



METHOD STATEMENT

Sikagard[®]-7000 CR

APRIL 2026 / 1.0 / SIKA CANADA INC.

EXTERNAL

**BUILDING TRUST
CONSTRUIRE LA CONFIANCE**



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1 SCOPE

This method statement serves as a valuable tool to support the specification and application of the Sikagard®-7000 CR – our concrete protection system with a unique combination of application and performance properties. Its fast and easy application by rolling or spray, as well as its excellent curing properties allow the efficient, safe, and continuous operation of wastewater treatment structures.

High chemical resistance, including biogenic sulfuric acid attack, and its ability to bridge cracks of up to 0.5 mm makes the Sikagard®-7000 CR system the ideal solution for concrete protection against waste and contaminated water in wastewater treatment plants, sewer infrastructure, and secondary containment of chemical tanks in industrial environments.

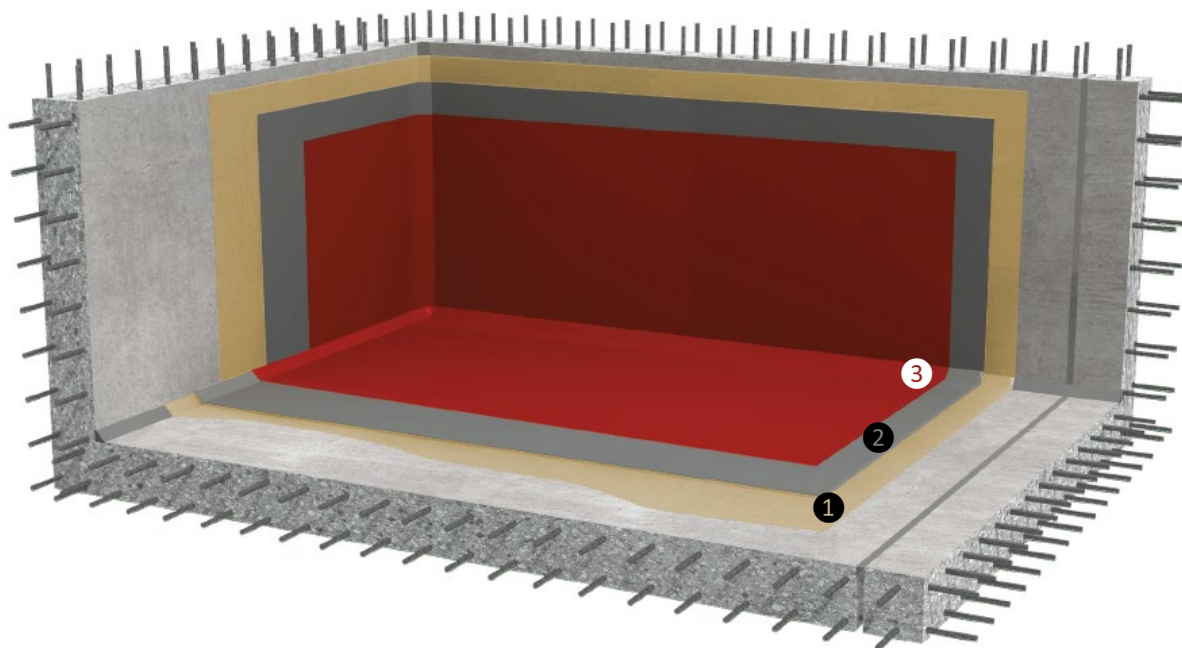
2 SYSTEM DESCRIPTION

The concrete infrastructure of wastewater treatment systems is subject to complex physical and chemical deterioration processes. Uncoated concrete is particularly susceptible to so-called biogenic sulfuric acid attack (BSA) leading to structural concrete damages. The performance proven Sikagard®-7000 CR system significantly extends the life cycle of concrete structures in aggressive wastewater environments.

Sikagard®-7000 CR is used in waterproofing and protective applications that require a high level of chemical resistance, such as:

- Waste water treatment plants in inflow and outflow areas
- Sewage effluent pipelines
- Sludge treatment, digesters and biogas tanks
- Secondary containment of tanks containing chemicals

2.1 SYSTEM STRUCTURE



① = Primer Sikagard® P 770

② = Membrane (1st coat): Sikagard® M 790 grey

③ = Membrane (2nd coat): Sikagard® M 790 red

2.2 PRIMERS

2.2.1. Sikagard® P 770

Sikagard® P 770 is the main primer designed for the Sikagard®-7000 CR system.

Sikagard® P 770 is a two-component primer based on Xolutec® Technology, providing high substrate penetration and acting as bond promoter for the subsequent coatings. The primer layer improves adhesion and prevents the appearance of pinholes or bubbles in hardened overlaid coatings.

2.2.2. Sikagard®-75 EpoCem® CA

Sikagard®-75 EpoCem® CA is a three-component, epoxy modified, cementitious, solvent-free, moisture insensitive, structural resurfacing and pore-filling mortar. It is specially formulated for vertical levelling and structural reprofiling of damp, “green” or saturated surface dry concrete. It can be applied for resurfacing 0.5-3 mm (20 – 120 mil) thick. It can be trowelled or sprayed. It provides a temporary moisture barrier prior to the application of resin based coatings, and prevents osmotic blistering during application.

It is packaged as a 23 kg (51 lb) / 11.3 L (3 US gal.) unit, with a mixing ratio of 1.07 kg (2.36 lbs) (A) + 2.93 kg (6.46 lbs) (B) + 16-19 kg (35.2 – 41.89 lbs) (C- depending on the required consistency) (by weight).

2.2.3. Sikafloor®-81 EpoCem® CA

Sikafloor®-81 EpoCem® CA is a three-component, solvent-free, odourless, moisture-insensitive, water based epoxy modified cementitious, fine textured mortar for self-smoothing floor screeds. Specifically formulated for levelling and structurally reprofiling on damp, green or saturated surface dry concrete slabs at an applied thicknesses ranging from 3 mm to 4 mm (120 mils to 160 mils). It can be trowelled or spread using a flooring spreader (rubber or metal). It provides a temporary moisture barrier prior to the application of resin based coatings, and prevents osmotic blistering during application.

