BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-555 W Elastic

High crack-bridging protective coating for concrete

DESCRIPTION

Sikagard®-555 W Elastic is a 1-part, water-based, UV-curing, plasto-elastic protective coating for concrete. It has high static and dynamic crack-bridging properties at temperatures below 0°C without requiring a crack-bridging intermediate coating. Sikagard®-555 W Elastic complies with the requirements of EN 1504-2 as protective coating.

USES

As a protective and decorative coating for:
- New concrete or reinforced concrete structures and elements at risk to 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: buildings, bridges, car parks
- Exterior use

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)

CHARACTERISTICS / ADVANTAGES

- For use on normal / lightweight concrete and fibre cement
- Static and dynamic crack-bridging at low temperatures (-20 °C)
- Resistant to freeze / thaw and de-icing salts
- Good adhesion to concrete
- Variable consumption to suit performance requirements
- High diffusion resistance against CO_2 reducing the rate of carbonation
- Available in many colours
- Water vapour permeable
- Very good resistance against weathering and ageing
- No sagging at high application consumptions
- Water-based
- High covering power (good opacity)
- Easily maintained by overcoating
- Reduced tendency to dirt pick up and contamination

APPROVALS / STANDARDS

- CE Marking and Declaration of Performance to EN 1504-2 - Surface protection product for concrete - Coating

PRODUCT INFORMATION

Product Declaration	EN 1504-2: Surface protection product for concrete - Coating
Chemical Base	Acrylate dispersion
Packaging	15 L container Refer to current price list for packaging variations
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 +30 °C. Always refer to packaging.
Appearance / Colour	Thixotropic liquid Final appearance: Smooth sheen finish 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 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)
Solid Content by Weight	~64 %
Solid Content by Volume	~57 %
Volatile Organic Compound (VOC) Content	0.45%

TECHNICAL INFORMATION

Tensile Strength (EN ISO 527)

Consumption	Temperature	Value at break
2 × 300 g/m²	+23 °C	~1.3 N/mm²
	-20 °C	~12.1 N/mm²
2 × 500 g/m²	+23 °C	~1.0 N/mm²
	-20 °C	~12.6 N/mm²

Elongation at Break (EN ISO 527)

Consumption	Temperature	Value at break
2 × 300 g/m²	+23 °C	~450 %
	-20 °C	~28 %
2 × 500 g/m²	+23 °C	~700 %
	-20 °C	~25 %

Crack Bridging Ability

Static crack-bridging at -20 °C (EN 1062-7:2004. Method A):

Consumption*	Crack width at failure	Classification
2 × 350 g/m²	2100 µm	A4
2 × 500 g/m²	2650 µm	A5

Dynamic crack bridging at -20 °C (EN 1062-7:2004. Method B):

Consumption*	Classification
2 × 350 g/m²	B2
2 × 500 g/m²	B3,1
2 × 600 g/m²	B4,1

* Sikagard®-552 W Aquaprimer was used as primer

Tensile Adhesion Strength (EN 1542)

Consumption	Value at break	Failure mode
2 × 300 g/m²	1.35 MPa	Cohesive in coating
2 × 500 g/m²	1.40 MPa	Cohesive in coating

Capillary Absorption (EN 1062-3)

Consumption	Capillary absorption
2 × 300 g/m²	0.07 kg/m²·h$^{0.5}$
2 × 500 g/m²	0.01 kg/m²·h$^{0.5}$

Permeability to Water Vapour (EN 7783-1)

Consumption	2 × 300 g/m²	2 × 500 g/m²
Dry Film Thickness	430 µm	760 µm
Equivalent air layer thickness	2.5 m	3.1 m
Diffusion coefficient µH_2O	3255 µH_2O	3940 µH_2O
Requirement for breathability	< 5 m	< 5m

Permeability to Carbon Dioxide (EN 1062-6)

Consumption	2 × 300 g/m²	2 × 500 g/m²
Dry Film Thickness	d = 400 µm	d = 750 µm
Equivalent air layer thickness	$S_{d,CO2}$ = 95 m	$S_{d,CO2}$ = 121 m
Diffusion coefficient µCO_2	µCO_2 = 239 200	µCO_2 = 161 030
Requirement for protection	$S_{d,CO2}$ > 50 m	$S_{d,CO2}$ > 50 m

Behaviour After Artificial Weathering (EN 1062-11)

After 2000 hours in QUV accelerated weathering test chamber:

