

PRODUCT DATA SHEET

SikaGrout[®]-3200 IN

Fatigue certified onshore wind tower precision grout

DESCRIPTION

SikaGrout[®]-3200 IN is a 1-part, cementitious, fast hardening free flowing grout which is shrinkage compensated and achieves high early and final strengths. Specifically designed for onshore wind tower structural filling of joints and under grouting base plates.

USES

- High performance precision grouting of vertical or horizontal joints for onshore steel and precast concrete wind towers.

CHARACTERISTICS / ADVANTAGES

- Fast early strength development
- High final strength
- Fluid consistency
- Can be pumped
- Shrinkage compensated
- Application thickness 10 mm to 300 mm
- High adhesion to concrete
- Similar performance to C80 concrete according to fib Model Code 2010

APPROVALS / STANDARDS

- Fatigue resistance SikaGrout[®]-3200 IN, Applus, Certificate No. 20/32300268-S

PRODUCT INFORMATION

Chemical Base	Special cement, selected aggregates and additives
Packaging	25 kg and 500 kg bags
Appearance / Colour	Grey powder
Shelf Life	6 months from date of production
Storage Conditions	Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to packaging.
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	≥ 40 MPa	≥ 60 MPa	
	2 days	≥ 70 MPa	≥ 80 MPa	
	7 days	≥ 90 MPa	≥ 95 MPa	
	28 days	≥ 95 MPa	≥ 105 MPa	
Values measured at water/powder ratio 0.115, cube size 50 mm				
Equivalent to C80/95 concrete class (EN 206-1)				
Modulus of elasticity in compression	~38 GPa			(EN 13412)
Flexural strength	Time	Flexural strength		(EN 196-1)
	1 day	≥ 6 MPa		
	28 days	≥ 15 MPa		
Values measured at +35 °C with a water/powder ratio of 0.115				
Splitting tensile strength	≥ 6 MPa (+35 °C)			(EN 12390-6)
Tensile adhesion strength	> 2.0 MPa			(EN 1542)
Expansion	> 0.1 % after 24 hours. Max. 2 %			

APPLICATION INFORMATION

Mixing ratio	~11–12 % ~2.75–3.0 L of water for 25 kg of powder or ~55–60 L of water for 500 kg of powder			
Fresh mortar density	~2300 kg/m ³			
Yield	25 kg of powder yields ~12 litres of mortar			
Layer thickness	10 mm min. / 300 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	430 mm	390 mm	
	End	690 mm	540 mm	
	Time after mixing	Values at +20 °C	Values at +35 °C	(ASTM C1437)
	After 10 min	300 mm	290 mm	
	After 60 min	270 mm	265 mm	
After 180 min	200 mm	195 mm		
Ambient air temperature	+10 °C min. / +40 °C max.			
Substrate temperature	+10 °C min. / +40 °C max.			
Pot life	~60 minutes at +30 °C			

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®-3200 IN

LIMITATIONS

- 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.
- Do not use vibrating pokers.
- 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

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.

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 sound 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.

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 continuous large volume mixing.

IMPORTANT

Volume capacity of equipment must be applicable to

the volume of material being mixed for a continuous operation.

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

1. The prepared concrete substrate must be thoroughly saturated with clean water for a recommended 12 hours before application of the grout.
2. The surface must not be allowed to dry within this time.
3. 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: 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

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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