

## PRODUCT DATA SHEET

# Sikagard®-550 W Elastic

## Crack bridging protective coating for concrete

### DESCRIPTION

Sikagard®-550 W Elastic is a one part, plasto-elastic coating based on UV-curing acrylic dispersion with excellent crack-bridging properties even at temperatures below 0 °C.

Sikagard®-550 W Elastic complies with the requirements of EN 1504-2 as protective coating.

### USES

As a protective and decorative coating for walls and soffits the product can be used for the following applications:

- New concrete or reinforced concrete structures and elements at risk of cracking
- Concrete repair refurbishment - works over Sika® pore filling or smoothing mortars and overcoating existing firmly bonded coatings
- Reducing the deterioration of concrete and assisting with controlling the corrosion of any embedded steel reinforcement
- Increasing the service life to all types of concrete structures and elements subject to cracking / cyclic movement
- Typical applications include residential and commercial building façades, bridges, car parks etc.

The Product is suitable 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)

The Product is not suitable for:

- Waterproofing purpose, i.e. longterm or permanent water contact
- Horizontal applications with the risk of water ponding

### FEATURES

- 1-part ready to use
- Applied by brush, roller or airless spray
- Available in many colours
- Crack-bridging at low temperatures (-20 °C)
- Easily maintained by overcoating
- Free of toluene and other aromatic solvents
- Good adhesion to concrete
- High diffusion resistance against CO<sub>2</sub> reducing the rate of carbonation
- Reduced tendency to dirt pick-up and contamination
- Very good resistance against weathering and ageing
- Water vapour permeable
- Water-based

### CERTIFICATES AND TEST REPORTS

- CE Marking and Declaration of Performance to EN 1504-2 - Surface protection product for concrete - Coating
- Surface protection system OS-DII ZTV-SIB 90, Sika MonoTop®-620, Sikagard®-545 W Elastofill / -550 W Elastic, Institut für Bauforschung Germany, Test report No. A 2714/D2/V12
- Performance testing, EN 1504-2, Sikagard®-550 W Elastic, LPM AG, Report No. A-33'882-1, A-33'882-2E
- Determination of crack bridging, EN 1062-7, kiwa, Report No. P 8690a

## PRODUCT INFORMATION

|                         |   |
|-------------------------|---|
| Composition             | Water-based acrylate dispersion   |
| Packaging               | 15 L pail   |
| Appearance and colour   | Thixotropic liquid<br>Final appearance: Smooth matt finish<br>Available in many colours.  |
| Shelf life              | 24 months from date of production.  |
| Storage conditions      | The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +25 °C. Always refer to packaging. |
| Density                 | ~1.39 kg/l (at +20 °C)  |
| Product declaration     | EN 1504-2: Surface protection product for concrete - Coating  |
| Solid content by mass   | ~66.1 %   |
| Solid content by volume | ~53.4 %   |

## TECHNICAL INFORMATION

|                                       |  |   |               |
|---------------------------------------|--|---|---------------|
| Tensile strain at break               | At room temperature (not exposed to weathering)            | ~120 %                                    |               |
|                                       | At -20 °C  | ~70 %                                     |               |
| Tensile adhesion strength             | ≥ 2.5 MPa  |   | (EN 1542)     |
| Crack bridging ability                | 2 coats  | Class A1 (-20 °C)                         | (EN 1062-7)   |
|                                       | 3 coats  | Class B2 (-15 °C)                         |               |
| Freeze thaw de-icing salt resistance  | ≥ 2.0 MPa  |   |               |
| Behaviour after artificial weathering | Passed (no bubbles, no cracks, no flaking after 2000 h UV) |   | (EN 1062-11)  |
| Permeability to water vapour          | Dry film thickness   | d = 230 µm                                | (EN ISO 7783) |
|                                       | Equivalent air layer thickness                             | SD, H <sub>2</sub> O = 0.35 m             |               |
|                                       | Diffusion coefficient H <sub>2</sub> O                     | µH <sub>2</sub> O = 1.5 × 10 <sup>3</sup> |               |
|                                       | Requirements for breathability                             | ≤ 5 m                                     |               |
| Capillary absorption                  | w = 0.02 kg/(m <sup>2</sup> h <sup>0.5</sup> )             |   | (EN 1062-3)   |
| Permeability to carbon dioxide        | Dry film thickness   | d = 160 µm                                | (EN 1062-6)   |
|                                       | Equivalent air layer thickness                             | S <sub>D</sub> , CO <sub>2</sub> = 51 m   |               |
|                                       | Diffusion coefficient CO <sub>2</sub>                      | µCO <sub>2</sub> = 3.1 × 10 <sup>5</sup>  |               |
|                                       | Requirements for protection                                | SD, CO <sub>2</sub> ≥ 50 m                |               |