It is packaged as a 21 kg (46.3 lb) / 11.3 L (3 US gal.) unit, with a mixing ratio of (A+B) 4 kg (8.8 lb) of binder (Sika® EpoCem® ModuleCA) + (C) 17 kg (37.4 lb) Bag (powder). Mix full units only.

2.3 PRIMER SELECTION GUIDE

Primer	Applications	Approx. Consumption (w.f.t.)
Sikagard® P 770	Smooth substrates (1 coat)	4 to 6 m ² /L (167 to 244 ft ² /US gal.) ~8 mils (~0.2 mm)
	Slightly irregular substrates (2 coats)	First Coat: 4 to 6 m ² /L (167 to 244 ft ² /US gal.) Second coat: ~6 m ² /L (~244 ft ² /US gal.) ~12 mils (~0.3 mm)
Sikagard® P 770 + Sand + Sika® Extender T	Levelling of porous and uneven surfaces	1 to 1.5 m ² /L (41 to 61 ft ² /US gal.) 16-28 mils (0.4 to 0.7 mm)
Sikagard®-75 EpoCem® CA	Temporary moisture barrier	~5.5 m ² /unit (~59 ft ² /unit) when applied at a thickness of 2 mm (80 mil)
	Repairing spalled and pitted concrete, blowholes and honeycombing	~3.7 m ² /unit (~40 ft ² /unit) when applied at a thickness of 3 mm (120 mil)
Sikafloor®-81 EpoCem® CA	Temporary moisture barrier	Primer for Self-Smoothing Mortar: 5 m ² /L to 10 m ² /L (200 ft ² /US gal to 400 ft ² /US gal) Self-Smoothing Mortar: 3.3 m ² (35 ft ²) per mixed unit at 3 mm (120 mils)
	Extended with quartz sand, as a patch & repair mortar for thickness of 6 mm to 200 mm (1/4 to 8 in)	Primer for Extended Trowel Grade Patching Mortar: 2 m ² /L (80 ft ² /US gal) ~20 mils Extended Trowel Grade Patching Mortar: 41 kg (90.3 lb) /19.1 L (5.05 US gal) / 0.019 m ³ (0.67 ft ³)

2.4 MEMBRANE

Sikagard® M 790 is a two-component crack-bridging membrane based on Xolotec® Technology providing high chemical and mechanical resistance.

Sikagard® M 790 has proven resistance to BSA attack over the long term (Fraunhofer Institute, Germany).

In addition, it is CE-certified according to EN 1504-2 and tested to many chemicals according to EN 13529 (Resistance to severe chemical attack).

Features and benefits:

- **Easy hand application** by roller or brush
- **Continuous monolithic membrane** – no overlaps, welds, or seams
- **Excellent chemical resistance**, including high concentrations of BSA
- **Waterproof** and resistant to standing water
- **Bonds fully to substrates** – can be applied to a wide range of surfaces with the appropriate primer
- **High resistance to carbon dioxide diffusion** – protects concrete from rebar corrosion
- **High tear, abrasion, and impact resistance** – can be used in high traffic and other exposed areas
- **Tough but flexible and crack-bridging**
- **Highly durable and protective** – reduces cracking caused by embrittlement
- **Thermoset** – does not soften at high temperatures
- **Excellent adhesion** to different substrates (concrete and steel)
- **Weatherproof** – proven resistance to thundershowers and freeze-thaw cycles
- **Does not contain solvents and is low odour**
- **Can be spray-applied** with selected two-component spray machines

3 SUBSTRATE

3.1 TYPE OF SUBSTRATE

Sikagard®-7000 CR can be applied onto:

- Concrete – it may be dry or damp, but free of standing water
- Cementitious mortars
- Epoxy mortars
- Iron or steel (small areas only – e.g. parts of installations or pipe inlets inside of concrete tanks)

3.2 PREPARATION OF THE SUBSTRATE

3.2.1 CONCRETE

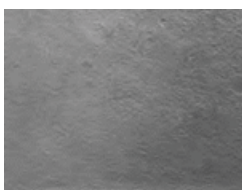
All substrates – whether new or old – must be structurally sound, touch-dry, free of laitance and loose particles, and clean of oil, grease, rubber skid marks, paint stains, and other adhesion-impairing contaminants.

Hardness, durability, and evenness (smoothness) of the concrete are very important parameters for the preparation of the substrate. To guarantee the integrity of the Sikagard®-7000 CR system to the subjected structure, the concrete substrate must have an average pull off strength of 1.5 MPa with no single test value below 1.0 MPa. If other primers are used, confirm the requirements on the Product Data Sheet (PDS) for that product.

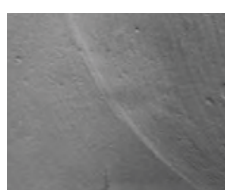
Aside to soundness of the substrate, it is also crucial to prepare the substrate to achieve a smooth and even surface profile.

This will help to reduce the risk of pinholes, pores and other irregularities on the finished membrane surface. Therefore, the surface preparation method must be selected wisely. International Concrete Repair Institute's (ICRI) Guideline No. 310.2R 2013 can be used as a guide for concrete surface preparation.

This guideline sets standard concrete surface profiles (CSP) and recommends the surface preparation methods for achieving the intended CSP.



