Construction

SikaGrout®-215

Pumpable shrinkage compensated cementitious grout

Product Description	SikaGrout®-215 is a pumpable dual-shrinkage compensated, self-levelling, prebagged cementitious grout with extended working time to suit local ambient temperatures.
Uses	SikaGrout®-215 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®-215 is suitable for grouting works with clearances as low as 5 mm.
Characteristics / Advantages	■ Easy to mix and apply ■ Good flow characteristics ■ Rapid strength development ■ High ultimate strengths ■ Impact resistant ■ Non-corrosive ■ Non-toxic ■ Iron and 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 ■ Tested for compatibility with drinking water

Product Data

Form

Appearance / Colour	Grey powder

Packaging	25 kg bags

Storage

Storage Conditions / Shelf Life	6 months from the date of production if stored properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5°C and +40°C. Protect from direct sunlight.

Technical Data

Wet Density	~ 2.2 kg/ltr (depending on consistency and temperature)
Aggregate Size	1.2 mm max.
Layer Thickness	50 mm max. per pour / 5 mm min. per pour

Mechanical / Physical Properties

Typical Results

Tests carried out at +25°C

Mix Designs		Flowable (Water content 4.2 ltr/ 25 kg bag)	Pourable (Water content 3.8 ltr/ 25 kg bag)
Flow	BS Cone JA Cone	~280 mm ~7 seconds	~250 mm ~22 seconds
Initial setting time		4 h : 20 m	3 h : 40 m
Expansion at 24 hours		~0.63 %	~0.35 %
Compressive strength	1 day 7 days 28 days	~25 N/mm^2 ~50 N/mm^2 ~65 N/mm^2	~30 N/mm^2 ~65 N/mm^2 ~70 N/mm^2
Flexural strength	7 days 28 days	~5.8 N/mm^2 ~7.9 N/mm^2	~6.4 N/mm^2 ~8.3 N/mm^2

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

- Bleeding & Expansion ASTM C 940
- Compressive strength ASTM C 109
- Flexural strength BS 4551

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

SikaGrout®-215	1.84 kg	25 kg	74 x 25 kg bags
Water	0.31 ltr	4.2 ltr	309 ltr
Volume mortar	1 ltr	13.6 ltr	1 m^3

Pourable consistency

SikaGrout®-215	1.90 kg	25 kg	76 x 25 kg bags
Water	0.30 ltr	4.0 ltr	303 ltr
Volume mortar	1 ltr	13.2 ltr	1 m^3

Substrate Quality	*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.
Substrate Preparation	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®-215.

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +40°C max.
Ambient Temperature	+10°C min. / +40°C max.

Application Instructions

Mix Ratio

Consistency	Water (ltr) per 25 kg of grout
Flowable	4.0 – 4.4
Pourable	3.6 – 4.0
Stiff	3.0 – 3.4 (for special applications such as anchoring of starter bars)

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®-215 into it while continuously mixing. Add the remaining water until the desired consistency is obtained.

Mixing Time

Mix for 2 to 3 minutes with a slow speed drill (500 rpm max.).

Application Method / Tools

Use SikaGrout®-215 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 formwork 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®-215 may be pumped using heavy duty diaphragm pumps. Screw feed and piston pumps may also be used.

Specific Areas of Application

- Grouting under baseplate – use pourable consistency.
- Formwork grouting (example deep honeycombs, column reinforcements, etc.):
  - Pouring method – use flowable / pourable consistency.
  - Prepacked method – use flowable consistency.
- Grouting anchor bolts – use stiff consistency.
- Grouting large volumes – for sections thicker than 50 mm, it is necessary to fill the SikaGrout®-215 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®-215 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 grout where necessary.

Cleaning of Tools

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

Construction

Notes on Application / Limitations	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 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 the exposed surfaces immediately with Antisol®-E curing compound or use 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 shall 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.

Sika Singapore Pte Ltd
200 Pandan Loop, 06-02 Pantech 21
Singapore 128388
SINGAPORE

Phone: +65 6777 2811
Fax: +65 6779 6200
e-mail: info@sg.sika.com
www.sika.com.sg

Sika Kimia Sdn Bhd
Lot 689 Nilai Industrial Estate
71800 Nilai, Negeri Sembilan DK
MALAYSIA

Phone: +606-7991762
Fax: +606-7991980
e-mail: info@my.sika.com
www.sika.com.my