BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-5321 VEL TH

VINYLESTER RESIN BASED LAMINATE SYSTEM

DESCRIPTION

Sikagard®-5321 VEL TH is 2 part, vinyl-ester based coating and lining system with extended pot-life.

USES

Sikagard®-5321 VEL TH may only be used by experienced professionals.
Especially designed for the use in a chemically stressed environment,where a high chemical resistance is mandatory

- Internal and external lining of chemical tanks
- Secondary containment lining in bund area
- Binder for GFR Laminate systems
- Lining of gutters in process and storage area

FEATURES

High chemical resistance to acids, leaches, solvents and to oxidising agents

- Applicable on concrete and steel
- Fast curing
- Crack bridging properties as laminate layer
- Accessible
- Excellent bond strength
- Easy application
- For internal and external use

PRODUCT INFORMATION

Composition	Formulated Vinylester Resin + Organic Peroxide	
Packaging	Sikagard®-5321 VEL TH Part A	25 kg / drum
	Sikagard®-5321 VEL TH Part B	1 kg / container
	Sikagard®-5321 VEL TH Part C	25 kg / bag
Shelf life	Sikagard®-5321 VEL TH Part A (Solution)	6 months
	Sikagard®-5321 VEL TH Part B (Hardener)	6 months
	Sikagard®-5321 VEL TH Part C (Powder Fine Grey)	24 months
	From production date if stored properly in original, unopened and undamaged sealed packaging.	
Storage conditions	Store in dry conditions at temperature between +5°C and +23°C. Protect from frost.	
Appearance and colour	Sikagard®-5321 VEL TH Part A	Transparent
	Sikagard®-5321 VEL TH Part B	Opaque
	Sikagard®-5321 VEL TH Part C	Grey

Density	Sikagard®-5321 VEL TH Part A	~ 1.10 kg/L
	Sikagard®-5321 VEL TH Part B	~ 1.10 kg/L
	Sikagard®-5321 VEL TH Part C	~ 1.40 kg/L (Bulk density)

TECHNICAL INFORMATION

Shore D Hardness	Approx. 80 (14 days / +23°C)	(DIN EN ISO 868)
Tensile strength	Approx. 70 N/mm²	(ISO 527)
Tensile adhesion strength	> 1.5 N/mm² (failure in concrete)	(EN 4624)

Thermal resistance

Exposure	Temperature
Permanent	+60°C
Short-term max. 7 d	+80°C
Short-term max. 12 h	+100°C

Short-term moist/wet heat up to +100°C, where exposure is only occasional (steam cleaning etc.).

Chemical resistance

According to test groups 1, 1a, 2, 3, 3a, 3b, 4, 4a, 4b, 4c, 5, 5a, 5b, 6, 6b, 7, 7a, 7b, 8, 9, 9a, 10, 11, 12, 13, 14, 15 und 15a

Hydrochloric acid	≤ 37%
Sulphuric acid	≤ 70%
Nitric acid	≤ 30%
Aqueous sodium hypochlorite	12 % active chlorine
Hydrogen peroxide	≤ 30%
Chromic acid	≤ 20%

*Resistant to a wide range of chemicals, please ask for detailed chemicalresistance list Sikagard®-5321 VEL TH

SYSTEM INFORMATION

Systems

Sikagard®-5321 VEL TH, Standard system
Primer or Levelling mortar : 1 x Sikagard®-5321 VEL TH
Laminate layer:

Imbedding	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 300 g/m² glass fabric
Still wet	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 300 g/m² glass fabric
Still wet	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 30 g/m² surface matt
Top coat	Not required

Sikagard®-5321 VEL TH, Economical system (i.e. secondary containment area)
Primer or Levelling mortar: 1 x Sikagard®-5321 VEL TH
Laminate layer:

Imbedding	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 300 g/m² glass fabric
Still wet	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 30 g/m² surface matt
Top coat	Not required

Sikagard®-5321 VEL TH, Heavy duty system (i.e. for loading areas)
Primer or Levelling mortar: 1 x Sikagard®-5321 VEL TH
Laminate layer:

Imbedding	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 450 g/m² glass fabric
Still wet	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 450 g/m² glass fabric
Still wet	1 x Sikagard®-5321 VEL TH (A+B) + 1 x 30 g/m² surface matt
Top coat	Not required

APPLICATION INFORMATION

Consumption

Sikagard®-5321 VEL TH, High Build Lining System (Not Crack Bridging)

Coating System	Product	Consumption
Primer	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B	~ 0.3-0.4 kg/m²
1st coat (Scratch coat)	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 200 pbw Sikagard®-5321 VEL TH Part C	~ 0.8 kg/m²
2nd coat (Top coat self smothening)	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 100 pbw Sikagard®-5321 VEL TH Part C	~ 0.8 kg/m²

