BUILDING TRUST

PRODUCT DATA SHEET

# Sikagard®-5500

High-Performance, Crack-bridging, Concrete and Masonry Protective Coating

## PRODUCT DESCRIPTION

Sikagard®-5500 is a one-part, water-based, elastic protective coating for concrete and masonry. It has very high static and dynamic crack-bridging abilities that work over a wide temperature range.

## USES

**Sikagard®-5500 is used as a decorative coating for:**

- New concrete or reinforced concrete structures (normal, lightweight or fibre-reinforced).
- Increasing the service life of all types of concrete and masonry structures and elements subject to cracking or cyclic movement such as buildings, bridges, car parks, silos, chimneys and retaining walls.
- Reducing the deterioration of concrete by substantially reducing chloride and carbon dioxide intake.
- Assisting with controlling the corrosion of any embedded steel reinforcement by reducing the moisture intake.
- Concrete repair refurbishment works over Sika® pore-filling or levelling / smoothing mortars.
- Overcoating existing firmly bonded coatings.
- Improving the aesthetics of concrete and masonry structures.

**Sikagard®-5500 is used for:**

- Protection against ingress (Principle 1, method 1.3 of EN 1504-9).
- Moisture control (Principle 2, method 2.3 of EN 1504-9).
- Increasing the resistivity (Principle 8, method 8.3 of EN 1504-9).

**Please note:**

- Do not use as a permanent waterproof layer (unsuitable for immersion or submersion).
- Do not use on horizontal surfaces where the ponding of water can occur.

## CHARACTERISTICS / ADVANTAGES

- Water-based.
- Applied by brush, roller, or airless spray.
- One-part, ready to use.
- Very low VOC emissions.
- Excellent crack-bridging abilities, even at low temperatures (-20 °C).
- Very good adhesion to concrete and masonry.
- High diffusion resistance against carbon dioxide, reducing the rate of carbonation.
- Good water vapour permeability.
- Time saving: lower consumption for higher performance.
- Good freeze-thaw and de-icing salt resistance.
- Very good resistance against weathering and ageing.
- Variable consumption to suit performance requirements.
- Available in many colours.
- Good opacity ('covering power').
- Reduced algae and fungal growth.
- Easy to clean and maintain.
- Long 24-month shelf-life.
- Reaction to fire rating of B-s1,d0 (1 coat of Sikagard-552 W Aquaprimer at 150g/m², then 2 coats of Sikagard®-5500 at 500 g/m²).

## ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Environmental Product Declarations under LEED® v4 — 1 point.
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4 — 1 point.
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU).

## APPROVALS / STANDARDS

- CE marking and declaration of performance based on EN 1504-2:2004 Products and systems for the protection and repair of concrete structures — Surface protection systems for concrete — Coating.
- Anti-algae growth EN 15458, Tecnalia, Report No. 099267-a-2.
- Anti-fungi growth EN 15457, Tecnalia, Report No. 099267-a-1 (M2).
- Determination of carbon dioxide permeability EN 1062-6, Applus, No. 22/32303680.
- Reaction to fire classification EN 13501-1, APPLUS, No.22/32301155-2.
- Measurement of bond strength by pull-off EN 1542, Sikagard-5500 over CarboDur and SikaWrap.
- Permeability, adhesion, crack bridging tests EN 1504-2, APPLUS, No.21/32306914.

## PRODUCT INFORMATION

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|---|---|---|
| **Chemical Base** | Acrylate dispersion - 100 % derived from renewable feedstock | |
| **Packaging** | One Part Container | 15 L container (~20.6 kg) |
| | Refer to the current price list for available packaging variations. | |
| **Colour** | Colour | Available in various colours |
| | Refer to the current price list for the colour range.<br>**NOTE:**<br>▪ Applied colours selected from colour charts will be approximate.<br>▪ For colour matching apply colour sample and confirm selected colour under real lighting, environmental and substrate conditions.<br>▪ When the Product is exposed to direct prolonged sunlight, there may be some discolouration and colour variation. Darker colours are more likely to be affected than lighter shades. | |
| **Shelf Life** | 24 months | |
| **Storage Conditions** | The Product must be stored in original, unopened and undamaged sealed packaging in cool and dry conditions, protect from direct sunlight and frost. Always refer to the packaging.<br>Refer to the current Safety Data Sheet for information on safe handling and storage. | |
| **Density** | ~1.37 kg/l | (EN ISO 2811-1) |
| **Viscosity** | ~9400 MPa·s<br>sP7,4; 200 rpm; +23 °C | (EN ISO 3219) |
| **Solid content by mass** | ~67.7 % | (EN ISO 3251) |
| **Solid content by volume** | ~55.5 % | (EN ISO 3251) |
| **Colour** | Appearance | Thixotropic liquid |
| | Cured appearance | Matt glossy |