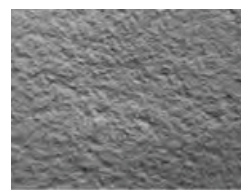
CSP1



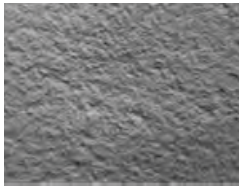
CSP2



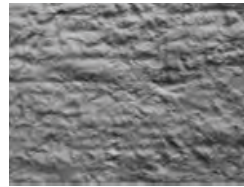
CSP3



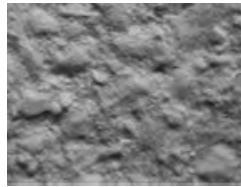
CSP4



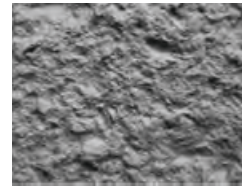
CSP5



CSP6



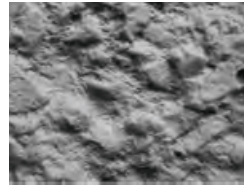
CSP7



CSP8



CSP9



CSP10

CSP 1 and CSP 2 are the recommended concrete surface profiles to achieve a smooth, seamless membrane surface finish. But it is not easy to achieve these smooth surface profiles along with the sufficient hardness (>1.5 MPa). Especially it is very difficult in case of old structures with deteriorated concrete. In this case, CSP 3 and CSP 4 are still accepted as proper surface profiles, which does not require any specific surface levelling measure prior to primer application, and it is still possible to achieve relatively smooth membrane surface finish. Again, if other primers are used, consult the individual PDS for the required CSP. Furthermore, older and deteriorated concrete that has been subjected to BSA may have visible aggregates exposed. This does not necessarily constitute a proper CSP, as BSA can destroy the binding paste of the concrete matrix. Proper surface preparation is most often still required and should be verified accordingly. See the following chart, which guides the surface preparation methods for targeted concrete surface profiles.

Substrate preparation method	CSP1	CSP2	CSP3	CSP4	CSP5	CSP6	CSP7	CSP8	CSP9	CSP10
Low pressure water cleaning										
Grinding										
Abrasive blasting										
Shotblasting										
High- and ultra-high pressure water jetting										
Handheld concrete breaker										

As can be seen in the chart, grinding, light sand blasting or light shot blasting are the proper methods to achieve smooth concrete surface profiles. High pressure water jetting may also be used but it must be applied carefully for avoiding over-damaging the surface. CSP 1 and CSP 2 do not require any special surface levelling application. Starting from CSP3 up to CSP7 some special measures need to be taken during primer application or even require surface levelling to achieve a smoother substrate prior to membrane application. The recommended priming and surface preparation methods (hand applied) depending on the achieved CSP are shown in the following chart.

Substrate preparation method	CSP1	CSP2	CSP3	CSP4	CSP5	CSP6	CSP7	CSP8	CSP9	CSP10
Sikagard® P 770 (one layer)										
Sikagard® P 770 in 2 layers										
Sikagard® P 770 + sand + Sika® Extender T										
Sikagard®-75 EpoCem® CA										
Sikafloor®-81 EpoCem® CA										
Sikadur®-31 Hi-Mod GelCA*										
SikaTop®-122 Plus										
SikaTop®-123 Plus										
Sika MonoTop®-410 F										
SikaEmaco® S 448 CI										

*Used as an epoxy mortar

Sikagard® P 770 is the primary choice as primer of the Sikagard®-7000 CR system. It is recommended to apply this primer in single layer on smooth concrete surfaces (CSP1 and CSP2) with low absorption. The aim is to achieve a seamless, sound substrate prior to membrane applications. In some cases, especially on more porous surfaces (CSP3 and CSP4) pinholes may still be visible after primer application. To seal the pinholes a second coat of Sikagard® P 770 must be applied.

Alternatively, the primer can be mixed with sand and thickener to obtain a fine, thixotropic fairing coat to level the uneven, porous concrete surfaces to achieve a smooth and sound surface. Oven-dried, fine quartz sand (0.1-0.3 mm) should be mixed with Sikagard® P 770 in 1:1 mixing ratio by weight. Afterwards, Sika® Extender T should be added to this mixture in 1% by weight (of the Sikagard® P 770 + sand mix) to achieve the thixotropic consistency. The final material can be easily applied on concrete surface by using a steel trowel.

Sikagard®-75 EpoCem® CA (sloped or vertical applications) or Sikafloor®-81 EpoCem® CA (horizontal) (up to max. 3 mm thickness) can be also used on the porous substrates (CSP4 – CSP5/6) for the same intention. In these cases, there is no need to re-use Sikagard® P 770 as primer layer on levelled surfaces and Sikagard® M 790 should be applied directly after curing of the previous layer (see PDS for recoat times). The only exception: in the case of rising moisture or negative water pressure, it is recommended to apply one coat of Sikagard® P 770 on top of the Sikagard® EpoCem® primers to minimize the risk of failure.

Sikadur®-31 Hi-Mod Gel CA epoxy mortar can be used on a prepared CSP (3-6) to repair spalled and pitted concrete, blowholes and honeycombing. It can also be used for some larger repairs for faster turnarounds or for kicker joints (wall-to-floor/wall-to-wall connections – see below).

SikaTop®-122 Plus, SikaTop®-123 Plus, Sika MonoTop®-410 F or SikaEmaco® S 488 CI are alternative cementitious mortars for levelling porous and uneven surfaces. It should be noted that in case where fairing coats or repair mortars were used for levelling the surface, the complete surface must be primed with Sikagard® P 770 once the mortars are sufficiently hardened (please refer to the individual PDS of the products).

Correct substrate preparation is essential for the final performance of the system. The primed surfaces must be levelled, smooth and free of pinholes, otherwise the subsequent coating Sikagard® M 790 may not give a monolithic coating free of defects!

3.2.2 STEEL / IRON

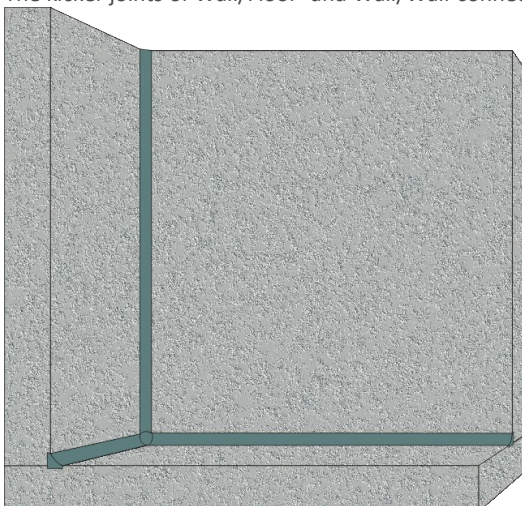
Steel or iron surfaces must be sand blasted to a SSPC SP10 (Near-White Metal Finish) (or SA 2½ finish) prior to application of the System. The metal should also be wiped clean with a solvent dampened rag to remove all residual contaminants. No primer coat is needed for application of Sikagard® M790 on steel.

