

PRODUCT DATA SHEET

SikaGrout®-295 IN

Ultra high strength precision cementitious grout

DESCRIPTION

SikaGrout®-295 IN is a 1-part, cementitious, ultra high strength, free flowing grout with high mechanical performance. Specifically designed for onshore wind turbine foundation joint filling under metal bases and foundations.

USES

For renewable energy applications where gaps and joints between structural elements / substrates require a high mechanical strength grout:

- Wind turbine bases
- Stanchion base plates
- Concrete posts
- Bearing plates
- Heavy machine base plates
- Vertical and horizontal precast concrete elements
- Filling large voids
- For interior and exterior use

CHARACTERISTICS / ADVANTAGES

- Fast early strength development
- High final strength
- Application thickness 10 to 200 mm
- Shrinkage compensated (both in plastic and hardening stage)
- Good flow properties
- Good adhesion to concrete
- No segregation or bleeding
- Pumpable
- Non-corrosive
- Free from chlorides and metallic particles
- Not flammable

PRODUCT INFORMATION

Chemical base	Cement, selected fillers and aggregates, special additives
Packaging	30 kg and 500 kg bag
Appearance / Colour	Grey powder
Shelf life	6 months from date of production
Storage conditions	The product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C.
Maximum grain size	D _{max} : ~3 mm

TECHNICAL INFORMATION

Compressive strength	Time	Compressive strength at 20 °C	Compressive strength at 35 °C	(ASTM C109)
	1 day	≥ 35 N/mm ²	≥ 50 N/mm ²	
	3 days	≥ 70 N/mm ²	≥ 80 N/mm ²	
	7 days	≥ 80 N/mm ²	≥ 90 N/mm ²	
	28 days	≥ 90 N/mm ²	≥ 95 N/mm ²	
Values measured at water / powder ratio 0.115, cube size 50 mm				
Modulus of elasticity in compression	~38 GPa			(EN 13412)
Flexural strength	Time	Flexural strength at +20 °C	Flexural strength at +35 °C	(EN 196-1)
	1 day	≥ 4 N/mm ²	≥ 5 N/mm ²	
	28 days	≥ 12 N/mm ²	≥ 13 N/mm ²	
	Values measured at water / powder ratio 0.115, cube size 50 mm			
Splitting tensile strength	~6 MPa (+35 °C, water / powder = 0.115)			(EN 12390-6)
Tensile adhesion strength	> 2.0 MPa			(EN 1542)
Expansion	Max. 2 %			

APPLICATION INFORMATION

Mixing ratio	~11–12 % ~3.3–3.6 L of water for 30 kg of powder or ~55–60 L of water for 500 kg of powder			
Fresh mortar density	~2350 kg/m ³ (water / powder = 0.115)			
Layer thickness	10 mm min. / 200 mm max.			
Flowability	Flow time	Values after 5 minutes at +20 °C	Values after 5 minutes at +35 °C	(EN 13395-2)
	After 30 seconds	425 mm	395 mm	
	End	690 mm	535 mm	
	Time after mixing	Values at +20 °C	Values at +35 °C	(ASTM C1437)
	After 10 min	300 mm	295 mm	
	After 60 min	265 mm	260 mm	
After 180 min	195 mm	190 mm		
Ambient air temperature	+10 °C min. / +40 °C max.			
Substrate temperature	+10 °C min. / +40 °C max.			
Pot life	~60 minutes (+30 °C, water / powder = 0.115)			
Initial set time	~230 min (+20 °C, water / powder = 0.115)			(EN 196-3)
Setting time	~450 min (+20 °C, water / powder = 0.115)			(EN 196-3)

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.