## TECHNICAL INFORMATION

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|---|---|---|---|---|
| **Tensile adhesion strength** | ≥ 1.5 N/mm² | | | (EN 1542) |
| **Crack Bridging Ability** | **Static Crack-Bridging (EN 1062-7:2004. Method A):** | | | (EN 1062-7) |
| | **Consumption** | **Crack Width at Failure** | **Classification** | |
| | 2 × 300 g/m² | 4700 µm | A5 (-20 °C) | |
| | 2 × 500 g/m² | 7300 µm | A5 (-20 °C) | |
| | 2 × 600 g/m² | 9300 µm | A5 (-20 °C) | |
| | **Dynamic Crack-Bridging (EN 1062-7:2004. Method B):** | | | (EN 1062-7) |
| | **Consumption** | | **Classification** | |
| | 2 × 300 g/m² | | B2 (-20 °C) | |
| | 2 × 500 g/m² | | B3.1 (-20 °C) | |
| | 2 × 600 g/m² | | B4.1 (-20 °C) | |

**NOTE:** All testing was carried out using Sikagard®-552 W Aquaprimer as a primer.

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| **Reaction to Fire** | Class B-s1, d0<br>**NOTE:** Determined on 1 coat of Sikagard-552 W Aquaprimer at 150g/m², then 2 coats of Sikagard®-5500 at 500 g/m². | (EN 13501-1) |
| **Freeze Thaw De-Icing Salt Resistance** | ~1.7 N/mm² | (EN 13687-1) |
| **Resistance to Weathering** | Cycles of 4 hours UV-B radiation (+60 °C) + 4 hours condensation (+50 °C).<br>After 2,000 hours, samples show no blistering, no cracking and no flaking. | (NF T30-049) |

**Permeability to Water Vapour** (EN ISO 7783)

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| Consumption | 2 × 500 g/m² |
| Dry film thickness | d = 370 µm |
| Equivalent air layer thickness | $s_{d\ H2O}$ = 0.37 m |
| Water diffusion coefficient | $\mu H_2O$ = 800 |
| Requirements for breathability | ≤ 5 m |

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| **Capillary Absorption** | w = 0.01 kg·m$^{-2}$·h$^{-0.5}$ | (EN 1062-3) |

**Permeability to CO2** (EN 1062-6)

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| Consumption | 2 × 300 g/m² |
| Dry film thickness | d = 270 µm |
| Equivalent air layer thickness | $S_{d\ CO2}$ = 66 m |
| Carbon dioxide diffusion coefficient | $\mu CO_2$ = 200, 000 |
| Requirements for carbon dioxide protection | > 50 m |

## APPLICATION INFORMATION

**Consumption**

| Layer | Product | Per Coat |
|---|---|---|
| Standard Primer | Sikagard®-552 W Aquaprimer | 0.1 to 0.15 kg/m² |
| Alternative Primer | Sikagard®-551 S Elastic Primer | 0.1 to 0.15 kg/m² |
| Coating | Sikagard®-5500 | 2 × 0.3 to 0.6 kg/m² per coat |

**NOTE:** Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.

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| **Layer Thickness** | Minimum required dry film thickness to achieve the required characteristics ($CO_2$ equivalent air thickness of 50 m) ≈ 210 µm. | |
| **Product Temperature** | Maximum | + 35 °C |
| | Minimum | + 8 °C |
| **Ambient Air Temperature** | Maximum | + 35 °C |
| | Minimum | + 8 °C |
| **Relative Air Humidity** | < 80 % | |
| **Dew Point** | Substrate and ambient temperature must be at least 3 °C above dew point. | |

**Waiting Time / Overcoating**

Waiting time between coats at +20 °C substrate temperature:

| Previous Coating | Next Coating | Minimum Waiting Time |
|---|---|---|
| Sikagard®-552 W Aquaprimer | Sikagard®-5500 | 5 hours |
| Sikagard®-551 S Elastic Primer | Sikagard®-5500 | 18 hours |
| 300 g/m² of Sikagard®-5500 | Sikagard®-5500 | 8 hours |
| 500 g/m² of Sikagard®-5500 | Sikagard®-5500 | 12 hours |

**NOTE:**
- When the application is over existing coatings, the waiting time for both primers is doubled.
- Maintenance coats of Sikagard®-5500 can be applied without priming if the existing coat has been thoroughly cleaned.
- Times are approximate and will be affected by changing ambient conditions, particularly temperature and relative humidity.