Note: only steel/iron elements (small areas) as part of concrete structures should be coated with Sikagard®-7000 CR.

Substrate temperature must be minimum 5°C (41°F) and maximum 35°C (95°F). The temperature of the contact surfaces must be at least 3 °C above the ambient dew point temperature.

3.2.3 KICKER JOINTS

The kicker joints of Wall/Floor- and Wall/Wall-connections must be rounded using a suitable mortar for coving.



Recommend product is Sikadur®-31 Hi-Mod Gel^{CA} used as an epoxy mortar.

4 SIKAGARD SYSTEM BUILD-UP

Below are the basic guidelines for the full system build-up including all repair and levelling options, the Sikagard® P 770 and EpoCem® primers, as well as the Sikagard® M 790 membrane. The approximate consumption for each product is also indicated.

Function	Product	Application	Consumption (approx.)
Repair / Levelling	Sikadur®-31 Hi-Mod Gel ^{CA*}	Structural repair 3 – 38 mm (1/8 – 1 1/2 in) per lift	1 L of adhesive when mixed with 1 L by loose volume of oven dried sand yields approx. 1.5 L of epoxy mortar (1 US gal. = 231 in ³ . 1 US gal. of adhesive when mixed with 1 US gal. by loose volume of oven-dried silica sand yields approx. 346 in ³ of epoxy mortar.)
	SikaTop®-122 Plus	Neat (3 – 38 mm (1/8 – 1 ½ in)) (max 38 mm (1 1/2 in) per lift vertically)	~ 0.013 m ³ (0.459 ft ³) per unit
		Extended (25 – 100 mm (1 – 4 in))	~ 0.02 m ³ (0.697 ft ³) per unit
	SikaTop®-123 Plus	3 – 38 mm (1/8 – 1 ½ in) per lift	~ 10 L (0.353 ft ³)
	Sika MonoTop®-410 F	Horizontal 10 – 100 mm (3/8 – 4 in) Vertical 3 – 100 mm (3/8 – 4 in) Overhead 3 – 50 mm (1/8 -2 in)	~ 12.9 L (0.45 ft ³) per 22.7 kg (50 lb) bag
	SikaEmaco® S488 CI	Structural repair 10 - 51 mm (3/8 – 2")	0.013 m ³ (0.45 ft ³) per 25 kg (55 lb) bag
Levelling Primer	Sikagard® P 770 + Sand + Sika Extender T*	Fairing coat and Primer (1– 2 mm) on porous and uneven surface	1 to 1.5 m ² /L (41 to 61 ft ² /US gal.) 0.4 to 0.7 mm (16-28 mils)
	Sikagard®-75 EpoCem® CA	Temporary moisture barrier	~5.5 m ² /unit (~59 ft ² /unit) when applied at a thickness of 2 mm (80 mil)
		Repairing spalled and pitted concrete, blowholes and honeycombing	~3.7 m ² /unit (~40 ft ² /unit) when applied at a thickness of 3 mm (120 mil)
	Sikafloor®-81 EpoCem® CA	Temporary moisture barrier	Primer for Self-Smoothing Mortar: 5 m ² /L to 10 m ² /L (200 ft ² /US gal to 400 ft ² /US gal) Self-Smoothing Mortar: 3.3 m ² (35 ft ²) per mixed unit at 3 mm (120 mils)
Extended with quartz sand, as a patch & repair mortar for thickness of 6 mm to 200 mm		Primer for Extended Trowel Grade Patching Mortar: 2 m ² /L (80 ft ² /US gal) ~20 mils w.f.t. Extended Trowel Grade Patching Mortar: 41 kg (90.3 lb) /19.1 L (5.05 US gal) / 0.019 m ³ (0.67 ft ³)	
Primer	Sikagard® P 770	Dense substrates – 1 layer	4 to 6 m ² /L (167 to 244 ft ² /US gal.) ~8 mils (~0.2 mm)
		Porous substrates – 2 layers	First Coat: 4 to 6 m ² /L (167 to 244 ft ² /US gal.) Second coat: ~6 m ² /L (~244 ft ² /US gal.) ~12 mils (~0.3 mm)
Membrane	Sikagard® M 790	Manual Application, first coat	2.4 to 3 m ² /L (98 to 122 ft ² /US gal.) ~16 mils (~0.4 mm)
		Manual Application, second coat	2.4 to 3 m ² /L (98 to 122 ft ² /US gal.) ~16 mils (~0.4 mm)

		Manual Application, optional third coat (harsh conditions)	2.4 to 3 m ² /L (98 to 122 ft ² /US gal.) ~16 mils (~0.4 mm)
		<i>Spray Application (1 or 2 coats, normal conditions)</i>	1.2 to 1.5 m ² /L (49 to 68 ft ² /US gal.)
		<i>Spray Application (2 coats, optional in harsh conditions)</i>	0.86 to 1 m ² /L (35 to 41 ft ² /US gal.)

*Used as an epoxy mortar

5 TEMPERATURE OF APPLICATION

Application can only take place when the ambient temperature is between 5 to 35°C (41 to 95°F). Preferred temperature range is between 15 to 25°C (59 to 77°F).

