BUILDING TRUST

PRODUCT DATA SHEET

SikaGrout®-3320

Ultra-high-strength fatigue-certified onshore wind tower precision grout with reduced carbon footprint

PRODUCT DESCRIPTION

SikaGrout®-3320 is a 1-part cementitious grout specially designed for onshore steel and precast concrete wind towers. It contains recycled materials and can therefore contribute to reducing the carbon footprint of the application.

USES

The Product is used for:
- Ultra-high performance precision grouting of joints
- Filling horizontal joints between tower base and foundation
- Filling horizontal joints between precast concrete elements

Please note:
- The Product may only be used by experienced professionals.

CHARACTERISTICS / ADVANTAGES

- Application thickness 20 mm to 500 mm
- Rapid early-strength development even at low temperatures
- Ultra-high final strength > 110 MPa
- Very low shrinkage
- Fatigue-certified
- Good flowability
- Very good adhesion to concrete
- Ready to use, just add water
- Suitable for pumping long distances

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Building product disclosure and optimization — Environmental Product Declarations under LEED® v4
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Sourcing of Raw Materials under LEED® v4
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU)

APPROVALS / STANDARDS

- CE marking and declaration of performance based on EN 1504-6:2004 Products and systems for the protection and repair of concrete structures — Anchoring reinforcing steel bar
- Simplified fatigue test report , Applus, SikaGrout-3320, No. 22/32304192-S

PRODUCT INFORMATION

Packaging	Standard bag	25 kg
	Refer to the current price list for available packaging variations.	
Shelf Life	Standard bag	12 months from date of production

Storage Conditions	The Product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +35 °C. Always refer to the packaging Refer to the current Safety Data Sheet for information on safe handling and storage.
Appearance / Colour	Grey powder
Maximum Grain Size	3 mm

TECHNICAL INFORMATION

Compressive Strength	Cured 24 h at 21 °C	65 MPa	(EN 12190)
	Cured 7 d at 21 °C	90 MPa	
	Cured 28 d at 21 °C	110 MPa	
	150 mm cylinder, cured 28 d at 20 °C	110 MPa	(EN 12390-3)
	Compressive strength class > C100/105		(EN 206)
	Early strength: ≥ 40 N/mm² after 24 hours (class A), according Guideline DAfStb		
	For concrete exposure classes: X0, XC 1-4, XD 1-3, XS 1-3, XF 1-4, XA 1-2/ WA		(EN 206)
Modulus of Elasticity in Compression	Cured 28 d at 21 °C	55 GPa	(EN 13412)
Flexural Strength	Conditioned 28 d at 20 °C	15 MPa	(EN 196-1)
Shrinkage	< 0.3 mm/m Shrinkage class SVKM 0 according to DAfStb Guideline		
Expansion	> 0.1 % volume after 24 hours. Max 2 %		

APPLICATION INFORMATION

Mixing Ratio	Fluid consistency	1.7 L to 2.0 L
	Fluid consistency — water ratio by weight	6.75 % to 8 %
Fresh mortar density	2.4 kg/l	
Yield	11.1 L of mortar per 25 kg bag	
Layer Thickness	Maximum	500 mm
	Minimum	20 mm
Flowability	≥ 600 mm in flow channel Class f1: 550 mm to 640 mm	
Product Temperature	Maximum	+35 °C
	Minimum	+5 °C
Ambient Air Temperature	Maximum	+35 °C
	Minimum	+5 °C
Substrate Temperature	Maximum	+35 °C
	Minimum	+5 °C
Pot Life	At 20 °C	180 minutes
	Pot life depends on temperature Note: Pot life will be shorter at higher temperatures. Pot life will be longer at lower temperatures.	

VALUE BASE

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

ECOLOGY, HEALTH AND SAFETY

Local safety regulations must be observed and it advisable to wear PPI when working with this product with particular attention paid to cutting and handling. Transportation Class: The product is not classified as hazardous good for transport. Disposal: The material is recyclable. Disposal must be according to local regulations. Please contact your local Sika sales organisation for more information.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

CONCRETE
Prepare the concrete to provide a mechanical key and to remove any contamination which will impair the grout flow or reduce adhesion strength.

