BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-5500

Highly crack-bridging concrete protection coating with sustainability benefits

DESCRIPTION

Sikagard®-5500 is a 1-part, water-based, elastic protective coating for concrete. 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 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 strongly reducing chloride and CO_2 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

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)

FEATURES

- Water-based
- Applied by brush, roller, or airless spray
- 1-part ready to use
- Very low VOC emissions
- Very good crack-bridging ability at low temperatures (-20 °C)
- Good adhesion to concrete
- High diffusion resistance against CO_2 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 fungi growth
- Easy to clean and maintain
- Packaging made of recycled materials

SUSTAINABILITY

- Contributes towards satisfying Materials and Resources (MR) Credit: Building product disclosure and optimization — Environmental Product Declarations under LEED® v4
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — 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.

CERTIFICATES AND TEST REPORTS

- 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

PRODUCT INFORMATION

Composition

Acrylate dispersion - 100 % derived from renewable feedstock

Packaging

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

Appearance and 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 sunlight and frost. Always refer to packaging.
Refer to the current Safety Data Sheet for information on safe handling and storage.

Density

~1.37 kg/lt (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 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	(EN ISO 7783)
Capillary absorption	w =0.01 kg·m^{-2}·h$^{-0.5}$	(EN 1062-3)
Diffusion resistance to carbon dioxide	Consumption: 2 × 300 g/m² 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	(EN 1062-6)

APPLICATION INFORMATION

Consumption

Product	Per coat
Sikagard®-551 S Elastic Primer	~0.10 – 0.15 kg/m²
Sikagard®-552 W Aquaprimer	~0.10 – 0.15 kg/m²
Sikagard®-5500	~0.30 – 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.

Material 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 to 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

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.
Note: 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

BASIS OF PRODUCT DATA

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 DOCUMENTATION

Method statement: Application of Sikagard® protective coatings

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

EXPOSED CONCRETE WITHOUT EXISTING COATING
Preconditions
New concrete is 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 cementitious 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 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 pickup 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 1-2 minutes)
3. Apply evenly by brush, roller or airless spray, 1-2 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 EQUIPMENT

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.

Sika Hellas ABEE
15, Protomagias Str.
GR 145 68, Kryoneri, Attica
Tel.: +30 210 81 60 600
E-mail: info@gr.sika.com
www.sika.gr