6 HAND APPLICATION

6.1 SAFETY INFORMATION

The usual safety measures for handling chemical products should be observed when using Sikagard®-7000 CR system components. For example, do not eat, smoke, or drink while working, and wash hands when taking a break and once the job is completed. Safety glasses, gloves, and shoes, as well as respirators and clothes that properly protect the body from chemical contact are mandatory when handling and applying the products. In addition to safety gear, all necessary safety tools must be used when requested by the owner of the jobsite. Specific safety information on the handling and transportation of the products described in this manual can be found in the Safety Data Sheet (SDS) of the individual product.

Disposal of products and their containers should be carried out according to current local regulations and legislation.

6.2 EQUIPMENT

- Handheld electric mixer
- Mixing paddle with two turbine blades fitted one above the other, such as the Collomix DLX/LX 90 S or a dispersing blade (see pictures on the right).
- Roller frames in different sizes
- Shed-resistant roller skin cover with high-density white fabric (5 – 6 mm thick)
- Sash paint brushes in different sizes
- Plastic bucket (min. 10 L)
- Roller tray
- Masking tape



6.3 PRIMER APPLICATION

6.3.1 MATERIAL PREPARATION

Sikagard® P 770 is supplied in the exact mixing ratio in prepacked working kits. For optimum performance, it is recommended that products be reconditioned at around 20°C (68°F) at least 24 hours before application. Open the two Parts of the product and briefly mix the single components with a mechanical drill and suitable mixing paddle (refer to section 6.2) at low speed (max. 400 rpm) to obtain a uniform consistency.

Note: Eventual separation of Part A can occur – this is no product failure, and the material can be easily re-homogenized by mixing using the recommended mixing blade (refer to section 6.2).

Pour the entire contents of Part A into Part B's container and mix with the recommended handheld electric mixer at a low speed (max. 400 rpm) for maximum 90 seconds. Scrape the sides and the bottom of the container several times to ensure thorough mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles.

Do not mix part packs and do not mix by hand!

6.3.2 ROLLER APPLICATION

Sikagard® P 770 can only be applied at an ambient and substrate temperature of between 5 to 35°C (41 to 95°F). To fully cure, the material, substrate, and ambient temperature should not fall below the minimum recommendation.

Quickly and constantly apply the freshly mixed primer on the prepared surfaces in up and down strokes with the recommended roller. Push the roller with enough pressure to wet the substrate, while scanning the surfaces for any unprimed patches.

Beware that the pot life of Sikagard® P 770 is relatively short – maximum 20 minutes at 20°C (68°F) (see Table in Section 6.3.3). Take this into consideration when mixing the amount of material needed on site.

After mixing the full set, in order to minimize the bulk effect, it is recommended to pour the mixed product into smaller containers for the application.

Sikagard® P 770 dries as an intense transparent film (within 5 hours @ 20°C (68°F)). In case there are holes not covered by the primer, apply a second coat of primer. Wait for at least 5 hours (@ 20°C (68°F)) before applying a second coat of Sikagard® P 770 or the first coat of the membrane Sikagard® M 790.

The consumption of Sikagard® P 770 varies according to the porosity of cementitious surfaces. Although 4 to 6 m²/L (167 to 244 ft²/US gal.) ~8 mils (~0.2 mm) of mixed material is enough to prime dense substrates, more material (~6 m²/L (~244 ft²/US gal.) ~12 mils (~0.3 mm)) is required to treat porous substrates and should be applied in at least two layers. This helps to successfully seal the pores. It should be noted that a well-treated substrate is essential for the successful coating application (see Section 3 for additional substrate information).

Attention: unused remains of mixed material can lead to a strong heat development in the pail. Always use up all mixed material completely!

6.3.3 CURING

Sikagard® P 770 dries as an intense transparent film within 5 hours at 23°C (73°F). The chemical reactions are slowed down at low temperatures, which correspondingly extends the curing period, see table below. If this time is exceeded, please contact your Sika Technical representative.

Temperature	Pot Life of Sikagard® P 770	Waiting time to overcoating
10°C (50°F)	~25 Min.	~11 hours
20°C (68°F)	~20 Min.	~5 hours
30°C (86°F)	~10 Min.	~2 hours

OVERCOATING NOTE: WE RECOMMEND OVERCOATING THE PRIMER WITHIN THE NEXT 48 HOURS OF ITS APPLICATION.

6.4 MEMBRANE APPLICATION

6.4.1 MATERIAL PREPARATION

Sikagard® M 790 is supplied in the exact mixing ratio in prepacked working kits. For optimum performance, it is recommended that products be preconditioned at around 20°C (68°F) at least 24 hours before application.

The small kit (5 kg) is designed and recommended for hand application. Open the two Parts of the product and briefly mix the single components with a mechanical drill and paddle at low speed (max. 400 rpm) to obtain a uniform consistency. Pour the entire contents of Part A into Part B's container and mix with the recommended handheld electric mixer at a low speed (max. 400 rpm) for maximum 90 seconds. Scrape the sides and the bottom of the container several times to ensure thorough mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles.

Do not mix part packs and do not mix by hand!

Lower temperatures can cause both components of Sikagard® M 790 to become more viscous. This phenomenon does not affect the properties of the product. Material can be mixed normally.

6.4.2 ROLLER APPLICATION

Sikagard® M 790 can be applied at least 5 hours (at 23°C (73°F)) after the application of Sikagard® P 770. The primer must be overcoated within the next 48 hours of its application.

Pour the freshly mixed Sikagard® M 790 into a clean, dry, plastic bucket and place the roller tray into the bucket. Select the correct size of the roller frame and roller skin as recommended in the equipment section and begin applying the membrane to the primed surface quickly and constantly in up and down strokes. Use a brush or small roller to apply the material to hidden corners, edges, and other difficult-to-reach areas on the surface.

Sikagard® M 790 must be applied in at least two layers. Apply minimum 2.4 to 3 m²/L (98 to 122 ft²/US gal.) ~16 mils (~0.4 mm) for each layer and wait a minimum of 8 hours (overnight) with an ambient and substrate temperature of 23°C (73°F) before applying the second layer (please see Table in Section 6.4.3 for details). **We recommend completing the application of the subsequent coat within 48 hours.**

The consumption of Sikagard® M 790 hand-applied is between 1.2 and 1.5 m²/L (49 and 61 ft²/US gal.) for two layers depending on the environment. For harsh conditions with very high chemical and mechanical impact we strongly recommend the application of a third layer, again with a minimum consumption of 3m²/L (122 ft²/US gal.).

