

## PRODUCT DATA SHEET

# SikaGrout<sup>®</sup>-214 KH

## PUMPABLE SHRINKAGE COMPENSATED CEMENTITIOUS GROUT

### DESCRIPTION

SikaGrout<sup>®</sup>-214 KH is a pumpable dual-shrinkage compensated, self-levelling, prebagged cementitious grout with extended working time to suit local ambient temperatures.

### USES

SikaGrout<sup>®</sup>-214 KH is suitable for repairs to the following concrete structures:

- Machine foundations
- Columns in precast construction
- Concrete anchors
- Bridge bearings
- Cavities
- Gaps
- Recesses
- Rail beds
- Honeycombs (pre-packed grouting)

SikaGrout<sup>®</sup>-214 KH is suitable for grouting works with clearances as low as 5 mm.

### PRODUCT INFORMATION

<b>Packaging</b>	25 kg bag
<b>Appearance / Colour</b>	Grey powder
<b>Shelf life</b>	6 months from the date of production
<b>Storage conditions</b>	Store properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +35 °C. Protect from direct sunlight, rain and water.
<b>Density</b>	~ 2.2 kg / L (depending on consistency and temperature)
<b>Maximum Grain Size</b>	1.2 mm

### TECHNICAL INFORMATION

### CHARACTERISTICS / ADVANTAGES

- Easy to mix and apply
- Good flow characteristics
- Rapid strength development
- High ultimate strengths
- Impact resistant
- Non-corrosive
- Non-toxic
- Chloride free
- Dense and non-shrink (2-step expansion - Gaseous expansion in plastic stage & Crystalline expansion in hardened stage)
- Extended working time
- Good pumping properties

### APPROVALS / CERTIFICATES

Tested for compatibility with drinking water, PSB report 57S030976-SLE-2

<b>Compressive Strength</b>	<b>(ASTM C 109)</b>	<b>Flowable</b>	<b>Pourable</b>
	1 day	> 25 N/mm <sup>2</sup>	> 30 N/mm <sup>2</sup>
	7 days	> 45 N/mm <sup>2</sup>	> 50 N/mm <sup>2</sup>
	28 days	> 60 N/mm <sup>2</sup>	> 65 N/mm <sup>2</sup>
<b>Tensile Strength in Flexure</b>	<b>(EN 196-1)</b>	<b>Flowable</b>	<b>Pourable</b>
	7 days	~ 7.0 N/mm <sup>2</sup>	~ 7.5 N/mm <sup>2</sup>
	28 days	~ 7.5 N/mm <sup>2</sup>	~ 8.0 N/mm <sup>2</sup>
<b>Expansion</b>	0.5–1.5 % (ASTM C 940) at 24 hours		

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	<b>Consistency</b>	<b>Water (L) per 25 kg of grout</b>		
	Flowable	4.0 – 4.4		
	Pourable	3.6 – 4.0		
	Stiff	3.0 – 3.4 (for special applications such as anchoring of starter bars)		
<b>Yield</b>	<b>Flowable consistency</b>			
		1.84 kg	25 kg	74 x 25 kg bags
	Water	0.31 L	4.2 L	309 L
	Volume mortar	1 L	13.6 L	1 m <sup>3</sup>
	<b>Pourable consistency</b>			
		1.90 kg	25 kg	76 x 25 kg bags
	Water	0.3 L	4 L	303 L
	Volume mortar	1 L	13.2 L	1 m <sup>3</sup>
	<b>Layer Thickness</b>	5 mm min. / 50 mm max. per pour		
	<b>Flowability</b>	<b>(ASTM C 230 modified)</b>	<b>Flowable</b>	<b>Pourable</b>
Flow cone		~280 mm	~250 mm	
<b>Ambient Air Temperature</b>	+10 °C min. / +40 °C max.			
<b>Substrate Temperature</b>	+10 °C min. / +40 °C max.			

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY / PRE-TREATMENT

The substrate should be prepared by suitable mechanical preparation techniques such as high pressure water, breakers, grit blasting, scabblers, etc. All absorbent surfaces must be well saturated with clean water, but free of any surface water or puddles prior to the application of SikaGrout®-214 KH.

#### Concrete, mortar and stone

Surfaces must be sound, clean, free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants.

#### Metal surfaces (iron and steel)

Surfaces should be clean, free from scale, rust, oil and grease.

### MIXING

Place about 70–80 % of the premeasured clean water (depending on consistency required - refer to "Mix Ratio") into a clean container and gradually add the whole bag of SikaGrout®-214 KH into it while continuously mixing. Add the remaining water and continue mixing until the desired consistency is obtained. Mix for 2 to 3 minutes with a slow speed drill and paddle (~500 rpm). For large quantities mixing, the use of a forced-action mixer of rotating pan, paddle or trough type is preferred. Free fall mixers should not be used.

### APPLICATION

Use SikaGrout®-214 KH for grouting only. After mixing, stir lightly with a spatula for a few seconds to release any entrapped air. The grout is then poured immediately into the prepared formwork. When carrying out baseplate grouting, ensure sufficient pressure head is maintained for uninterrupted mortar flow. For formwork repair, the prepared form-

work must be firmly in place and kept watertight. When placing grout over a large area, it is important to maintain a continuous flow throughout. Work sequence must be properly organised to ensure an uninterrupted flow. In large areas, SikaGrout®-214 KH may be pumped using heavy duty diaphragm pumps. Screw feed and piston pumps may also be used.

#### Specific Areas of Application

- Grouting under baseplate - pourable consistency
- Formwork grouting (example deep honeycombs, column reinforcements, etc. pouring method - flowable / pourable consistency prepacked method - flowable consistency.
- Grouting anchor bolts - stiff consistency
- Grouting large volumes - for sections thicker than 50mm, it is necessary to fill SikaGrout®-214 KH with graded 10 mm silt free aggregates to minimise temperature rise generated during the curing stage. The quantity of aggregates should not exceed 1 part aggregates to 1 part SikaGrout®-214 KH by weight. For such mixes, a conventional concrete mixer and pump may be used.

To further ensure that air entrapped during mixing is allowed to fully escape, it may be necessary to make breather holes. Use steel rods or chains to assist the flow of the grout where necessary.

#### CURING TREATMENT

If formwork type repair is used, leave the formwork in place for at least 3 days. Upon removal of the formwork, cure the exposed surfaces immediately with An-tisol®-E curing compound or use other approved curing methods.

#### CLEANING OF EQUIPMENT

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

#### IMPORTANT CONSIDERATIONS

- At temperatures below +20°C, setting time and strength development will be slower.
- Non-shrink grout contains additives which expand either during the plastic stage and / or the hardening stage to compensate for the shrinkage of the cementitious matrix. However, this 'non-shrink' property will be effective only if the material is not subjected to water loss.
- This is confirmed by a note in the ASTM C 1107 Standard Specification for packaged dry, hydraulic cement grout (non-shrinkable), which clarifies the behaviour of the non-shrink grout when subjected to some drying:

*"Note 1: Since all conditions of use cannot be anticip-*

*ated, this specification requires non-shrink grout to exhibit no shrinkage when tested in a laboratory controlled moist-cured environment, and requires only the reporting of the observed height change, usually shrinkage, when test specimens are subject to some degree of drying."*

#### BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

#### 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.

#### ECOLOGY, HEALTH AND SAFETY

#### 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.