BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-5500

Highly crack bridging concrete protective coating with increased sustainability benefits

PRODUCT DESCRIPTION

Sikagard®-5500 is a 1-part, water-based, elastic protective coating for concrete. Its very high static and dynamic crack-bridging abilities work on a wide temperature range and reduce required consumption. 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:
- Any concrete or reinforced concrete structures (normal, lightweight or fibre reinforced) or elements at risk to cracking
- Increasing the service life to all types of concrete structures and elements subject to cracking / cyclic movement: 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 and 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)

Please note:
- The product includes a UV hardening compound and may only be used in UV exposed areas.
- The product may not be used on horizontal surfaces or areas with constant water contact.

CHARACTERISTICS / ADVANTAGES

- 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
- Water vapour permeable
- 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

ENVIRONMENTAL INFORMATION

- Conforms with LEED v4 MR credit: Building product disclosure and optimization — Environmental Product Declarations (option 1)
- Conforms with LEED v4 MR credit: Building product disclosure and optimization — Material ingredients (option 2)
- 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 1504-2:2004 Products and systems for the protection and repair of concrete structures — Surface protection systems for concrete — Coating

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.	
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.	
Appearance / Colour	White, thixotropic liquid Final 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 product is exposed to direct prolonged sunlight, there may be some discolouration and colour variation.	
Density	~1.37 kg/l (at +20 °C)	(EN ISO 2811-1)
Solid content by mass	~ 67.7 %	(EN ISO 3251)
Solid content by volume	~ 55.5 %	(ISO 3233)
Viscosity	9400 MPa·s sP7,4; 200 rpm; 23 °C	(EN ISO 3219)

TECHNICAL INFORMATION

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):

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)

*Sikagard®-552 W Aquaprimer was used as primer

Tensile adhesion strength	1.9 N/mm²	(EN 1542)
Capillary Absorption	w = 0.01 kg·m^{-2}·h$^{-0.5}$	(EN 1062-3)

Permeability to Water Vapour

Consumption	2 × 500 g/m²
Dry film thickness	d = 370 µm
Equivalent air layer thickness	$s_{d\ H2O}$ = 3.7 m
Diffusion coefficient H_2O	µH_2O = 881
Requirements for breathability	≤ 5 m

Lap Shear Strength (EN 1062-6)

Consumption	2 × 300 g/m²
Dry film thickness	d = 340 µm
Equivalent air layer thickness	$s_{d\ H2O}$ = 52 m
Diffusion coefficient H_2O	µCO_2 = 15255
Requirements for breathability	> 50 m

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.

Freeze Thaw De-Icing Salt Resistance 1.7 (1.65) N/mm² (EN 13687-1)

Reaction to Fire B-s1,d0 (2 × 500 g/m²) (EN 13501-1)

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) ≈ 300 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

When the application is over existing coatings, the waiting time for both primers will double.
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: ~7 days at +20 °C During that time protect coat from dirt pick up. Time is approximate and will be affected by film thickness, changing ambient conditions particularly temperature and relative humidity.

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

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.

SUBSTRATE QUALITY

EXPOSED CONCRETE WITHOUT EXISTING COATING
Substrate must be 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.
Substrate must be prepared 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.
New concrete must be at least 28 days old.
Surface defects, blowholes, cavities and pores must first be prefilled using a pore filler (such as Sika MonoTop®-3020, Sikagard®-720 EpoCem® or Sikagard®-545 W Elastofill) to provide a defect free surface.
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 WITH EXISTING COATING
Existing coatings must be tested 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. For more information refer to the Method statement: Application of Sikagard® protective coatings.
INADEQUATE ADHESION
1. Existing coatings must be completely removed using suitable equipment and the substrate prepared the same as for '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 water-based 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. Wait at least 2 weeks before conducting the adhesion test, as guidance, adhesion test average ≥ 0.8 N/mm² with no single value below 0.5 N/mm²

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
Climate conditions during application
The 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 conditions.
3. Application during temperatures below the stated application temperatures may reduce adhesion values.

IMPORTANT
Maintenance coating times
Dark colour shades (especially black, dark red and blue) may fade quicker than other lighter colour shades. Therefore for aesthetic reasons a maintenance or refresher coat might be required at an earlier interval 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 over-coating 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.

Also refer to Sika Method Statement: Protective Coatings

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