

# PRODUCT DATA SHEET

## SikaGrout<sup>®</sup>-3200 ZA

Fatigue certified onshore wind tower precision grout

### DESCRIPTION

SikaGrout<sup>®</sup>-3200 ZA 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 concrete wind tower structures filling of joints and under grouting base plates. Layer thickness: 10–200 mm. Application temperature range +5 °C to +35 °C.

### USES

SikaGrout<sup>®</sup>-3200 ZA may only be used by experienced professionals.

- High performance precision grouting of horizontal joints for onshore steel wind towers

### CHARACTERISTICS / ADVANTAGES

- Fast early strength development
- High final strength
- Fluid consistency
- Can be pumped
- Shrinkage compensated
- Application thickness 10 to 200 mm

### APPROVALS / STANDARDS

- Fatigue Resistance Fib Model Code 2010, SikaGrout<sup>®</sup>-3200 ZA, Applus, Certificate No. 17/32302134-S

### PRODUCT INFORMATION

Chemical Base	Special cement, selected aggregates and additives
Packaging	25 kg bags and larger bags upon request.
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 condition at temperatures between +5 °C and +30 °C. Always refer to packaging.
Maximum Grain Size	D <sub>max</sub> : ~3 mm

### TECHNICAL INFORMATION

Compressive Strength	<b>1 day</b>	<b>2 days</b>	<b>7 days</b>	<b>28 days</b>	(EN 12190:1999)
	~50 MPa	~60 MPa	~90 MPa	~110 MPa	
Values obtained at +23 °C with a mixing ratio 11,5 % of water Compressive Strength class C90/105 according EN 206					
Modulus of Elasticity in Compression	~38 GPa				(EN 13412)

<b>Tensile Strength in Flexure</b>	<b>1 day</b>	<b>28 days</b>	(EN 196-1)
	~7 MPa	~16 MPa	
Values measured at +23 °C			
<b>Tensile Adhesion Strength</b>	> 2,0 MPa		(EN 1542)
<b>Expansion</b>	> 0,1 % after 24 hours Max. 2 %		

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	11.5 % 2,87 litres water per 25 kg of powder 57,5 litres of water per 500 kg of powder
<b>Fresh mortar density</b>	~2,3 kg/l
<b>Yield</b>	25 kg of powder yields approximately 12,0 litres of mortar
<b>Layer Thickness</b>	10 mm min/200 mm max
<b>Ambient Air Temperature</b>	+5 °C min / +35 °C max.
<b>Substrate Temperature</b>	+5 °C min/ +35 °C max.
<b>Pot Life</b>	~60 minutes at +20 °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 ZA

## 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.
- Not to be used for concrete repair works.
- Do not use vibrating poker.
- Pour or pump from one side only.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- Avoid exposing surfaces during rainfall and prior to 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 if vacuum extraction equipment to remove water will not be used.

For manual grout application, a header box or hopper must be constructed on one side of the formwork so that a grout head of 150–200 mm can be maintained during the grouting operation.

### MIXING

#### Drill and Spiral Mixer

Pour the correct amount of water into a suitable clean mixing container. While stirring slowly with drill and spiral mixer (200–500 rpm), add the complete bag of powder into the water. Mix continuously for 3 minutes to achieve a uniform and lump free smooth consistency. Do not add more water than the maximum specified.

#### Grout mixer

SikaGrout®-3200 ZA 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.

Pour the minimum water ratio in the correct proportion into the grout mixer. While stirring the water, slowly add the powder to the water. Add more water within the mixing time up to the maximum allowed until the desired consistency is achieved.

Mix continuously for a minimum of 3 minutes. For larger mixes the mixing time must be extended to approximately 5 minutes or as necessary until the grout achieves a lump free smooth consistency. Do not add more water than the maximum specified.

### **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**

Apply the material shortly after mixing to take advantage of the expansion properties. Immediately after mixing for manual application, pour the mixed grout into the header box or hopper ensuring continuous grout flow during the complete grouting operation to avoid trapping air.

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 over work 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 from premature drying and cracking using an appropriate curing method e.g. curing compound, moist geo-textile membrane, hessian, polythene sheet etc. 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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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### Product Data Sheet

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