# METHOD STATEMENT
# Sikagard®-7000 CR

NOVEMBER 2025 / 2.1 / SIKA LIMITED / ROB DOHERTY

**EXTERNAL DISTRIBUTION**

BUILDING TRUST

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# 1 SCOPE

This Method Statement serves as a valuable tool to support the specification of Sikagard®-7000 CR – our concrete protection System with a unique combination of application and performance properties. Its fast and easy application by rolling or spraying, as well as its excellent curing properties, allow the efficient, safe, and continuous operation of wastewater treatment structures. High chemical resistance, including biogenic sulphuric acid attack, and its ability to bridge cracks of 0.5 mm makes the Sikagard®-7000 CR System the ideal solution for concrete protection against waste and contaminated water in wastewater treatment plants and sewer infrastructure.

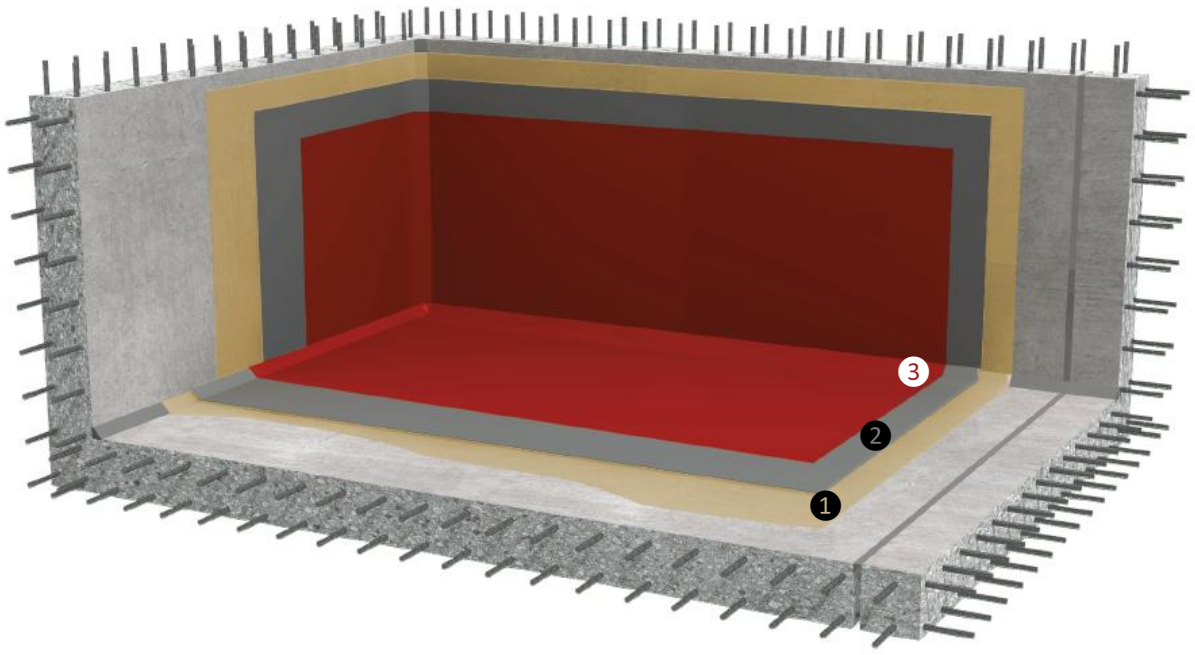
# 2 SYSTEM DESCRIPTION

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 sulphuric acid attack (BSA) leading to structural concrete damage. The performance proven Sikagard®-7000 CR System can significantly extends the lifespan 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




❶ = Primer Sikagard® P 770

❷ = Membrane (1st coat): Sikagard® M 790 Grey

❸ = 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.
With the addition of kiln-dried quartz sand and Sika® Extender T, the product can be thickened to increased application layer thicknesses.

