeegee, followed by back rolling to provide a uniform texture and finish.

Steel Substrates:
Consolidation and sealing of common steel substrates with Sikagard® WDE Primer is not usually required under typical circumstances. However, due to variations in steel quality, surface condition, surface preparation and ambient conditions, reference test areas are recommended to determine whether priming is required to prevent the possibility of debonding, blisters, pin-holes or other defects. Contact Canada. Application of Sikagard® CRV-20 over properly-prepared steel surfaces is typically the same procedure as outlined above for both Smooth Coating and Broadcast Build up Surfacing over concrete substrates, excluding the use of Sikagard® WDE primer, unless a thicker wear coarse layer is required to resist heavy traffic.

See “Consumption” section of this Product Data Sheet above for specific application thickness and number of coats recommended.

IMPORTANT INSTALLATION REQUIREMENTS!

1. Over-coating Sikagard® WDE Primer with Sikagard® CRV-20 attempted before the necessary curing-time has elapsed, will soften the Sikagard® WDE Primer, retarding or stopping the cure of the Sikagard® CRV-20.
2. Sikagard® CRV-20, will not cure properly in the presence of styrene vapours given off during initial cure. To achieve proper cure, a small amount of air movement causing a fresh air exchange and displacing the styrene vapours is mandatory.
3. Sikagard® CRV-20, will not cure uniformly when applied at less than 10 mil w.f.t. per coat.
4. Sikagard® CRV-20 is very fast curing. Do not over work the surface during application.
5. Due care should be exercised during application and initial cure as the product is flammable; users should refer to the most recent SAFETY DATA SHEET for advice on the safe handling, storage and disposal.

For additional information, see Technical Bulletin - Sikagard® CRV-20 Properties and Application Guidelines.

CLEAN UP

Clean all tools and equipment immediately with a MIBK-based product. Once hardened, product can only be removed mechanically.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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 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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