

## PRODUCT DATA SHEET

# SikaGrout® HES

## HIGH EARLY STRENGTH AND RAPID SET CEMENTITIOUS GROUT

### DESCRIPTION

SikaGrout® HES is a ready mixed, high quality, Class C shrinkage compensated grout that sets rapidly with high early strength gain. SikaGrout® HES is a blend of high alumina cement is based on supplementary cementitious material aggregates and Sika admixtures, enabling it to achieve high strengths in short time frame.

### USES

SikaGrout® HES is used in a wide range of applications where rapid strength and return to service is required, such as:

- Machine base plates
- Anchoring
- Starter bars
- Bridge bearing pads
- Pre-cast panel grouting
- Cavities, gaps and recesses

### PRODUCT INFORMATION

<b>Packaging</b>	20kg bag
<b>Shelf life</b>	9 months
<b>Storage conditions</b>	Stored in a dry, unopened original containers protected from direct sunlight and frost.
<b>Appearance and colour</b>	Grey Powder
<b>Maximum grain size</b>	Maximum particle size for pumping ~2.0mm

### FEATURES

- High early strengths (even at low temperatures).
- High 28 day strengths.
- Good flow characteristic.
- Rapid set times.
- Adjustable consistency.
- Does not segregate or bleed.
- High impact and thermal resistance.
- Non corrosive to steel or iron.

### CERTIFICATES AND TEST REPORTS

Department of Main Roads Qld (TMR) 2019, Product Index for Bridges and Other Structures, Section 5. Registered and Conforming Products, 5.33 Repair Materials (Concrete) – Grouts

Density

~2,200 kg/m<sup>3</sup> approx. (dependent on water addition rate)

## TECHNICAL INFORMATION

Compressive strength	2 hours	~ 15 MPa	(AS 1478.2:2005)
	4 hours	~ 24 MPa	
	1 day	~ 30 MPa	
	3 days	~ 40 MPa	
	7 days	~ 45 MPa	
	28 day	~ 65 MPa	

Material and curing conditions at 23°C / 50% r.h.  
Above results based on 50mm x 50mm cube @ flowable consistency

Electrical resistivity	7 days	~ 9,000 Ω.cm	(FM 5-578) 50mm Probe Spacing
	28 days	~ 17,000 Ω.cm	
	56 days	~ 22,000 Ω.cm	
	90 days	~ 25,000 Ω.cm	

## APPLICATION INFORMATION

Yield		Trowellable	Flowable
	Yield per 20kg bag	~ 10.3 litres	~ 10.7 litres
	Approx.Qty per 1m <sup>3</sup>	~ 97 bags	~ 94 bags

Layer thickness min. 10mm / 150mm @ 23°C

Flowability ~ 70 sec (Flow Cone - Flowable consistency) (AS 1478.2:2005)

Mixing ratio Flowable consistency add 3.2 to 3.5 litres of water per 20 kg bag.  
Trowellable consistency add 2.5 to 2.8 litres of water per 20kg bag.

Pot Life ~ 20 minutes at 23 °C

Setting time	Temperature	Initial Set	Final Set	(AS 2350.4:2006)
	23 °C	~ 25 mins	~ 30 mins	

## 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.

## IMPORTANT CONSIDERATIONS

- Do not mix SikaGrout® HES with any Portland cement based materials.
- For detailed information on grouting application and guidelines, refer to Sika Grouting Method Statement.
- Store SikaGrout® HES in dry conditions in unopened original packaging.
- Never apply to a dry substrate.
- Trials should always be conducted SikaGrout® HES to determine performance under local conditions.

## 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 QUALITY / PRE-TREATMENT

#### Concrete:

Correct and thorough surface preparation is essential to achieve the high performance qualities of SikaGrout® HES. All surfaces must be clean, sound and free from dust, ice, oils, grease or other surface contaminants such as curing membranes and form release agent etc. Bolt holes and fixing pockets should be free of dirt and debris by air blasting. For maximum bond, surfaces should be abraded or roughened, preferably by mechanical means such as needle gun, grit blasting, grinding etc. All prepared surfaces must be saturated with water several hours prior to grouting, ensuring it is free of any surface water or puddles.

#### Formwork:

Where formwork is to be used, all formwork must be of adequate strength, treated with release agent and sealed to prevent leakage of pre-wetting water and grout. Ensure formwork includes outlets for removal of the pre-soaking water if vacuum extraction equipment to remove water will not be used. For manual grout application, a header box or hopper must be constructed on one side of the formwork so that a

grout head can be maintained during the grouting operation.

## MIXING

### Equipment:

SikaGrout® HES must be mixed using a mechanical grout mixer or a suitable drum mixer. The grout mixer will reduce the mix becoming lumpy or aerated. Smaller quantities should be mixed in a clean drum using an electric drill. i.e. Festo or similar spiral mixer at a speed of approximately 500RPM. DO NOT MIX BY HAND or MIX PART BAGS.

### Method:

Add approx. 70% of water to 20kg pail, slowly add powder while mixing to wet out product fully, add remaining water at a steady rate while continuing to mix. Continue to mix for an additional 3-5 mins. Do not add more water to increase flow if material has stiffened due to time delays on resting, remixing can reactivate. If grout is unworkable discard.

## APPLICATION

SikaGrout® HES can be placed by gravity flow or by pump. It is essential that proper placing is completed without problems. Sufficient labour, grout and equipment must be present to ensure continuous placement.

### Gravity Flow:

Mixed grout should be poured one side of the void to avoid air entrapment. Grout is best poured over short distances to ensure this. Use a suitable header box, maintaining the grout head at all times to ensure continuous flow. To facilitate grout compaction and top plate contact, use rodding, tamping or flexible strapping in short strokes while maintaining an adequate head of grout.

Do not vibrate as this will cause segregation. Any adjacent machinery or equipment causing vibration should be shut down until initial set.

### Pumping:

When pumping SikaGrout® HES, ensure the pump is suitable for the grout consistency and for the distance and height it is to be pumped. A positive displacement pump is recommended. Place grout by pumping into the farthest corner, filling the space gradually. Ensure that air is not entrapped under the base plate.

### Placement Thickness:

Minimum thickness is 10 mm. Maximum thickness in one pass is 150 mm. Any grout pour that exceeds this should be done in stages, or have stone aggregate added to it, to reduce the exothermic heat.

### Aggregate Addition:

Coarse aggregate can be added to mixed SikaGrout® HES to achieve a stronger grout, to increase the thickness of grout placed in one pass, or to increase yield. It is recommended that aggregate size be 10 mm, however as a guide the maximum aggregate size should not be more than 1/5 of the thickness of the section to be cast.

The aggregate shape, and the quantity added, will affect the workability of the mix. Smooth rounded aggregate is found to produce the most workable mix. The recommended maximum aggregate addition rate is 20kg per 20kg bag of SikaGrout® HES. The other option will be to add SikaGrout Aggregate to the mix to increase the thickness of the grout placed.

## CURING TREATMENT

Suitable curing methods such as plastic sheet, wet hessian, curing compounds (eg, Sika Film for initial placement then Sika Antisol curing compounds after initial set) etc. must be used to protect the freshly applied grout from the drying effects of sun and wind. Curing must commence immediately after placement, and continue for at least 7 days. Curing is vital to the ultimate performance of grout as it allows optimum strength development and ensures tight contact with the baseplate.

## CLEANING OF EQUIPMENT

Remove uncured SikaGrout-HES from tools and equipment with water. Hardened material can only be removed mechanically.

## LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

## 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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**Product Data Sheet**

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