FURTHER DOCUMENTS

- Sika Method Statement: SikaGrout®-295 IN

IMPORTANT CONSIDERATIONS

- To avoid cracking of exposed surfaces, protect from direct sun and, or strong wind.
- Use only on clean, sound, prepared substrates.
- The substrate must be free of ice.
- Do not exceed water addition.
- Protect freshly applied material immediately.
- Keep exposed surfaces to a minimum.
- To avoid cracking in warm temperatures keep bags cool & use cold water for mixing.
- Not to be used for concrete repair works.
- Do not use vibrating poker.
- Do not use continuous mixing equipment.
- Pour or pump from one side only.
- Avoid exposing surfaces during rainfall and before final set.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete

- The concrete must be structurally sound, thoroughly clean, free from oil, grease, dust, loose material, surface contamination and materials which will impair the grout flow or reduce adhesion strength.
- Laitance, delaminated, weak, damaged and deteriorated concrete and where necessary unsound concrete must be removed by suitable mechanical preparation as directed by the engineer or supervising officer.
- Any pockets or holes for structural fixings must also be cleaned of all debris.

Shutter 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 or use vacuum extraction equipment to remove water.
- For manual grout application, a header box or hopper must be constructed on one side of the formwork so that a minimum grout head of 150–200 mm can be maintained during the grouting operation.

MIXING

IMPORTANT

Do not add more water than the maximum specified.

IMPORTANT

Do not use continuous mixing equipment.

Electric Single or double paddle mixer

1. Pour the correct amount of clean water into a clean mixing container.
2. Stir water slowly with a spiral paddle (200–500 rpm).
3. Add the complete bag of powder into the water.
4. Mix continuously for 5 minutes to achieve a uniform and lump free smooth consistency.
5. Wait for 1–2 minutes to allow the entrapped air to escape.
6. Mix again for 2 more minutes.

Grout mixer

IMPORTANT

Product must be mixed using suitable grout mixing equipment combined with agitator for large volume mixing.

IMPORTANT

Volume capacity of equipment must be proportionally greater than the volume of material being mixed.

Note: Equipment trials must be considered to make sure product can be mixed satisfactory before full project application.

1. Pour the minimum water ratio in the correct proportion into the grout mixer.
2. While stirring the water, slowly add the powder to the water.
3. Add more water within the mixing time up to the maximum allowed until the required consistency is achieved.
4. Mix continuously for a minimum of 4 minutes. For larger mixes the mixing time must be extended to approximately 6 minutes or as necessary until the grout achieves a lump free smooth consistency.

APPLICATION

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

Pre-wetting

- The prepared concrete substrate must be thoroughly saturated with clean water for a recommended 12 hours before application of the grout.
- The surface must not be allowed to dry within this time.
- Before application of the grout, all water must be removed from within formwork, cavities or pockets and the final surface must achieve a dark matt appearance (saturated surface dry) without glistening.

Placing: Manual application

1. Apply the material within ~10 minutes after mixing to take advantage of the expansion properties.
2. Immediately after mixing, pour the mixed grout into the header box or hopper ensuring continuous grout flow during the complete grouting operation to avoid trapping air.

Placing: Grout pump application

- For large volume placement, grout pumps are recommended.
- Equipment trials must be considered to ensure product can be pumped satisfactory.

Surface finishing

IMPORTANT

Do not add additional water on the surface.

IMPORTANT

Do not over work the surface as this may cause surface discolouration and cracking.

1. Finish exposed grout surfaces to the required surface texture as soon as the grout has started to stiffen.
2. After the grout has initially hardened, remove formwork and trim edges while concrete is 'green'.

Cold weather working

- Consider storing bags in a warm environment and using warm water to assist with achieving strength gain and maintaining physical properties.

Hot weather working

- Consider storing bags in a cool environment and using cold water to assist with controlling the exothermic reaction to reduce cracking and maintaining physical properties.

CURING TREATMENT

- Protect exposed grout surfaces after finishing from premature drying and cracking by curing under water for at least 72 hours.
- In cold weather, apply insulated blankets to maintain a constant temperature to prevent surface damage from freezing and frost.

CLEANING OF TOOLS

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

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 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
SikaGrout®-295 IN
September 2021, Version 02.01
020201010010000223

SikaGrout-295IN-en-IN-(09-2021)-2-1.pdf