BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-5500

High Performance Crack-bridging Concrete and Masonry Protective Coating with Sustainability Benefits

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. The durable formulation includes materials derived from renewable sources, thereby reducing the Product's carbon footprint.

USES

The Product 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, chimney or 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 mortars.
- Overcoating existing firmly bonded coatings.
- Improving the aesthetics of concrete and masonry structures.

The Product 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).

CHARACTERISTICS / ADVANTAGES

- Water-based.
- Applied by brush, roller, or airless spray.
- One-part, ready to use.
- Very low VOC emissions.
- Excellent crack-bridging abilities at low temperatures (-20 °C).
- Very good adhesion to concrete and masonry.
- High diffusion resistance against carbon dioxide, reducing the rate of carbonation.
- Permeable to water vapour.
- Time saving: lower consumption for higher performance.
- Resistant to cycles of freeze and thaw exposure and de-icing salts.
- 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.
- Packaging made of recycled materials.
- Long 24 month shelf life.
- Reaction to fire rating of B-s1,d0 (two coats at 500 g/m²).

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimisation — Environmental Product Declarations under LEED® v4.
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimisation — Material Ingredients under LEED® v4.
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU).
- Requires less resources in production compared to a conventional Product.; Causes less CO_2 emissions compared to a conventional Product.

APPROVALS / STANDARDS

- CE marking and declaration of performance based on EN 1504-2: 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 Fugi growth EN 15457, Tecnalia, Report No. 099267-a-1 (M2).
- Determination of carbon dioxide permeability EN 1062-6, Applus, No. 22/32303680.

PRODUCT INFORMATION

Chemical Base

Acrylate dispersion - 100 % derived from renewable feedstock

Packaging

15 L pails (~20.6 kg)
Refer to the current price list for available packaging variations.

Appearance / Colour

Appearance	Coloured, thixotropic liquid
Dried appearance	Matt glossy

Available in many colours. Refer to current price list for colour range
Applied colours selected from colour charts will be approximate.
For colour matching apply colour sample and confirm selected colour under real lighting, environmental and substrate conditions.
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 from date of production.

Storage Conditions

The Product must be stored in original, unopened and undamaged sealed packaging in cool and dry conditions, protect from direct sun light and frost. Always refer to packaging.
Refer to the current Safety Data Sheet for information on safe handling and storage.

Density

~1.37 kg/l (at +20 °C) (EN ISO 2811-1)

Viscosity

9400 MPa·s (EN ISO 3219)
sP7,4; 200 rpm; 23 °C

Solid content by mass

~67.7 % (EN ISO 3251)

Solid content by volume

~55.5 % (ISO 3233)

TECHNICAL INFORMATION

Tensile adhesion strength

1.9 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)

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

Reaction to Fire

B-s1,d0 (2 × 500 g/m²) (EN 13501-1)

Freeze Thaw De-Icing Salt Resistance

1.7 (1.65) N/mm² (EN 13687-1)

Resistance to Weathering

Cycles of 4 h UV-B radiation (60 °C) + 4 h condensation (50 °C).
After 2000 hours samples show no blistering, no cracking and no flaking.

Permeability to Water Vapour	Consumption	2 × 500 g/m²	(EN ISO 7783)
	Dry film thickness	d = 370 µm	
	Equivalent air layer thickness	$s_{d\ H2O}$ = 0.37 m	
	Diffusion coefficient H_2O	μH_2O = 800	
	Requirements for breathability	≤ 5 m	
Capillary Absorption	w = 0.01 kg·m^{-2}·h$^{-0.5}$		(EN 1062-3)
Lap Shear Strength	Consumption	2 × 300 g/m²	(EN 1062-6)
	Dry film thickness	d = 270 µm	
	Equivalent air layer thickness	$s_{d\ CO2}$ = 66 m	
	Diffusion coefficient CO_2	μCO_2 = 200 000	
	Requirements for CO_2 protection	> 50 m	

APPLICATION INFORMATION

Consumption

Product	Per Coat
Sikagard®-551 S Elastic Primer	~0.10 to 0.15 kg/m²
Sikagard®-552 W Aquaprimer	~0.10 to 0.15 kg/m²
Sikagard®-5500	~0.30 to 0.6 kg/m²

Application of more than 0.3 kg/m² only possible with airless spray application (not by roller or brush).
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 Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.

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

NOTES:
- 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, provided the existing coat has been thoroughly cleaned.
- Times are approximate and will be affected by changing ambient conditions, particularly temperature and relative humidity.

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

VALUE BASE

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

FURTHER DOCUMENTS

Method statement: Application of Sikagard® protective coatings

ECOLOGY, HEALTH AND SAFETY

Local safety regulations must be observed and it advisable to wear PPI when working with this product with particular attention paid to cutting and handling. Transportation Class: The product is not classified as hazardous good for transport. Disposal: The material is recyclable. Disposal must be according to local regulations. Please contact your local Sika sales organisation for more information.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

EXPOSED CONCRETE OR MASONRY WITHOUT EXISTING COATING

Pre-conditions

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. For a cementitous pore filler, allow a curing time of at least 4 days before coating. If Sikagard®-545 W Elastofill or Sikagard®-720 EpoCem® is used, then coating can be applied within 24 hours.

EXPOSED CONCRETE OR MASONRY WITH EXISTING COATING

1. 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

1. 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 Application of Sikagard® protective coatings.

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 or immersion.
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 brighter 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

1. 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 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

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

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any 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.

SIKA IRELAND LIMITED
Ballymun Industrial Estate
Ballymun
Dublin 11, Ireland
Tel: +353 1 862 0709
Web: www.sika.ie
Twitter: @SikaIreland