

SikaGrout® VHS

Shrinkage compensated high strength cementitious grout

Product 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 nonmetallic and contains no chlorides.
Uses	<p>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:-</p> <ul style="list-style-type: none">▪ Trowel applied medium flow mortar.▪ Pourable grout / Flowable grout. <p>Typical applications for SikaGrout VHS are:-</p> <ul style="list-style-type: none">▪ Under machine foundations and base plates.▪ Reinforcement ducts in the connection detail between precast columns and beams.
Characteristics / Advantages	<p>Sika Grout VHS offers the following advantages:-</p> <ul style="list-style-type: none">▪ 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.
Tests	
Approval / Standard	ASTM C 1107
Product Data	
Form	
Appearance / Colour	Grey powder
Packaging	30 kg bags
Storage	
Storage Conditions / Shelf-Life	6 months from date of production if stored properly in dry conditions in undamaged and unopened original sealed packaging.
Technical Data	
Chemical Base	Cement, micro silica, selected fillers, aggregates and special additives
Bulk Density	~1.25 kg/l (of fresh grout)
Layer Thickness	20 mm min. / 100 mm max.



Mechanical / Physical Properties

Compressive Strength	Ambient temperature: +30°C		(According to ASTM C109, 70mm Cube)	
	1 day	3 days	7 days	28 days
	40 N/mm ²	60 N/mm ²	70 N/mm ²	85 N/mm ²
Flexural Strength	Ambient temperature: +30°C		(According to ASTM C 293-79)	
	7 days		28 days	
	10 N/mm ²		12 N/mm ²	
Bond Strength	10 N/mm ² at water: powder ratio 0.12 at 0.025mm slip at 28 days (Used 12mm dia TMT bar) (According to IS:2770(Part-1)-1967)			
E-Modulus	~ 37'000 N/mm ²			

System Information

Application Details

Consumption	~2200 kg/m ³ <i>At water: powder ratio 0.12</i>
Substrate Quality	<i>Concrete, grout, stone:</i> 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. <i>Steel, iron:</i> 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 <i>all</i> excess or standing water from within any formwork.

Application Conditions / Limitations

Substrate Temperature	+5°C min/+40 °C max
Ambient Temperature	+5°C min/+40 °C max

Application Instructions

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.

	<p>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.</p> <p>Dependent on the desired consistency and flow properties, the mixing ratio can be adjusted.</p> <p>Do not mix more grout, which cannot be used within Pot life. DO NOT ADD EXTRA WATER.</p>
Application Method	<p>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.</p> <p>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).</p>
Cleaning of Tools	<p>Clean all tools and application equipment with water immediately after use. Hardened/cured material can only be mechanically removed.</p>
Potlife	<p>~ 20 minutes at +30°C</p>
Notes on Application / Limitations	<p>Use SikaGrout[®]-VHS for grouting only; do not use SikaGrout[®]-VHS for patch repair work etc.</p> <p>Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.</p> <p>Use chilled water for mixing in case of high ambient temperature.</p> <p>Use hot water for mixing in case of very low ambient temperature.</p> <p>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.</p> <p>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).</p> <p>For additional technical information on SikaGrout[®]-VHS or other grouting materials contact the technical services department.</p>
Curing Details	
Curing Treatment	<p>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.).</p>
Value Base	<p>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.</p>
Health and Safety Information	<p>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.</p>
Legal Notes	<p>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.</p>



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