Consumption	Observation	Delta E
2 × 300 g/m²	No bubbles, pinholes, cracks or other damage	1.89
2 × 500 g/m²	No bubbles, pinholes, cracks or other damage	1.36

Freeze Thaw De-Icing Salt Resistance (EN 13687-1)

2 × 500 g/m²	1.2 MPa	No delamination or blistering

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

SYSTEM INFORMATION

System Structure

System	Product	Number of coats
Primer	Sikagard®-552 W Aquaprimer or Sikagard®-551 S Elastic	1
Protective coating	Sikagard®-555 W Elastic	2*

* 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 Sika® levelling / re-profiling mortars weak concrete with a tensile adhesion strength < 1 N/mm² low temperature	Sikagard®-551 S Elastic
Very dense concrete	Sikagard®-551 S Elastic with up to 10 % Sika® Thinner C added

APPLICATION INFORMATION

Consumption

Product	Per coat (kg/m²)
Sikagard®-552 W Aquaprimer	~0.10–0.15
Sikagard®-551 S Elastic	~0.10–0.15
Sikagard®-555 W Elastic	Basic performance: ~0.25–0.30 High crack-bridging: ~0.50–0.60

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.

Layer Thickness

Minimum required dry film thickness (DFT):

To achieve required characteristics: CO_2 equivalent air thickness of 50 m	~210 µm
For high static and dynamic crack bridging ability	~750 µm

Note: The minimum required DFT for performance requirements may not have the opacity to cover dark substrates. A greater thickness maybe required.

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 / Overcoating

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

Previous coating	Next coating	Waiting time (minimum)
Sikagard®-552 W Aquaprimer	Sikagard®-555 W Elastic	5 hours
Sikagard®-551 S Elastic	Sikagard®-555 W Elastic	18 hours
Sikagard®-555 W Elastic	Sikagard®-555 W Elastic	8 hours* 12 hours**

* For typical consumption
** For highest consumption
Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.
When application is on existing coatings, the waiting time for both primers will increase by 100 %.
Maintenance coats of Sikagard®-555 W Elastic can be applied without priming if the existing coat has been thoroughly cleaned.

Applied Product Ready for Use

Full cure: ~7 days at +20 °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.

FURTHER DOCUMENTS

- Sika Method Statement: Protective Coatings

LIMITATIONS

- Do not apply if rain is expected
- Application during cold temperatures below recommended application temperatures may reduce adhesion values.
- Allow enough time for substrate to dry after rain or other inclement conditions.
- During application, regular monitoring of the wet film thickness and material consumption is advised to ensure the correct layer thickness is achieved.
- When over-coating existing coatings, compatibility and adhesion testing is recommended.
- Ensure the primer is thoroughly dry before over-coating to prevent formation of bubbles and blisters, particularly in warmer weather.
- 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.

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 Material Safety Data Sheet (MSDS) containing physical, ecological, toxicological and other safety-related data.

REGULATION (EC) NO 1907/2006 - REACH

According to the EU-Directive 2004/42, the maximum allowed content of VOC (Product category IIA / c type wb) is 40 g/l (Limits 2010) for the ready to use product.
The maximum content of Sikagard®-555 W Elastic is < 40 g/l VOC for the ready to use product.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

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 pores etc. must first be prefilled using a pore filler (e.g. Sikagard®-555 W Elastic, Sika MonoTop®-723 N, Sikagard®-720 EpoCem® etc.) to provide a defect free surface.
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.
Inadequate adhesion
Existing coatings must be completely removed using suitable equipment and the substrate prepared the same as for 'without existing coating'.
Adequate adhesion
Thoroughly clean the existing fully bonded coating surfaces of all contaminants using suitable equipment such as steam cleaning or high pressure water jetting.
For a water-based existing coating, use Sikagard®-552 W Aquaprimer as a primer.
For a solvent-based existing coating, use Sikagard®-551 S Elastic Primer as a primer.
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

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.
Primer coat
After application and curing of any levelling/smoothing coat /pore filler, apply by brush or roller, 1 coat of the appropriate primer at the required consumption rate, to all the surfaces requiring the Sikagard®-555 W Elastic coating.
Protective coating
Sikagard®-555 W Elastic is supplied ready for use. Before application, mix for 2 minutes using a low speed electric single paddle mixer or other suitable equipment. Mix the liquid and all the coloured pigment until a uniform colour has been achieved.
After application and waiting time of the primer, apply evenly by brush, roller or airless spray, 1-2 coats of Sikagard®-555 W Elastic to achieve the required total dry film thickness.
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 mechanically removed.

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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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