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| **Applied Product Ready for Use** | Full cure, at +20 °C | 7 days |

## VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## FURTHER DOCUMENTS

- Sika® Concrete Repair Site Handbook.
- Method Statement 850-33-11 Application of Sikagard® Protective Coatings.

## ECOLOGY, HEALTH AND 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

### SUBSTRATE QUALITY

**EXPOSED CONCRETE WITHOUT EXISTING COATING**

Pre-conditions

New concrete and masonry shall be at least 28 days old.

The substrate is clean, dry and free of all contaminants such as dirt, oil, grease, surface treatments and loose friable material which can reduce the adhesion of the coating.

1. Prepare the substrate mechanically using suitable equipment such as abrasive blast cleaning or high pressure water jetting to achieve a textured surface profile suitable for the Product thickness and required coating adhesion values.
2. Fill all surface defects, blowholes, cavities and pores using a pore filler (such as Sika MonoTop®-3020, Sikagard®-720 EpoCem® or Sikagard®-545 W Elastofill) to provide a defect free surface.
3. Leave the pore filler to cure for the appropriate time before the application of the primer coat. Refer to the individual Product Data Sheet for further information.

**EXPOSED CONCRETE WITH EXISTING COATING**
- Test existing coatings to confirm their adhesion to the substrate and their compatibility.
- As guidance, in the absence of any national standards or regulations, adhesion test average ≥ 0.8 N/mm² with no single value below 0.5 N/mm².

**INADEQUATE ADHESION**
- Completely remove existing coatings using suitable equipment and prepare the substrate as described in 'Exposed concrete without existing coating'.

**ADEQUATE ADHESION**

1. Thoroughly clean the existing fully bonded coating surfaces of all contaminants using suitable equipment such as steam cleaning or high-pressure water jetting.
2. For a waterborne existing coating, use Sikagard®-552 W Aquaprimer as a primer.
3. For a solvent-based existing coating, use Sikagard®-551 S Elastic Primer as a primer.
4. If coating type is unknown, carry out compatibility and adhesion testing to determine which primer is most suitable.

**IMPORTANT:** Wait at least 2 weeks before conducting the adhesion test. The adhesion test average must be ≥ 0.8 N/mm², with no single value below 0.5 N/mm². For more information refer to the Method Statement.

### APPLICATION

IMPORTANT

**Strictly follow installation procedures**

Strictly follow installation procedures as defined in Method Statements, Application Manuals and Working Instructions which must always be adjusted to the actual site conditions.

IMPORTANT

**Reduced Product performance due to adverse climate conditions**

Climate conditions during application and curing of the Product can affect the final performance achieved.

1. Do not apply the Product if rain is expected.
2. Allow enough time for the substrate to dry after rain or other inclement weather conditions.
3. Application during temperatures below the stated application temperatures may reduce adhesion values.

IMPORTANT

**Damage due to permanent water contact**

The Product is resistant to wet weather conditions but not suitable for permanent water contact.

1. Do not use the Product for applications with permanent water contact, immersion or submersion.
2. Do not use the Product for horizontal surfaces where water can pond.

**Areas with low UV exposure**

**NOTE:** The coating is a UV-curing acrylic dispersion. If applied in areas with low UV exposure, there is an increased risk of dirt pick-up on the surface.

**Shorter maintenance coating intervals for dark colour shades**

**NOTE:** Dark colour shades, especially black, dark red and blue, may fade quicker than lighter colour shades. This effect is purely aesthetic and does not adversely influence the technical performance or durability of the Product. For aesthetic reasons, dark colour shades may require maintenance or refresher coatings at shorter intervals than usual.

**PRIMER COAT**

- Apply by brush or roller, 1 coat of the appropriate primer at the required consumption rate, to all the surfaces requiring the Sikagard®-5500 coating.

**PROTECTIVE COATING**

1. Ensure the primer is thoroughly dry before overcoating to prevent the formation of bubbles and blisters, particularly in warmer weather.
2. The Product is supplied ready for use. Before application, mix using a low speed electrical single paddle mixer or other suitable equipment until a homogeneous consistency and colour is reached (depending on quantity, 1 to 2 minutes).
3. Apply evenly by brush, roller or airless spray, 1 to 2 coats of the Product to achieve the required total dry film thickness.
4. During application, regularly monitor the wet film thickness and material consumption to ensure the correct layer thickness is achieved.

**CLEANING OF TOOLS**

Clean all tools and application equipment with water immediately after use. Hardened material can only be removed mechanically.

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## 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 written recommendations, or from any other advice offered. The user of the product must test the product's 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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