### 2.2.2. SIKAGARD®-720 EpoCem®

Sikagard®-720 EpoCem® is a three-component fairing / smoothing coat based on epoxy resins and cementitious binders. It can be applied from 0.5 up to 3 mm thickness with a trowel or spatula. It can also be sprayed using a hopper gun or the wet spray technique.
Sikagard®-720 EpoCem® creates a layer that is permeable to water vapour but impermeable to water pressure (both negative and positive) as well as to capillary-rising moisture.
It consists of 1.14 kg Part A + 2.86 kg Part B + 17 kg Part C - Mixing ratio: 1 : 2.5 : 14.9 (by weight).

## 2.3 PRIMER SELECTION GUIDE

| Primer | Applications | Approximate Consumption |
|---|---|---|
| Sikagard® P 770 | Smooth substrates (1 coat) | 0.2 – 0.3 kg/m² |
| | Slightly irregulate substrates (2 coats) | 0.4 – 0.5 kg/m² |
| Sikagard® P 770 + Sand + Sika® Extender T | Levelling of porous and uneven surfaces | 1.8 kg/m²/mm |
| Sikagard®-720 EpoCem® | Resins substrates and/or ceramic tiles | 2.0 kg/m²/mm |
| | Damp concrete / uneven substrates | |
| | Negative pressure | minimum 4 kg/m² |

## 2.4 MEMBRANE

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

Sikagard® M 790 has proven resistance to biogenic sulphuric acid attack over the long term (Fraunhofer Institute, Germany).
In addition, it is CE-certified in accordance with 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 biogenic sulphuric acid
- **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 reinforcement corrosion
- **High tear, abrasion, and impact resistance** – can be used in highly trafficked 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 – even when damp, or subject to rising damp
- Cementitious mortars
- Old epoxy or polyurethane coatings – once properly cleaned, degreased, and roughened
- Tiled surfaces
- 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

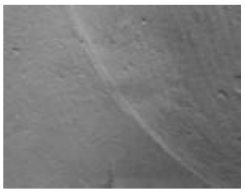
All substrates – whether new or old – must be structurally sound, touch-dry, free of laitance and loose particles, and clean of oil, grease, rubber skid marks, paint stains, and other adhesion-impairing contaminants.

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 N/mm$^2$ with no single test value below 1.0 N/mm$^2$.

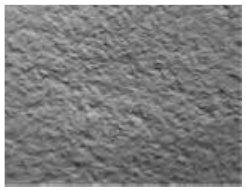
Aside from soundness of the substrate, it is also crucial to prepare the substrate to achieve a smooth and even surface profile. This will help to reduce the risk of pinholes, pores and other irregularities on the finished membrane surface. Therefore, the surface preparation method must be selected wisely. International Concrete Repair Institute's (ICRI) Guideline No. 310.R2 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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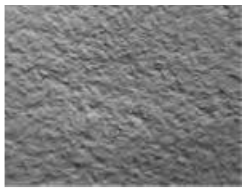
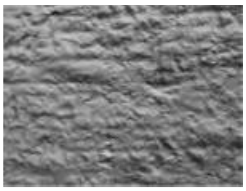
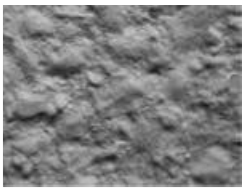

CSP5


CSP6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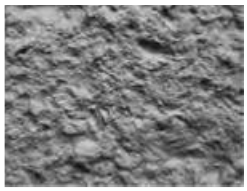

CSP8


CSP9


CSP10

CSP 1 and CSP 2 are the recommended concrete surface profiles to achieve a smooth, seamless membrane surface finish. However, it is not easy to achieve these smooth surface profiles along with the sufficient tensile adhesion / pull-off strength (i.e. >1.5 N/mm$^2$). This is especially true when dealing with 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 a relatively smooth membrane surface finish. Please 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 accepted 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. From CSP3 up to CSP7, some special measures need to be taken during primer application, and surface levelling may even be required, 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 (two layers) | | | | | | | | | | |
| Sikagard® P 770 + sand + Sika® Extender T | | | | | | | | | | |
| Sikagard®-720 EpoCem® | | | | | | | | | | |
| Sika MonoTop®-3020 | | | | | | | | | | |
| Sika MonoTop®-4012 | | | | | | | | | | |

