

PRODUCT DATA SHEET

SikaGrout® VHS

SHRINKAGE COMPENSATED, HIGH STRENGTH CEMENTITIOUS GROUT

DESCRIPTION

SikaGrout® VHS is a non-shrink, cementitious precision grout powered by ViscoCrete technology. SikaGrout VHS is designed to achieve high early strength and exceptional ultimate strengths at a fluid consistency. It is non-metallic and contains no chlorides.

USES

SikaGrout® VHS is ideal for many types of structural grouting applications where high early age and long term compressive strengths are required. It can be mixed to different stages of fluidity to produce the desired level of Workability. Add the required amount of water for:-

- Trowel applied medium flow mortar.
- Pourable grout / Flowable grout.

Typical applications for SikaGrout® VHS are:-

- Under machine foundations and base plates.
- Reinforcement ducts in the connection detail between precast columns and beams.

CHARACTERISTICS / ADVANTAGES

SikaGrout® VHS offers the following advantages:-

- High early age strength development
- Controlled bleeding and segregation while plastic
- Increased resistance to aggressive liquid penetration when hardened
- Very high final strengths
- Adjustable consistency
- High flow characteristics
- Non corrosive, non toxic
- Impact and vibration resistant
- Positive shrinkage compensation.

APPROVALS / CERTIFICATES

ASTM C 1107

PRODUCT INFORMATION

Composition	Cement, micro silica, selected fillers, aggregates and special additives
Packaging	30kg bag
Appearance / Colour	Grey powder
Shelf life	6 months from date of production
Storage conditions	Store properly in dry conditions in undamaged and unopened original sealed packaging.
Density	Bulk Density : ~1.25 kg/l (of fresh grout)
Maximum Grain Size	2.36 mm

TECHNICAL INFORMATION

Compressive Strength	<u>1 day</u>	<u>40 N/mm²</u>	ASTM C109
	<u>3 days</u>	<u>60 N/mm²</u>	
	<u>7 days</u>	<u>70 N/mm²</u>	
	<u>28 days</u>	<u>85 N/mm²</u>	
* 70mm Cube * Ambient temperature: +30°C			
Modulus of Elasticity in Compression	E-Modulus : ~ 37'000 N/mm ²		
Tensile Strength in Flexure	<u>7 days</u>	<u>10 N/mm²</u>	(ASTM C 293-79)
	<u>28 days</u>	<u>12 N/mm²</u>	
* Ambient temperature: +30°C			
Tensile Adhesion Strength	<u>Bond Strength</u>	<u>10 N/mm² (after 28 days)</u>	(IS:2770(Part-1)-1967)
	<u>Water: powder ratio</u>	<u>0.12</u>	
	<u>Slip</u>	<u>0.025 mm</u>	
* Used 12mm dia TMT bar			

APPLICATION INFORMATION

Consumption	~2200 kg/m ³ At water: powder ratio 0.12		
Yield	15.3 L per 30 kg bag		
Layer Thickness	20 mm min. / 100 mm max.		
Flowability	Flow cone (mm)	≥ 200 mm	(ASTM C230/230M)
Ambient Air Temperature	+5°C min/+40°C max		
Substrate Temperature	+5°C min/+40°C max		
Pot Life	~ 20 minutes at +30°C		

SUBSTRATE QUALITY / PRE-TREATMENT

Substrate Quality

Concrete, grout, stone: Surfaces must be sound, clean, free from ice, oils, grease, standing water and any loose or friable particles and any other surface contaminants.

The concrete "pull off" (tensile) strength should be > 1.0 MPa.

Steel, iron: Clean, free from oil or grease, rust and scale etc.

Substrate Preparation

The substrate should be prepared by suitable mechanical preparation techniques such as high pressure water jetting, breakers, blast cleaning, scrabbles, etc. The concrete substrates should be pre-soaked with clean water continuously for 2 - 6 hours to ensure a saturated surface dry condition throughout the operation. Immediately before pouring remove all excess or standing water from within any formwork.

MIXING

Mixing :

For Flowable

Water: Powder = 0.13 to 0.14 by weight (3.9 l to 4.2 l water per 30 kg bag).

For Pourable

Water: Powder = 0.12 by weight (3.6 l water per 30 kg

bag).

Mixing Time

3-5 minutes minimum

Mixing Tool

Mixing equipment shall be power operated general concrete mixer or paddle mixer for large grout quantity and for small application a hand held heavy duty slow speed drilling machine fitted with mixing paddle shall be used for mixing a maximum of 50 kg of grout at a time.

Put around 80 to 90% of required water in the mixing drum, followed by SikaGrout® VHS and then add the balance water.

SikaGrout® VHS is best mixed in forced action mixer. Powder is gradually added to the pre-measured water and mixed mechanically with a slow speed drill (400 – 500 rpm) attached with a paddle type mixer, until a smooth and even consistency is achieved.

Dependent on the desired consistency and flow properties, the mixing ratio can be adjusted.

Do not mix more grout, which cannot be used within Pot life. DO NOT ADD EXTRA WATER.

APPLICATION

Pour grout immediately after mixing into the prepared openings. Ensure that air displaced by the grout can

easily escape; otherwise entrapped air will prevent full contact grouting. Wet porous substrates to saturated surface dry condition.

When grouting base plates etc., ensure that a continuous and sufficient head of pressure is maintained to keep the grout flowing. To make optimum use of the products expansion properties, apply the grout as quickly as possible (within max. 15 minutes).

CURING TREATMENT

Keep any visible, exposed grout surfaces as small as possible and protect from premature drying out by suitable measures (keep moist, cover with wet Hessian etc.).

CLEANING OF EQUIPMENT

Clean all tools and application equipment with water immediately after use. Hardened/cured material can only be mechanically removed.

FURTHER INFORMATION

Notes on Application / Limitations :

Use SikaGrout®-VHS for grouting only; do not use SikaGrout®-VHS for patch repair work etc.

Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.

Use chilled water for mixing in case of high ambient temperature.

Use hot water for mixing in case of very low ambient temperature.

Depending on requirements and site conditions the addition of dry, single size and clean aggregates is possible. Trials are recommended to confirm suitability of aggregates to be used.

For large bedding holes and higher gaps duly washed coarse aggregates of size 6mm down may be mixed with SikaGrout®-VHS in the proportion of grout: aggregate= 2:1 (by weight).

For additional technical information on SikaGrout®-VHS or other grouting materials contact the technical services department.

IMPORTANT CONSIDERATIONS

- Minimum application thickness : 20 mm.
- Recommended thickness of SikaGrout® VHS in one pour is 20 mm to 100mm.
- If the thickness exceeds 100 mm, special procedure must be taken to anticipate temperature rise. Iced water, add coarse aggregate to the mix (max. 40% by powder weight), or both of them may be used to eliminate temperature rise.
- Variations in cement could cause shade differences

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in colour of the mortar.

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.

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.

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.

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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