Colour control: Sikagard® M 790 is provided in two colours (grey and red). We recommend using the two colours to distinguish the different layers and to ease application as well as thickness control. For two-layer build-ups, start with the grey colour and finish with the red version. For three-layer, use the colour scheme red – grey – red.

Attention: unused remains of mixed material can lead to a strong heat development in the pail. Always use up all mixed material completely!

6.4.3 CURING

Sikagard® M 790 dries as an intense solid film within 8 hours at 23°C (73°F). The chemical reactions slow down at low temperatures, which correspondingly extends the curing period. The Sikagard®-7000 CR system can be in contact with water already 24 hours after end of application at 20°C (68°F).

Temperature	Pot Life of Sikagard® M 790	Waiting time to overcoating	Exposure to water after
10 °C (50°F)	~25 Min.	~18 hours	~48 h
20 °C (68°F)	~20 Min.	~8 hours	~24 h
30 °C (86°F)	~15 Min.	~4 hours	~18 h

Note that Sikagard®-7000 CR shall cure for at least 3 days prior to contact with chemical exposure.

6.5 CLEANING TOOLS

Tools can be cleaned while wet with solvent based cleaners. Make a trial in case of use of other cleaning agent. Once cured, the material can only be removed mechanically.

7 SPRAY APPLICATION

7.1 SAFETY INFORMATION

The usual preventive measures for handling chemical products should be observed when using Sikagard®-7000 CR system components. For example, do not eat, smoke, or drink while working, and wash hands when taking a break and once the job is completed.

Safety glasses, gloves, and shoes, as well as respirators and clothes that properly protect the body from chemical contact are mandatory when handling and applying the products. The spray operator must wear a powered air purifying respirator during application. In addition to safety gear, all necessary safety tools must be used when requested by the owner of the jobsite

Specific safety information on the handling and transportation of the products described in this manual can be found in the SDS of the individual products. Disposal of products and their containers should be carried out according to current local regulations and legislation.

7.2 EQUIPMENT

The Sikagard®-7000 CR system can be spray applied using specific high-pressure, plural component airless spray equipment that enables the correct mixing ratios of Sikagard® P 770 and Sikagard® M 790 during application. It is therefore recommended using the pneumatic Graco XM 70 or the electrical Graco E-Mix-XT for the application of the Sikagard®-7000 CR system (please see the Graco XM 70 illustrated on page 13 and the Graco E-Mix XT on page 14).

Additional equipment required:

- Handheld electric mixer
- Plastic pails
- Mixing paddle with two turbine blades fitted one above the other, such as Collomix DLX 120 or DLX 152
- Masking tape

7.3 PRIMER APPLICATION

7.3.1 MATERIAL PREPARATION

Sikagard® P 770 is supplied in the exact mixing ratio in prepacked working kits. For optimum performance, it is recommended that products be preconditioned at around 20°C (68°F) at least 24 hours before application. The big kit (4 kg Part A and 5 kg Part B) is designed and recommended for spray application.

Pour the required number of Part A cans into a big, clean container and stir with the recommended handheld electric mixer and mixing paddle (e.g. DLX 120) at a low speed (max. 400 rpm) for at least 1 minute. Keep the mixer blades submerged in the material to avoid air entrainment. Pour the stirred Part A material into Tank B (!) of the Graco XM or E-MIX XT plural component spray equipment until full. Pour the same number of Part B cans directly into Tank A (!) of the spray equipment without stirring.

Note: Due to the unusual mixing ratio of Sikagard® P 770 – more hardener than base component – parts A and B must be poured into the spray equipment tanks crosswise!

Hoppers of the spraying system should be filled enough with material to not introduce the air into the dosing system – it is recommended to have minimum 2 - 3 sets of materials to start spraying operation and fill the tanks until full.

7.3.2 EQUIPMENT SET-UP (OR SUITABLE EQUIVALENT)

Sika Canada Inc. is not responsible for pumps and equipment. The following is provided only as a guideline for your equipment set-up. Contact your local pump supplier for additional pump information.

Graco XM:

Graco XM is a high pressure, plural component sprayer that operates using compressed air pressure. Before installing the pump on site, check the Graco XM operations manual for the air supply's power cord requirements.

Graco E-Mix-XT:

Before installing the pump on site, check the Graco E Mix-XT operations manual for the power cord requirements.

- Make sure that there is no leftover material from previous applications in the pump. Pump and tanks must be clean.
- Mixing ratio for Sikagard® P 770 for parts B : A is 1.35 : 1 by volume. Set the tolerance for the mixing ratio to 5 %. The pump will stop when this tolerance is exceeded during application. This is very important for the precision of the automatic dosing and application.
- **See the Graco XM or Graco E-Mix XT operations manual for operation and maintenance. Contact your local pump supplier for additional pump information.**
- Except for work in climate with high temperature, heating the material in in-line heaters is recommended in the machine and its maintaining in the hoses. The recommended temperature for both components at machine and hoses is approx. 30°C ± 5°C (86°F ± 9°F) depending on site conditions and length of the hoses.
- The machine will be ready for application after recirculating both components until reaching the desired temperatures on A and B side of the proportioner.

Graco XM 70 – Pneumatic pump.

Intuitive user controls

- Adjustable ratio control, 1:1 to 10:1
- Provides real-time display of ratio for ultimate spraying control
- Two displays modes: “set-up” for entering parameters and “run” mode for everyday operation
- The interface tracks pressure, temperature and flow
- USB drive for data reporting

Precise mixing and ratio assurance

- Provides precision mixing and accurate ratio control, even at high flow rates
- Advance sensors allow pumps to compensate for pressure fluctuations, resulting in accurate on-ratio mixing
- Choose standard or remote mount



Heavy-duty

- Carbon steel frame
- Built-in pallet rack for easy transport

Material hoppers

- Side or rear mount
- 38 L gravity feed non-heated hoppers or 95 L heated hoppers

Graco E-Mix XT – Electrical pump.