Sikagard® P 770 is the primary choice as primer of the Sikagard®-7000 CR System. It is recommended to apply this primer in a 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 (Sika® Extender T**)** to obtain a fine, thixotropic fairing / smoothing coat to level the uneven, porous concrete surfaces to achieve a smooth and sound surface. Kiln 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 + quartz sand mix) to achieve a thixotropic consistency. The final material can be easily applied on concrete surface using a steel trowel. Sikagard®-720 EpoCem® (applied in layer thicknesses up to a maximum of 3 mm) can be also used on the porous substrates (CSP3 – CSP5/6) for the same intention. In all three cases, there is no need to re-use Sikagard® P 770 as a primer layer on levelled surfaces, and Sikagard® M 790 should be applied directly after curing of the previous layer. There is one exception to this: in the presence of rising moisture or negative water pressure, it is recommended to apply one coat of Sikagard® P 770 on top of Sikagard-720® EpoCem® to minimise the risk of failure.

Sika MonoTop®-3020 is an alternative cementitious mortar for levelling porous and uneven surfaces. Structural repair mortars like Sika MonoTop®-4012 are suitable materials for repairing very rough surfaces (CSP8, CSP9 and CSP10) with a minimum application thickness of ~5 mm.

It should be noted that in case fairing / smoothing 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 Product Data Sheets 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

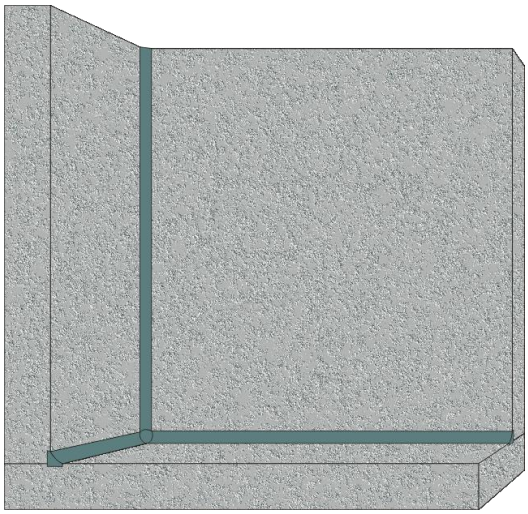
Steel or iron surfaces must be sand blasted to a SA 2.5 finish prior to application of the System. No primer coat is needed for application of Sikagard® M790 on steel.

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

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

### 3.2.3 KICKER JOINTS

The kicker joints of Wall / Floor- and Wall / Wall-connections must be rounded using a suitable mortar for coving (such as Sika® Repair®-EP).



The recommended product is Sika® Repair®-EP (other fast-setting Sika® epoxy mortars may also be used).

# 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 Sikagard®-720 EpoCem® primers as well as the Sikagard® M 790 membrane. The approximate consumption for each product is also indicated.

| Function | Product | Application | Consumption (Approximate) |
|---|---|---|---|
| Repair / Levelling | Sika MonoTop®-4012 | Structural repair (6 – 120 mm) | 1.9 kg/m²/mm |
| | Sika® Repair®-EP | Fast structural repair (5 – 60 mm) | 2.0 kg/m²/mm |
| | | Fast forming of covings | 0.75 – 1 kg/m (for 20 mm radius) |
| | Sika MonoTop®-3020 | Fairing coat, class R3 (1– 5 mm) | 1.7 kg/m² |
| Levelling Primer | Sikagard® P 770 + Sand + Sika® Extender T | Fairing coat and Primer (1– 2 mm) on porous and uneven surface | 1.8 kg/m²/mm |
| | Sikagard®-720 EpoCem® | Resin substrates or ceramic tiles | 2.0 kg/m²/mm |
| | | Damp concrete / uneven surface | |
| | | Negative pressure | minimum 4.0 kg/m² |
| Primer | Sikagard® P 770 | Porous substrates – 2 layers | 0.4 – 0.5 kg/m² |
| | | Dense substrates – 1 layer | 0.2 – 0.3 kg/m² |
| Membrane | Sikagard® M 790 | Manual Application, first coat | 0.4 – 0.5 kg/m² |
| | | Manual Application, second coat | 0.4 – 0.5 kg/m² |
| | | Manual Application, optional third coat (harsh conditions) | 0.4 – 0.5 kg/m² |
| | | *Spray Application (1 or 2 coats, normal conditions)* | *0.8 – 1.0 kg/m²* |
| | | *Spray Application (2 coats, optional in harsh conditions)* | *1.2 – 1.4 kg/m²* |