Sikagard®-5321 VEL TH, Standard system

Coating System	Product	Consumption
Primer or levelling mortar	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 100-200 pbw Sikagard®-5321 VEL TH Part C	~ 0.55-1.10 kg/m²
Laminate layer	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 2x300 g/m² glass fabric	~ 2.2 kg/m²
Surface matt	30 g/m² surface matt + 100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B	~ 0.3 kg/m²

Sikagard®-5321 VEL TH, Economical system

Coating System	Product	Consumption
Primer or levelling mortar	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 100-200 pbw Sikagard®-5321 VEL TH Part C	~ 0.55-1.10 kg/m²
Laminate layer	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 1x300 g/m² glass fabric	~ 1.1 kg/m²
Surface matt	30 g/m² surface matt + 100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B	~ 0.3 kg/m²

Sikagard®-5321 VEL TH, Heavy duty system

Coating System	Product	Consumption
Primer or levelling mortar	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 100-200 pbw Sikagard®-5321 VEL TH Part C	~ 0.55-1.10 kg/m²
Laminate layer	100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B + 2x450 g/m² glass fabric	~ 3.0 kg/m²
Surface matt	30 g/m² surface matt + 100 pbw Sikagard®-5321 VEL TH Part A + 1.5 ppw Sikagard®-5321 VEL TH Part B	~ 0.3 kg/m²

Sikagard®-5321 VEL TH, Anti-slip top coat (optional)

Coating System	Product	Consumption
1st Top coat	100 pbw Sikagard®-5321 VEL TH Part A + 1.0 ppw Sikagard®-5321 VEL TH Part B	~ 0.3 kg/m²
Broadcast	Silicon carbine (0.5mm)	~ 0.5 kg/m²
2nd Top coat	100 pbw Sikagard®-5321 VEL TH Part A + 1.0 ppw Sikagard®-5321 VEL TH Part B	~ 0.3 kg/m²

Notes:

- These figures are theoretical and do allow for additional material required due to surface porosity,surface profile,variations in level, wastage.
- The amount of Sikagard®-5321 VEL TH Hardener can be reduced to 1% in case of application temperature above 30 °C

Ambient air temperature	+5°C min. / +35°C max.
Relative air humidity	80% r.h. max.

Dew point	Beware of condensation! The substrate and uncured floor must be at least 3°C above the dew point to reduce the risk of condensation or blooming on the floor finish.
Substrate temperature	+5°C min. / +35°C max.
Substrate moisture content	< 4% pbw moisture content. Test method: Sika®-Tramex meter, CM - measurement or Oven-dry method. No rising moisture according to ASTM (Polyethylene-sheet).

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.

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 containing physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

Sikagard®-5321 VEL TH must be thoroughly mixed using a low speed electric stirrer (300 - 400 rpm) or other suitable equipment.

SUBSTRATE PREPARATION

Substrates must be sound and of sufficient compressive strength (minimum 25 N/mm²) with a minimum pull off strength of 1.5 N/mm². The substrate must be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc. If in doubt, apply a test area first.

Concrete

- Substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface.
- Weak concrete must be removed and surface defects such as blowholes and voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor® , Sikagard® Sikadur® or Sika® MonoTop® range of materials.
- The concrete or screed substrate has to be primed or levelled in order to achieve an even surface. High spots must be removed by e.g.grinding.
- All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum.

Steel

- Surfaces must be prepared mechanically using abrasive blast cleaning.The level SSPC-SP 10 “near white metal blast cleaned” or level Sa 2 ½ according to ISO EN 12944-4 has to be achieved. Welds and joints have to be prepared according to EN 14879, part 1.
- After blast cleaning remove all dust dirt and blasting material. In order to maintain the surface conditions after blast cleaning air-conditioning is recommended.

MIXING

Levelling mortar	Part A: Part B 100: 1.5: 100-200 (by weight)
Laminate layer and top-coat	Part A: Part B 100: 1.0 - 1.5 (by weight)

Mixing time

Levelling mortar: Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 1–2 minutes until a uniform mix has been achieved. Add, while stirring slowly the total amount of Sikagard®-5321 VEL TH powder.

Laminate layer and top coat: Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 1–2 minutes until a uniform mix has been achieved.Over mixing must be avoided to minimise air entrainment.

APPLICATION

Prior to application, confirm substrate moisture content, relative humidity and dew point. If > 4% pbw moisture content, substrate has to be dried or Sikagard® 75 EpoCem has to be used as TMB (temporary moisture barrier).

Levelling mortar

Rough surfaces need to be levelled first. Apply the levelling mortar by squeegee/trowel to the required thickness.

Laminate layer

Apply the first layer of Sikagard®-5321 VEL TH by roller, imbed the glass fabric, apply the second and the third layer in the same way, wet in wet. After application of the final glass fabric de-aerate with a disc roller.

CLEANING OF EQUIPMENT

Clean all tools and application equipment with acetone immediately after use.Hardened and/or cured material can only be removed mechanically.
Attention: Acetone is a flammable liquid, please handle with care, use all equipment for your personal protection required.

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.

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