Intuitive user controls

- Adjustable ratio control, 1:1 to 6:1
- Provides real-time display of ratio for ultimate spraying control
- Two displays modes: “set-up” for entering parameters and “run” mode for everyday operation
- The interface tracks pressure, temperature and flow
- USB drive for data reporting



Precise mixing and ratio assurance

- Provides precision mixing and accurate ratio control, even at high flow rates
- Advance sensors allow pumps to compensate for pressure fluctuations, resulting in accurate on-ratio mixing
- Choose standard or remote mount

Material hoppers

- 26L gravity feed non-heated hoppers



7.3.3 SPRAY APPLICATION

See the Graco XM and Graco E-Mix XT operations manual for operation.

- Adjust the air regulator (CD) to the moment of full opening the spray fan from triggered gun. Application pressure depends on site conditions and length of the hoses and apply the coating to a test panel. Check the ratio screen to make sure that it is reading the correct ratio and the bar graph to make sure that the mix manifold restriction adjustment is within optimal range. Perform the calibration procedure for XM 70 and mixing ratio check on XM70 or E-MIX XT. Evaluate the performance of a static mixer by doing a mix and integration test - **See the Graco XM and Graco E-Mix XT operations manual.**
- Start by using the nozzle 527 in the spray gun. Spraying angle should be selected on site, depending on the project. Change the nozzle according to the desired spray angle, speed of application and site conditions.
- Keep the gun 50 to 80 cm away from the surface when starting to spray.
- Spray the surface from right to left in slow movements at a 90-degree angle to ensure an even film thickness across the substrate.
- A wet film thickness of 8 to 12 mils (0.2 to 0.3 mm) on the surface must be achieved.
- In case of pin holes appear on porous surfaces (CSP3), immediately over roll the fresh primer and try to close the pinholes and pores. If there are pinholes remaining even after over rolling, then spray more primer on the surface and continue over rolling. If the surface is very rough (CSP4 or higher), then level the concrete surface first as it has been explained in previous sections, then start spraying the primer
- Flush the mixed material immediately after finishing the application. Since Sikagard® P 770 has a relatively short pot life, it is highly recommended that the mixed material be flushed before breaks of more than 10 minutes. Use an appropriate pump cleaner to flush the mixed material.

7.3.4 CURING

Sikagard® P 770 dries as an intense transparent film within 5 hours at 23°C (73°F). The chemical reactions slow down at low temperatures, which correspondingly extends the curing period: it forms the intense transparent film within 11 hours at 5°C (41°F). We recommend overcoating the primer within the next 48 hours of its application.

7.4 MEMBRANE APPLICATION

7.4.1 MATERIAL PREPARATION

Sikagard® M 790 is supplied in the exact mixing ratio in prepacked working kits. For optimum performance, it is recommended that products be preconditioned at around 20°C (68°F) at least 24 hours before application. The big kit (9 kg Part A and 21 kg Part B) is designed and recommended for spray application.

Stir Part A in its original container with the recommended handheld electric mixer and mixing paddle (e.g. DLX 120) at a low speed (max. 400 rpm) for at least 1 minute. Keep the mixer blades submerged in the material to avoid air entrainment. Pour the stirred Part A into Tank B (!) of the spray equipment until full. Open Part B's container and pour it directly into Tank A (!) of the spray equipment.

Note: due to the unusual mixing ratio of Sikagard® M 790 – more hardener than base component – parts A and B must be poured into the spray equipment tanks crosswise!

7.4.2 EQUIPMENT SET-UP

Graco XM:

Graco XM is a high pressure, plural component sprayer that operates using compressed air pressure. Before installing the pump on site, check the Graco XM operations manual for the air supply's power cord requirements.

Graco E-Mix-XT:

Before installing the pump on site, check the Graco E Mix-XT operations manual for the power cord requirements.

- Adjust the mixing ratio with the optional setup selections displayed on the monitor. The mixing ratio for Sikagard® M 790 for parts B : A is 2.58 : 1 by volume. Enter this value in the system settings for the mixing ratio. Note that this value refers to A : B on the pump's display! Set the tolerance for the mixing ratio to 5%. The pump will stop when this tolerance is exceeded during the application. This is very important for the precision of the automatic dosing and application. **See the Graco XM or Graco E-Mix XT operations manual. Contact your local pump supplier for additional pump information.**
- Except for works in climate with high temperature, heating the material in in-line heaters is recommended in the machine and its maintaining in the hoses. The recommended temperature for both components at machine and hoses is approx. 30°C ± 5°C (86°F ± 9°F) depending on site conditions and length of the hoses.
- The machine will be ready for application after recirculating both components until reaching the desired temperatures on A and B side of the proportioner.

7.4.3 SPRAY APPLICATION

- Sikagard® M 790 can be applied not earlier than 5 hours (at 23°C (73°F)) after the application of Sikagard® P 770. It is recommended overcoating the primer within the next 48 hours of its application. If this time is exceeded, please contact your Sika technical representative.
- Adjust the air regulator (CD) to the moment of the full opening spray fan from triggered gun. Application pressure depends on site conditions and length of the hoses and apply the coating to a test panel. Perform the calibration operation on XM 70 system and mixing ratio check on XM 70 or E-MIX XT systems. Evaluate the performance of your static mixer doing a mix and integration test. Check the ratio screen to make sure that it is reading the correct ratio and the bar graph to make sure the mix manifold restriction adjustment is within optimal range. **See the Graco XM or Graco E-Mix XT operations manual. Contact your local pump supplier for additional pump information.**
- Start by using the nozzle 527 in the spray gun. Choose the nozzle according to the desired spray angle speed of application and site conditions.
- Keep the gun 70 to 100 cm away from the surface when starting to spray. Do not spray the material too close to surface (less than 50 cm), as sagging might occur before the recommended thickness is achieved.
- Spray the surface from right to left in slow movements at a 90-degree angle to ensure an even film thickness across the substrate
- Try to achieve a wet film thickness of 32 to 48 mils (0.8 to 1.2 mm) on the surface in a single layer.
- Flush the mixed material immediately after finishing the application. Since Sikagard® M 790 has a relatively short pot life, it is highly recommended that the mixed material be flushed before breaks of more than 10 minutes. Use an appropriate pump cleaner to flush the mixed material.