# 5 TEMPERATURE OF APPLICATION

Application can only take place when the ambient temperature is between +5 °C and +35 °C. The preferred temperature range is between +15 °C and + 25 °C.

# 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 boots, 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 material safety data sheet of the individual product.

**REGULATION (EC) NO 1907/2006 (REACH) – MANDATORY TRAINING**
From 24th August 2023 adequate training is required before industrial or professional use of this product. For more information and a link to the training, visit www.sika.com/pu-training

Disposal of products and their containers should be carried out according to current local 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 (minimum 10 litres)
- Roller tray
- Masking tape

## 6.3 PRIMER APPLICATION

### 6.3.1 MATERIAL PREPARATION

Sikagard® P 770 is supplied in the exact mixing ratio in pre-packed working kits. For optimum performance, it is recommended that products be reconditioned at around +20 °C for 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 (maximum 400 rpm) to obtain a uniform consistency.

**NOTE:** Eventual separation of Part A can occur – this is not a product failure, and the material can be easily re-homogenised 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 (maximum 400 rpm) for a 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.

**NOTE: 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 °C and +35 °C. To fully cure, the material, substrate, and ambient temperature should not fall below the minimum recommendation. Quickly and constantly apply the freshly mixed primer onto 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. Please be advised that the pot life of Sikagard® P 770 is relatively short – maximum of only 20 minutes at +20 °C (see also 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 minimise the bulk effect, it is recommended that the mixed product is poured into smaller containers for the application.

Sikagard® P 770 dries as a transparent film (within 5 hours at +20° C). In case there are holes not covered by the primer, please apply a second coat of primer. Wait for at least 5 hours (at +20° C) 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 0.2 kg/m² of mixed material is enough to prime dense substrates, more material (approximately 0.3 kg/m²) 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.

**ATTENTION: unused mixed material can lead to significant heat development in the pail. Always use up all mixed material completely!**

### 6.3.3 CURING

Sikagard® P 770 dries as a transparent film within 5 hours at +23 °C. The chemical reactions are slowed down at low temperatures, which correspondingly extends the curing period, see table below. We recommend overcoating the primer within the next 48 hours of its application. If this time is exceeded, please contact Sika® Technical Services.

| Temperature | Pot Life of Sikagard® P 770 | Waiting Time to Overcoating |
|---|---|---|
| +10 °C | ~25 minutes | ~11 hours |
| +20 °C | ~20 minutes | ~5 hours |

| | | |
|---|---|---|
| +30 °C | ~10 minutes | ~2 hours |

## 6.4 MEMBRANE APPLICATION

### 6.4.1 MATERIAL PREPARATION

Sikagard® M 790 is supplied in the exact mixing ratio in pre-packed working kits. For optimum performance, it is recommended that products be preconditioned at around +20 °C 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 (maximum 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 (maximum 400 rpm) for a 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.

**NOTE: 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 after a minimum period of 5 hours (at +23 °C) following 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 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 a minimum 0.4 kg/m² for each layer and wait for a minimum of 8 hours (e.g. overnight) with an ambient and substrate temperature of +23 °C before applying the second layer (please see Table in Section 6.4.3 for details). It is recommended that any subsequent coat is applied within 48 hours.