1. Remove laitance, delaminated, weak, damaged and deteriorated concrete using appropriate preparation equipment.
2. Clean any pockets or holes for structural fixings from all debris and water.

The substrate is structurally sound and thoroughly clean with a textured finish exposing the aggregate.
STEEL
Prepare the steel to remove any contamination which will impair the grout flow or reduce adhesion strength.

1. Clean the substrate using grinding, abrading or shot blasting equipment.

The substrate is thoroughly clean and free from oil, grease, rust and scale.
SHUTTERING OR FORMWORK
Where formwork is to be used, all formwork must be adequate strength, treated with release agent and sealed to prevent leakage of pre-wetting water and grout.

1. If vacuum extraction equipment is not used to remove pre-soak water ensure the formwork includes outlets for the pre-soaked water to drain.
2. For manual grout application, construct a header box or hopper on one side of the formwork so that a minimum grout head of 150-200 mm can be maintained during the grouting operation.

MIXING

ELECTRIC SINGLE OR DOUBLE PADDLE MIXER
IMPORTANT
Do not add more water than the maximum specified

1. Pour the minimum amount of water into a suitable clean mixing container.
2. Stir the water slowly with a spiral paddle (300 to 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. Add more water within the mixing time up to the maximum allowed until the required consistency is achieved.
6. Wait for 2 to 3 minutes to release entrained air bubbles.
7. Mix again for 1 more minute.

GROUT MIXER
IMPORTANT
Carry out equipment trials
Carry out equipment trials to make sure the Product can be mixed satisfactorily before full project application.
IMPORTANT
Do not use continuous mixing equipment
The Product is not designed for processing with continuous mixing equipment.

1. Pour the minimum water ratio in the correct proportion into the grout mixer.
2. While stirring the water, slowly add the powder.
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.
5. Mix until the grout achieves a lump-free, smooth consistency.

APPLICATION

IMPORTANT
Strictly follow installation procedures
Strictly follow installation procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.
IMPORTANT
Risk of cracking due to application in direct sun or strong winds

1. Do not apply the Product in direct sun, strong winds or both.

IMPORTANT

Risk of reduced strength gain and physical properties due to cold weather

1. Store bags in a warm environment.
2. Use warm mixing water to assist with achieving strength gain and maintaining physical properties.

IMPORTANT

Risk of cracking and reduced physical properties due to hot weather

1. Store bags in a cool environment.
2. Use cold mixing water to assist with controlling the exothermic reaction to reduce cracking and to maintain physical properties.

PRE-SOAKING

1. Thoroughly saturate the prepared concrete substrate with clean water for 12 hours before application of the grout.
2. Do not allow the substrate to dry within this time.
3. Remove all water from within the formwork, cavities or pockets.

The final surface must achieve a dark matt appearance (saturated surface dry) without glistening.

PLACING MANUAL APPLICATION

Preconditions: After mixing, allow material to remain in the mixing container for ~ 3 minutes to release entrained air bubbles.

1. IMPORTANT Avoid trapping air. Pour the mixed grout into the header box or hopper ensuring continuous grout flow during the complete grouting operation.

PLACING GROUT PUMP APPLICATION

Use grout pumps for large volume placement.

1. Conduct equipment trials to confirm the product can be pumped satisfactorily before full project application

SURFACE FINISHING

1. IMPORTANT Do not add water to the surface and do not overwork the surface during finishing. Finish exposed grout surfaces to the required surface texture as soon as the grout has started to stiffen.
2. Remove the formwork when the grout has initially hardened
3. Trim the grout edges while the concrete is "green"

CURING TREATMENT

Protect exposed grout surfaces after finishing from premature drying and cracking using an appropriate curing method such as curing compounds, moist geotextile membranes, hessian or polythene sheeting.
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 removed mechanically.

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 the 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.

SIKA IRELAND LIMITED
Ballymun Industrial Estate
Ballymun
Dublin 11, Ireland
Tel: +353 1 862 0709
Web: www.sika.ie
Twitter: @SikaIreland