7.4.4 CURING

Sikagard® M 790 dries as an intense solid coating within 8 hours at 23°C (73°F) (~24 hours at 5°C (41°F)). The chemical reactions slow down at low temperatures, which correspondingly extends the curing period. The treated substrate can withstand contact with water 24 hours after application at 20°C (68°F).

7.5 CLEANING THE PUMP

- Part A of both Sikagard® P 770 and Sikagard® M 790 can easily be cleaned with water. Carefully wash out Tank B of the Graco XM sprayer with water.
- Part B of both products can be cleaned with proper solvents. Wash out Tank A with appropriate solvents. **See the Graco XM cleaning procedure provided in the operations manual. Contact your local pump supplier for additional pump information.**

8 OPTIONAL SLIP RESISTANT FINISH

In case of horizontal applications of Sikagard®-7000 CR in e.g. secondary containment areas it might be required to provide walkway areas with a slip-resistant finish. This can be achieved by applying an adhesive layer of Sikagard® M 790 onto the finished system build-up and sprinkle that coating directly with suitable aggregate. After drying (minimum 8 hours at 20 °C (68°F) the excess aggregate is removed and a final topcoat of Sikagard® M 790 applied.

Please see application and approximate consumption details below.

Function	Product	Application	Consumption
Membrane	Sikagard® M 790	Aggregate adhesion layer	2.4 – 4.0 m ² /L (98 – 162 ft ² /US gal.)
Broadcasting Aggregate	Aggregates 24 mesh	Selected quartz sand gradings for broadcasting	In excess, as indication: approx. 1 – 2 kg/m ² (0.2 - 0.4 lb/ft ²)
Membrane	Sikagard® M 790	Topcoat	2.4 – 3.0 m ² /L (98 – 122 ft ² /US gal.)

Note: to guarantee full performance of Sikagard®-7000 CR it is essential that the complete system build-up below the slip-resistant coating is executed correctly with a minimum system thickness of 1 mm.

9 MAINTENANCE

It is crucial to follow correct methodology for cleaning and repairing the Sikagard®-7000 CR system to achieve longer service life.

9.1 CLEANING PROCEDURE

- Choose a user-friendly, non-toxic, neutral (pH balanced) detergent.
- Use a water jet in combination with the selected detergent. It is important that the water pressure shall not exceed 120 bars and high-pressure type of turbo/rotating tips must be avoided! Fan tips are recommended for safer cleaning applications.
- Warm water (≤ 40°C (104°F)) can be used for an efficient cleaning.
- Keep the gun at a minimum distance of 30 cm (12").
- Once the area is cleaned with detergent, rinse the entire surface thoroughly with clean water.
- Allow to air dry or use compressed air, which is completely dry and free of oil.

9.2 REPAIR PROCEDURE

9.2.1 PATCH REPAIR

Except the cases, where the membrane fails in relatively large areas, a patch repair is the most effective solution to sustain the integrity of the Sikagard®-7000 CR system. In case of extensive failures in large areas, it is however more efficient to remove and replace entire membrane.

The following repair procedure should be followed for patch repairs.

- Membrane surfaces to be repaired shall be outlined and then cut to the concrete substrate using a proper concrete or masonry cutting disk.
- The failed membrane and the primer beneath (within the repair area) shall be removed using a paint scraper or other suitable equipment.
- The perimeters of all repair areas shall be assessed for adhesion (value must be over 1.5 MPa in average with no single value below 1.0 MPa).
- All edges outlining the repair areas should be grinded using a 60 - 80 grit oxide discs a distance of at least 10 cm (~4") back from the coatings edge.
- All exposed concrete surfaces shall be thoroughly prepared to an CSP1 to CSP2 surface profile using the recommended methods in section 5 of this manual.
- Sikagard® P 770 should be hand-applied to all exposed concrete surfaces in repair areas.
- All repair areas shall be masked off using duct tape.
- Sikagard® M 790 should be hand or spray applied on the prepared surfaces by following the described procedures in relevant sections of this manual.
- The duct tape masking shall be removed immediately after the membrane is applied.
- Respect to the curing and overcoating times given in this method statement.

9.2.2 OVERCOATING THE EXISTING MEMBRANE

Regular inspections are crucial for confirming the performance of the Sikagard®-7000 CR system. Check the total thickness of the system by using non-destructive testing (NDT) methods and ensure that sufficient layer thickness (min. 1 mm) is available. If the membrane thickness has been reduced by abrasion or any other reason, re-coat the areas concerned with Sikagard® M 790.

Maintenance Tip: If during inspection, after cleaning the surface, the colour of the first coat starts to become visible, this is a clear sign that recoating is required.

- Clean the relevant surfaces as described in section 9.1 to remove all foreign matter which may adhere on the surface.
- Wait for the surface to dry. Apply a solvent-based cleaner to the surface to remove any remaining dirt and wait for the surface to dry completely.
- Apply Sikagard® M 790 on to the cleaned surfaces to bring the total layer thickness to minimum 1 mm again.
- Follow the relevant procedures described in sections 8 or 9 during application depending on the application method selected.

9.2.3 ADDITIONAL INFORMATION

For additional details regarding the system, including details or chemical resistance, please visit www.sika.ca, and look at the product page.

For additional information regarding accessory products used with the system, such as repair mortars, primers, etc., please consult the individual PDS.

Finally, you can always reach out to your local technical representative for additional information.

10 LEGAL NOTE

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 shelf life. 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 proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed on the Internet under www.sika.ca.

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