The consumption of Sikagard® M 790 hand-applied is between 0.8 kg/m² and 1.0 kg/m² 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 0.4 kg/m².

**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 (or vice-versa). For three-layers, use the colour scheme red – grey – red (or grey – red – grey).

**ATTENTION: unused mixed material can lead to 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. The chemical reactions slow down at lower temperatures, which correspondingly extends the curing period. The Sikagard®-7000 CR System can come into contact with water only 24 hours after the end of application at +20 °C.

| Temperature | Pot Life of Sikagard® M 790 | Waiting Time to Overcoating | Exposure to Water Time |
|---|---|---|---|
| +10 °C | ~25 minutes | ~18 hours | ~48 hours |
| +20 °C | ~20 minutes | ~8 hours | ~24 hours |
| +30 °C | ~15 minutes | ~4 hours | ~18 hours |

**NOTE:** Sikagard®-7000 CR shall be cured for at least 3 days prior to chemical exposure.

## 6.5 CLEANING TOOLS

Tools can be cleaned while wet with solvent-based cleaners, such as Sika® Thinner C (alternative cleaning agents should be trialled for effectiveness before use on main works). 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.

Specific safety information on the handling and transportation of the products described in this Manual can be found in the material safety data sheet of the individual product. Disposal of products and their containers should be carried out according to current local legislation. Safety glasses, gloves, and boots, 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.

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## 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 pre-packed working kits. For optimum performance, it is recommended that products be preconditioned at around +20 °C for at least 24 hours before application. The larger 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 (maximum 400 rpm) for at least 60 seconds. 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 contrary to normal use (i.e. **Part A into Tank B**)!

Hoppers of the spraying system should be filled with enough material so as to not introduce air into the dosing system – it is recommended to have at least 2 to 3 kits to start the spraying operation and fill the tanks until full.

### 7.3.2 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 requirements.

**Graco E-Mix-XT:**

Before installing the pump on site, check the Graco E Mix-XT Operations Manual for the power requirements.

- Make sure 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.**
- Except for work in climates with high temperatures, heating the material using in-line heaters is recommended for the machine and hoses. The recommended temperature for both components at machine and hoses is approximately +30 °C ± 5 °C, 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 the 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

**Material hoppers**

- 26L gravity feed non-heated hoppers

**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


### 7.3.3 SPRAY APPLICATION

**See the Graco XM and Graco E-Mix XT Operations Manuals for information.**

- Adjust the air regulator (CD) at the moment of fully opening the spray fan from the triggered gun. Application pressure depends on site conditions and length of the hoses - apply the coating to a test panel. Check the machine's ratio screen to make sure it is reading the correct ratio, and the bar graph is as it should be, so 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 for information.**
- 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 in slow horizontal movements from right to left (and left to right) to ensure an even film thickness across the substrate.
- A wet film thickness of 0.2 to 0.3 mm on the surface must be achieved.
- In case pinholes 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 explained in previous Sections, before 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 Sika® Thinner C (or equivalent) to flush the mixed material.

### 7.3.4 CURING

Sikagard® P 770 dries as an intense transparent film within 5 hours at +23 °C. 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. Sika® recommend overcoating the primer within 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 pre-packed working kits. For optimum performance, it is recommended that products be preconditioned at around +20 °C at least 24 hours before application. The larger 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 (maximum 400 rpm) for at least 60 seconds. 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 contrary to normal use (i.e. **Part A into Tank B**)!

### 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 requirements.

**Graco E-Mix-XT:**

Before installing the pump on site, check the Graco E Mix-XT Operations Manual for the power 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 for operation and maintenance.**
- Except for work in climates with high temperatures, heating the material using in-line heaters is recommended for the machine and hoses. The recommended temperature for both components at machine and hoses is approximately +30 °C ± 5 °C, 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 the A and B side of the proportioner.

