BUILDING TRUST

PRODUCT DATA SHEET

SikaGrout®-3350

Ultra-high strength fatigue certified onshore wind tower precision grout

PRODUCT DESCRIPTION

SikaGrout®-3350 is a 1-part, cementitious, fast hardening, free flowing grout which is shrinkage compensated and achieves ultra-high early and final strengths. Specifically designed for onshore steel and precast concrete wind towers.

USES

SikaGrout®-3350 may only be used by experienced professionals.

- Ultra-high performance precision grouting of joints.
- Filling horizontal joints between tower bases and foundations.
- Horizontal joints between precast concrete elements.

CHARACTERISTICS / ADVANTAGES

- Application thickness: 20–500 mm.
- Fast early strength development, even at low temperatures.
- Ultra-high final strength >120 N/mm².
- Very low shrinkage.
- Fatigue certified.
- Good flowability.
- High adhesion to concrete.
- Ready to use (just add water).
- Suitable for pumping long distances.

APPROVALS / STANDARDS

- Fatigue Resistance SikaGrout®-3350, Applus, Certificate No. 19/32301074-S.

PRODUCT INFORMATION

Product Declaration	EN 1504-6: Anchoring of reinforcing steel bar. EN 1504-3: Structural and non-structural repair product for concrete.
Packaging	25 kg and 500 kg bags. Refer to current price list for packaging variations.
Shelf Life	12 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 +35 °C. Always refer to packaging.
Appearance / Colour	Light grey powder
Maximum Grain Size	D_{max}: ~3 mm

TECHNICAL INFORMATION

Compressive Strength

Time	Compressive strength	(EN 12190)
1 day	~65 N/mm²	
3 days	~90 N/mm²	
7 days	~100 N/mm²	
28 days	~120 N/mm²	

Compressive Strength Class	>C100/115	(EN 206)
Characteristic Compressive Strength at 28 days	>120 N/mm² (150 x 300 mm cylinders)	(EN 12390-3)

Early strength: ≥40 N/mm² after 24 hours (class A), according Guideline DAfStb.

Air and Concrete Temperature	Time	Compressive strength	(EN 12190)
+5 °C	24 hours	>3 N/mm²	

For concrete exposure classes: X0, XC 1-4, XD 1-3, XS 1-3, XF 1-4, XA 1-2/WA. (DIN EN 206-1/ DIN 1045-2)

Modulus of Elasticity in Compression	~56'000 N/mm²	(EN 13412)

Flexural Strength

Time	Strength	(EN 12190)
1 day	~10 N/mm²	
28 days	~20 N/mm²	

Tensile adhesion strength	> 2,0 N/mm²	(EN 1542)
Shrinkage	< 0,25 mm/m Shrinkage Class SVKM 0 according to DAfStb Guideline	
Expansion	> 0,1 % volume after 24 hours. Max 2 %	

APPLICATION INFORMATION

Mixing Ratio	6,5–8,0 % 1,63–2,0 Litres of water for 25 kg of powder 32,5–40,0 Litres of water for 500 kg of powder	
Fresh mortar density	~2,5 kg/l	
Yield	25 kg of powder yields ~10,70 Litres of grout	
Layer Thickness	20 mm minimum / 500 mm maximum	
Flowability	a3 (≥ 700 mm diameter)	(DAfStb 2011)
Ambient Air Temperature	+5 °C minimum / +35 °C maximum	
Substrate Temperature	+5 °C minimum / +35 °C maximum	
Pot Life	~180 minutes at +20 °C	

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.

FURTHER DOCUMENTS

- Sika Method Statement: SikaGrout®-3350.

LIMITATIONS

- To avoid cracking of exposed surfaces, protect from direct sun and / or strong wind.
- Use only on clean, sound substrate.
- 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 and 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 prior to 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 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

Drill and Spiral Mixer
Pour the correct amount of water into a suitable clean mixing container. Stir slowly with an electric single or double mixer (200–500 rpm) and spiral paddle then add the complete bag of powder into the water. Mix continuously for 5 minutes to achieve a uniform and lump free smooth consistency. Do not add more water than the maximum specified.
Grout mixer
SikaGrout®-3350 must be mixed using suitable grout mixing equipment combined with agitator for continuous large volume mixing. Volume capacity of equipment must be applicable to the volume of material being mixed for a continuous operation. Equipment trials must be considered to ensure product can be mixed satisfactory before full project application.
Pour the first bag and add the minimum water ratio in the correct proportion into the grout mixer. Mix for around 1 minute. While stirring the mix, slowly add the rest of the powder. Add more water within the mixing time up to the maximum allowed until the desired consistency is achieved.
Mix continuously for a minimum of 4 minutes more. 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. Do not add more water than the maximum specified.
Note: Do NOT use continuous mixing equipment.

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. Prior to 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
Finish exposed grout surfaces to the required surface texture as soon as the grout has started to stiffen. Do not add additional water on the surface. Do not overwork the surface as this may cause surface discolouration and cracking. 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 (immediately after levelling) 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 performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

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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