## APPLICATION INFORMATION

| Consumption  | Product   | Per coat                     |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
|--|---|------------------------------|------------------|--------------|--------------|----------------------------|-------------------------|-----------|--------------------------------|-------------------------|------------|-------------------------|-------------------------|----------|
|  | Sikagard®-551 S Elastic Primer or Sikagard®-552 W Aquaprimer  | ~0.10–0.15 kg/m <sup>2</sup> |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
|  | Sikagard®-550 W Elastic   | ~0.25–0.35 kg/m <sup>2</sup> |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| (minimum 2 coats required)   |   |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| These figures are theoretical and do 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  | <ul style="list-style-type: none"> <li>Minimum required dry film thickness to achieve anti-carbonation characteristics (CO<sub>2</sub> equivalent air thickness of 50 m) ≈ 160 µm.</li> </ul> <p>For this dry film thickness, approx. 600 g/m<sup>2</sup> of Sikagard®-550 W Elastic must be applied in total.</p> <ul style="list-style-type: none"> <li>Minimum required dry film thickness to achieve full durability characteristics (CO<sub>2</sub> diffusion, adhesion after thermal cycling and crack bridging) ≈ 340 µm.</li> </ul> <p>For this dry film thickness, approx. 1050 g/m<sup>2</sup> of Sikagard®-550 W Elastic must be applied in total.</p>   |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Ambient air temperature  | +8 °C min. / +35 °C max.  |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Relative air humidity  | ≤ 80 %  |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Dew point  | Substrate and ambient temperature must be at least 3 °C above dew point.  |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Substrate temperature  | +8 °C min. / +35 °C max.  |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Waiting time to overcoating  | <p>Waiting time between coats at +20 °C substrate temperature:</p> <table> <tr> <th>Previous coating</th><th>Next coating</th><th>Waiting time</th></tr> <tr> <td>Sikagard®-552 W Aquaprimer</td><td>Sikagard®-550 W Elastic</td><td>min. 5 h*</td></tr> <tr> <td>Sikagard®-551 S Elastic Primer</td><td>Sikagard®-550 W Elastic</td><td>min. 18 h*</td></tr> <tr> <td>Sikagard®-550 W Elastic</td><td>Sikagard®-550 W Elastic</td><td>min. 8 h</td></tr> </table> <p>* When applied on existing coatings, the waiting time will increase by 100 %.</p> <p>Times are approximate and will be affected by film thickness, changing ambient conditions particularly temperature and relative humidity.</p> <p>Maintenance coats of Sikagard®-550 W Elastic can be applied without priming if the existing coat has been thoroughly cleaned.</p> |                              | Previous coating | Next coating | Waiting time | Sikagard®-552 W Aquaprimer | Sikagard®-550 W Elastic | min. 5 h* | Sikagard®-551 S Elastic Primer | Sikagard®-550 W Elastic | min. 18 h* | Sikagard®-550 W Elastic | Sikagard®-550 W Elastic | min. 8 h |
| Previous coating   | Next coating  | Waiting time                 |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Sikagard®-552 W Aquaprimer   | Sikagard®-550 W Elastic   | min. 5 h*                    |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Sikagard®-551 S Elastic Primer   | Sikagard®-550 W Elastic   | min. 18 h*                   |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Sikagard®-550 W Elastic  | Sikagard®-550 W Elastic   | min. 8 h                     |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Curing treatment   | Sikagard®-550 W Elastic does not require any special curing but must be protected from rain for at least 4 hours at +20 °C.   |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |
| Applied product ready for use  | <p>Full cure: ~7 days at +20 °C</p> <p>Times is approximate and will be affected by film thickness, changing ambient conditions particularly temperature and relative humidity.</p>   |                              |                  |              |              |                            |                         |           |                                |                         |            |                         |                         |          |

## SYSTEM INFORMATION

| System structure | System  | Product  | Number of applications |
|------------------|---------|--|------------------------|
|                  | Primer  | Sikagard®-552 W<br>Aquaprimer or Sikagard®-551 S Elastic<br>Primer | 1                      |
|                  | Coating | Sikagard®-550 W Elastic  | 2–3                    |

For intensive yellow or red colour shades and / or a dark substrate, more than 2 coats maybe required (or greater thickness per coat).

**Primer options**

|                               |                                |
|-------------------------------|--------------------------------|
| Normal absorbent concrete     | Sikagard®-552 W Aquaprimer     |
| Dense, non-absorbent concrete | Sikagard®-551 S Elastic Primer |

Sika® levelling / re-profiling mortars or weak concrete with a tensile adhesion strength < 1.0 MPa:

- Sikagard®-551 S Elastic Primer with up to 10 % Sika® Thinner C

Very dense concrete:

- Sikagard®-551 S Elastic Primer with up to 10 % Sika® Thinner C

## 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.

## LIMITATIONS OF USE

### IMPORTANT

#### Damage due to permanent water contact

Sikagard®-550 W Elastic is resistant to wet weather conditions but not suitable for permanent water contact.

- Do not use Sikagard®-550 W Elastic for applications with permanent water contact or immersion.
- Do not use tSikagard®-550 W Elastic for horizontal surfaces where water can pond.

