

# SikaGrout®-214

## Multi-purpose dual shrinkage compensated cementitious grout

Construction

### Product Description

SikaGrout®-214 is a dual-shrinkage compensated self-levelling, premixed cementitious grout with extended working time to suit local ambient temperatures.

### Uses

SikaGrout®-214 is suitable for the following grouting works with clearance of 10 mm or more:

- Machine foundations
- Columns in precast constructions
- Concrete anchors
- Bridge bearings
- Cavities
- Gaps
- Recesses
- Rail beds

### Characteristics / Advantages

SikaGrout®-214 is an economical and easy to use material requiring the simple addition of water. Other beneficial properties are:

- Easy to mix and apply
- Good flow characteristics
- Rapid strength development
- High ultimate strength
- Impact resistant
- Non-corrosive
- Non-toxic
- Iron and chloride free
- Dense and non-shrink (2-step expansion)
- Extended working time

### Product Data

#### Form

**Appearance / Colour** Grey premixed powder

**Packaging** 25 kg bags

#### Storage

**Storage Conditions / Shelf Life** 9 months from the date of production when stored in original unopened packaging in a cool, dry place



## Technical Data

**Density** ~ 2.2 kg per litre (depending on consistency and temperature)

**Aggregate Size** 3.3 mm maximum

**Layer Thickness Per Pour**

■ Maximum	100 mm
■ Minimum	10 mm

## Mechanical / Physical Properties

**Compressive Strength** > 60 N/mm<sup>2</sup> (at ...°C / 28 days)

### Typical Results (tests carried out at 25°C)

Mix Designs		Flowable Water Content 4.2 litres / 25 kg	Pourable Water Content 3.8 litres / 25 kg	Stiff Water Content 3.2 litres / 25 kg
Flow	BS Cone, mm J Cone, seconds	300 15	270 17	180* N/A
Initial setting time	hour:minute	4:30	3:40	3:00
Bleeding at 24 hours	%	0	0	0
Expansion at 24 hours	%	0.70	0.30	0.07
Compressive Strength	N/mm <sup>2</sup>			
	1 day	25	32	35
	3 days	40	42	45
	7 days	50	53	58
28 days	60	70	75	
Flexural Strength	N/mm <sup>2</sup>			
	7 days	6.2	6.5	7.3
	28 days	7.4	8.1	8.5

\* after 15 strokes

The above tests were conducted under laboratory conditions in accordance with the following standards:

- Initial setting MS 522: Part 2:1989.
- Bleeding ASTM C940 – 87.
- Expansion ASTM C940 – 87.
- Compressive strength ASTM C109 / C109M - 02
- Flexural strength BS 4551:1980.

The results above are typical data and given as a guide only. Site results may differ according to mixing process, placing, curing, etc. Preliminary tests are always recommended.

## System Information

### Application Details

#### Typical Yield

##### Flowable Consistency

	1.80 kg	25 kg	72 x 25 kg bag
Sika Grout 214			
Water	0.30 litre	4.2 litre	302 litre
Volume Mortar	1 litre	13.9 litre	1 m <sup>3</sup>

##### Pourable Consistency

	1.90 kg	25 kg	76 x 25 kg bag
Sika Grout 214			
Water	0.3 litre	4.0 litre	303 litre
Volume Mortar	1 litre	13.2 litre	1 m <sup>3</sup>

<b>Substrate Quality</b>	<p><i>Concrete, mortar and stone</i> Surfaces must be sound, clean, and free from frost, oils, grease, standing water and all loosely adhering particles and other surface contaminants.</p> <p><i>Metal surfaces (iron and steel)</i> Surfaces should be clean, free from scale, rust, oil and grease.</p>	
<b>Substrate Preparation</b>	<p>The substrate should be prepared by suitable mechanical preparation techniques such as high pressure water, breakers, grit blasting, scabblers, etc.</p> <p>All absorbent surfaces must be well saturated with clean water, but be free of any surface water or puddles prior to the application of SikaGrout®-214.</p>	
<b>Application Conditions / Limitations</b>		
<b>Application Temperature</b>	<ul style="list-style-type: none"> <li>■ Minimum</li> <li>■ Maximum</li> </ul>	<p>+10°C</p> <p>+30°C</p>
<b>Application Instruction</b>		
<b>Mix Ratio</b>	<b>Consistency</b>	<b>Water (litres) per 25 kg of Grout</b>
	Flowable	4.0 – 4.4
	Pourable	3.6 – 4.0
	Stiff	3.0 – 3.4*
	* for special application such as anchoring starter bars	
<b>Mixing</b>	Place 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 into it while continuously mixing. Add the remaining water until the desired consistency is obtained.	
<b>Mixing Time</b>	Mix for 2 – 3 minutes with a low speed drill (maximum 500 rpm).	
<b>Application Method / Tools</b>	<p>Use SikaGrout®-214 for grouting only.</p> <p>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.</p> <p>When carrying out baseplate grouting, ensure sufficient pressure head is maintained for uninterrupted mortar flow. For formwork repair, the prepared formwork must be firmly in place and kept watertight.</p> <p>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.</p> <p>For sections thicker than 100 mm or for grouting large areas, it is necessary to mix SikaGrout®-214 with graded 10 mm silt free aggregates to minimise temperature rise generated during curing stage. The quantity of aggregates should not exceed 1 part aggregates to 1 part SikaGrout®-214 by weight. Other precautions such as the use of chilled water, insulation of the formwork or baseplate may be required. Please consult our Technical Service Department for assistance.</p> <p>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 grout where necessary.</p>	
<b>Cleaning of Tools</b>	Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be mechanically removed.	

## Notes on Application / Limitations

- At temperatures 20°C and below, 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 C1107 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 anticipated, 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".*

## Curing Details

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

**Value Base** 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

**Health and Safety Information** For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet (available on request) 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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