

## PRODUCT DATA SHEET

# SikaGrout<sup>®</sup>-214 IN

### HIGH PRECISION, NON SHRINK, POURABLE CEMENTITIOUS GROUT

#### DESCRIPTION

SikaGrout<sup>®</sup>-214 IN is a cement based 1-component, ready to mix, non-shrink, ready to use, pourable and flowable, two stage expanding engineering grout in dry powder form. It is widely used for precision grouting in engineering objects subjected to static and dynamic loads.

#### USES

- To grout bearings, machine foundations, columns joints in precast construction etc.
- To grout anchors in concrete
- To grout cavities, gaps and voids in concrete
- To grout base plate of turbine, compressor, boilers, pumps and heavy machinery.
- Sealing around penetrations
- Post fixings

#### CHARACTERISTICS / ADVANTAGES

- Dual shrinkage compensated
- Suitable for temperature of above 0 °C to 200 °C
- Easy to use, ready to mix powder
- Easy to mix, only add water
- Adjustable consistency
- Very good flow characteristics
- Rapid strength development without surface crack
- Excellent bond to concrete
- No segregation or bleeding
- High final strengths
- Initial expansion by gas generation
- Impact and vibration resistant
- Non-corrosive to anchor bolts, base plate / saddle / frame, sliding plate
- Not harmful to concrete and reinforcing steel
- Not flammable
- Non-toxic
- Frost, oil and fire resistant
- Require normal curing
- Suitable to use under restraints and grout thickness required
- Expansive to counteract initial shrinkage
- Maximum flow distance is compatible to the dimensions of base plate / saddle / frame
- Resistant to the chemicals, gases etc. being handled in equipment
- Chloride free

#### PRODUCT INFORMATION

<b>Chemical Base</b>	Cement, special additives, and aggregates
<b>Packaging</b>	30 kg bag
<b>Appearance / Colour</b>	Grey powder
<b>Shelf Life</b>	6 months from date of production
<b>Storage Conditions</b>	Store properly in dry conditions in undamaged and unopened original sealed packaging.

Bulk Density	1.15–1.60 kg/L (dry powder density) at +27 °C	(ASTM C948)
Maximum Grain Size	2.36 mm	
Product Declaration	ASTM C1107	

## TECHNICAL INFORMATION

Compressive Strength	1 day	$\geq 25 \text{ N/mm}^2$	(ASTM C109)
	3 days	$\geq 35 \text{ N/mm}^2$	
	7 days	$\geq 45 \text{ N/mm}^2$	
	28 days	$\geq 65 \text{ N/mm}^2$	

70.6 mm cube, ambient temperature +30 °C

### Dynamic load test:

Specimens of SikaGrout®-214 IN remained undamaged and show no change in compressive strength after subjecting to alternate stress fluctuation of 5 N/mm<sup>2</sup> and 25 N/mm<sup>2</sup> at 500 cycles per minute for 2 million cycles.

Modulus of Elasticity in Compression	~30 GPa	(ASTM C469)
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Tensile Strength in Flexure	7 days, +30 °C	~9 N/mm <sup>2</sup>	(ASTM C293)
	28 days, +30 °C	~10 N/mm <sup>2</sup>	

Splitting tensile strength	$\geq 3.5 \text{ N/mm}^2$ (28 days, +30 °C)	(ASTM C496)
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Pull-Out Resistance	7 days	~19 N/mm <sup>2</sup>
	28 days	~20 N/mm <sup>2</sup>

This is also referred as Pull out bond strength.

Tensile Adhesion Strength	$\geq 2 \text{ N/mm}^2$ (28 days, +30 °C)	(EN 1542)
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Shrinkage	No shrinkage after initial setting
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Expansion	Upto 4 %	(ASTM C1090)
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## APPLICATION INFORMATION

Mixing Ratio	Flowable	Water : Powder = 0.15–0.16 by weight	4.5–4.8 litres water per 30 kg bag
	Pourable	Water : Powder = 0.14 by weight	4.2 litres water per 30 kg bag

Fresh mortar density	2000–2300 kg/m <sup>3</sup>
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Consumption	~1950 kg/m <sup>3</sup> at water to powder ratio 0.15
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Layer Thickness	100 mm max.
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Ambient Air Temperature	+5 °C min. / +40 °C max.
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Substrate Temperature	+5 °C min. / +40 °C max.
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Pot Life	~20 minutes at +30 °C	(FIP 5.1)
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Initial Set Time	~30 minutes
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## 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.

## 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.

## LIMITATIONS

- Use SikaGrout®-214 IN for grouting only, do not use SikaGrout®-214 IN for patch repair work or overlay in unconfined spaces etc.
- Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.
- Use chilled water for mixing in case of high ambient temperature. Use hot water for mixing in case of very low ambient temperature.
- 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.
- For large bedding holes and higher gaps, duly washed coarse aggregates of size 6 mm down may be mixed with SikaGrout®-214 IN in the proportion of grout : aggregate = 2 : 1 (by weight).
- Avoid application in direct sun and/or strong wind
- Do not add water under or over recommended dosage.
- Apply only to sound, prepared substrate.
- Do not add additional water during the surface finishing as this may cause discolouration and cracking.
- Protect freshly applied material from freezing and frost.
- Keep exposed surfaces to a minimum.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY / PRE-TREATMENT

#### Concrete, grout, stone:

The substrate shall be thoroughly clean, free from dust, loose material, surface contamination and materials which reduce bond or prevent suction or wetting by the grout. Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable means. The concrete "pull off" tensile strength should be  $\geq 1.0$  MPa. 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 grout remove all excess or standing water from within any formwork.

#### Steel, iron:

Clean, free from oil or grease, rust and scale etc. The substrate should be prepared by suitable mechanical preparation techniques such as high pressure water jetting, breakers, blast cleaning, scrabbles, etc

## MIXING

SikaGrout®-214 IN can be mixed with a low speed (< 500 rpm) hand drill mixer to avoid entraining too much air. Mix only full bags for best results. Pour around 80 to 90% of the recommended water in a suitable mixing container. While stirring slowly, add the powder to the water and mix thoroughly at least for 3 minutes adding balance water within the mixing time to the maximum specified amount to adjust the grout to the required consistency and flow properties. Do not mix more grout, which cannot be used within pot life. Do not add extra water.

## APPLICATION

Remove excess water from substrate surface e.g. with clean sponge, until surface is dark matt in appearance without glistening (saturated surface dry). Surface pores and pits shall not contain water. Let the grout stand for ~5 minutes to release air entrained by mixing. Pour grout immediately after mixing into the prepared openings using a sufficient pressure head to maintain a continuous flow of grout. Ensure air displaced by the grout can easily escape, otherwise entrapped air will prevent full contact grouting. For optimum use of the expansion properties apply the grout as quickly as possible, within ~15 minutes after mixing.

## CURING TREATMENT

Keep visible exposed grout surfaces to a minimum. Protect the fresh material from premature drying using appropriate curing method e.g. curing compound, moist textile membrane, polythene sheet etc.

## CLEANING OF TOOLS

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

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product 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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