## IMPORTANT CONSIDERATIONS

- Do not apply if rain is expected within the next 4 to 8 hours.
- Do not apply at temperature below +8 °C nor above +35 °C.
- Allow enough time for substrate to dry after rain or other inclement conditions.
- Ensure the primer is thoroughly dry before over-coating to prevent formation of bubbles and blisters, particularly in warmer weather.
- During application, regular monitoring of the wet film thickness and material consumption is advised to ensure the correct layer thickness is achieved.
- Dark colour shades (especially black, dark red and blue, etc.) may fade quicker than other lighter colour shades. Therefore, a maintenance / refresher coat might be required at an earlier interval than usual.
- Sikagard®-550 W Elastic is not suitable for water-proofing purpose, i.e. longterm or permanent water contact.
- Do not use Sikagard®-550 W Elastic for horizontal surfaces where water can pond.

## 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 PREPARATION

#### IMPORTANT

On substrates with a rough surface profile, it will be difficult to produce an even coating thickness. This may result in reduced protection and cleanability. Pre-levelling or smoothing the surface is recommended before coating application.

#### Substrate without existing coating or hydrophobic impregnation

- The 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.
- New concrete must be at least 28 days old.
- 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.
- Remove weak cementitious substrates
- Fully expose surface defects such as blow holes and voids.
- Prefill surface defects, blowholes, cavities pores etc. using a pore filler (e.g. Sikagard®-545 W Elastofill, Sika MonoTop®-3020, SikaEmaco® N 5100 FC, Sikagard®-720 EpoCem® etc.) to provide a defect free surface.

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- If Sikagard®-545 W Elastofill or Sikagard®-720 EpoCem® is used, the Product can be applied within 24 hours.

#### **Substrate 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 project requests or national standards, use the following tensile adhesion values: adhesion test average  $\geq 0.8$  MPa with no single value below 0.5 MPa.

#### **Inadequate adhesion**

- Existing coatings must be completely removed and prepared the same as for 'Substrate without existing coating'.

#### **Adequate adhesion**

1. Thoroughly clean the existing fully bonded coated surfaces of all contaminants using steam cleaning, low- pressure power washing or high-pressure water jetting equipment.
2. Lightly abrade or grind the surface with mechanical grinding or abrading equipment to achieve a gloss / sheen free surface.
3. Remove dust by industrial vacuuming equipment.
4. For a water-based existing coating, use Sikagard®-552 W Aquaprimer as a primer.
5. For a solvent-based existing coating, use Sikagard®-551 S Elastic Primer as a primer.
6. If the coating type is unknown, carry out compatibility and adhesion testing to determine which primer is most suitable. Wait at least 2 weeks before carrying out tensile adhesion tests.

#### **APPLICATION**

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

Reference must be made to the Sika Method Statement: Protective Coatings

Please note:

- Confirm waiting / overcoating times of any previous mortars, primers or coats is achieved before applying subsequent coats. (Refer to waiting / overcoating time in Application Information)
- Confirm product application conditions: substrate moisture content, substrate, air and product temperatures, relative humidity and dew point.
- Make sure the application area is well ventilated during application and drying.
- To prevent air bubbles affecting the finish, do not 'over' brush, roller or spray.

#### **Manual application**

1. Apply the Product evenly over the surface with a brush or short pile fleece roller at the required consumption.
2. Control the layer thickness during application using a

thickness gauge to achieve the required total dry film thickness.

3. The coating must be continuous, pore free and to the required surface finish.
4. Protect the Product from heavy rain or rain showers until dry to prevent surface damage.
5. Apply additional coats as required.

#### **Airless spray application**

##### **IMPORTANT**

Do not use aerosol car body type spraying equipment!

1. Spray apply the product in a continuous cross-spray operation and at a speed to achieve a consistent thickness and the required surface finish.
2. Control the layer thickness during application using a thickness gauge.
3. The coating must be continuous, pore free and to the required surface finish.
4. Protect the Product from heavy rain or rain showers until dry to prevent surface damage.
5. Apply additional coats as required.

#### **CLEANING OF EQUIPMENT**

Clean all tools and application equipment with water immediately after use.

Hardened material can only be mechanically removed. For Sikagard®-551 S Elastic Primer use Sika® Thinner C.

#### **LOCAL RESTRICTIONS**

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

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## LEGAL NOTES

Any information or suggestions for use concerning Sika's products, which we either in writing or orally have given buyers or end-users of the product, have been given in good faith based on our own experiences and based on approved praxis and the technological and scientific knowledge on the time of giving such suggestions and information, which are given without any type of guarantees, and which do not lead to any further responsibility from Sika Danmark A/S, besides what is stated in the sales agreement in question. The buyer or end-user should themselves investigate or otherwise make sure, that our products are suitable for the use in question and further make sure that the products are kept and used correct and in agreement with the published rules and considering the actual conditions in order to avoid damages or less satisfactory results. Any order is accepted and any deliverance is affected according to the general terms of sales and delivery from Sika Danmark A/S, which are considered known and accepted, and which could be handed out when asked for. Our catalogues are not up-dated automatically. The present product data sheet is only for use in Denmark. Values stated in the present product data sheet should be seen as recommended, unless stated otherwise.

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