### 7.4.3 SPRAY APPLICATION

- Sikagard® M 790 can be applied a minimum of 5 hours (at +23 °C) after the application of Sikagard® P 770. It is recommended to overcoat the primer within 48 hours of its application. If this time is exceeded, please contact Sika® Technical Services.
- Adjust the air regulator (CD) at the moment of fully opening the spray fan from the triggered gun. Application pressure depends on site conditions and length of the hoses - apply the coating to a test panel. Check the machine's ratio screen to make sure it is reading the correct ratio, and the bar graph is as it should be, so 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 for 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 (i.e. less than 50 cm), as sagging might occur before the recommended thickness is achieved.
- Spray the surface in slow horizontal movements from right to left (and left to right) to ensure an even film thickness across the substrate.
- Try to achieve a wet film thickness of 0.8 to 1.2 mm on the surface in a single layer.
- Flush the mixed material immediately after finishing the application. As Sikagard® M 790 has a relatively short pot life, it is highly recommended that the mixed material is flushed before breaks of 10 minutes or longer. Use Sika® Thinner C (or equivalent) to flush the mixed material.

### 7.4.4 CURING

Sikagard® M 790 dries as an intense solid coating within 8 hours at +23 °C (~24 hours at +5 °C). The chemical reactions slow down at low temperatures, which correspondingly extends the curing period. The treated substrate can come into contact with water after only 24 hours when applied at +20 °C.

## 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 solvents, such as Sika® Thinner C. Wash out Tank A with Sika® Thinner C or equivalent. **See the Graco XM cleaning procedure provided in the Operations Manual.**

# 8 OPTIONAL SLIP-RESISTANT FINISH

For horizontal applications (e.g. in secondary containment areas) of Sikagard®-7000 CR, it might be necessary 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 broadcast that coating directly with suitable aggregate. After drying (minimum 8 hours at +20 °C) the excess aggregate is removed and a final topcoat of Sikagard® M 790 is applied to seal.

Please see application and approximate consumption details below:

| Function | Product | Application | Consumption |
|---|---|---|---|
| Membrane | Sikagard® M 790 | Aggregate adhesion layer | 0.3 – 0.5 kg/m² |
| Broadcasting Aggregate | 0.6 – 1.2 mm grading or 0.7 – 1.2 mm grading | Selected quartz sand gradings for broadcasting | In excess, as indication: approximately 1 – 2 kg/m² |
| Membrane | Sikagard® M 790 | Topcoat | 0.4 – 0.5 kg/m² |

**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 does not exceed 120 bars and high-pressure turbo / rotating tips must be avoided! Fan tips are recommended for safer cleaning applications.
- Warm water (≤40° C) can be used for efficient cleaning.
- Keep the gun at a minimum distance of 30 cm.
- 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 in extreme cases where the membrane fails in relatively large areas (where it is more efficient to remove and replace the entire membrane), patch repair is the most effective solution to sustain the integrity of the Sikagard®-7000 CR System.

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 masonry cutting disk.
- The failed membrane and the primer beneath within the repair shall be removed using a paint scraper, multi-tool, or other suitable equipment.
- The perimeters of all repair areas shall be assessed for adhesion (the value must average over 1.5 MPa, with no single value below 1.0 MPa).
- All edges outlining the repair areas should be ground using 60 - 80 grit oxide discs a distance of at least 10 cm 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 onto the prepared surfaces by following the described procedures in relevant Sections of this Manual.
- The masking tape shall be removed immediately after the membrane is applied.
- Adhere to the curing and overcoating times given in this Manual.

### 9.2.2 OVERCOATING 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 (i.e. minimum 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 underlying coat starts to become visible ('grinning through'), this is a clear indication 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 (e.g. Sika® Thinner C) to the surface to remove any remaining dirt and wait for the surface to dry completely.
- Apply Sikagard® M 790 onto the cleaned surfaces to bring the total layer thickness to at least 1 mm again.
- Follow the relevant procedures described in Sections 8 or 9 during application depending on the application method selected.

# 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 in accordance with Sika's recommendations. in practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the products suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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