

PRODUCT DATA SHEET

SikaGrout[®]-3170 R

Fast-setting CEMENTITIOUS GROUT for concrete repair according to EN 1504-3 & EN 1504-6 and for onshore wind turbines

DESCRIPTION

SikaGrout[®]-3170 R is a 1-part, cementitious grout which achieves high early and final strengths. Especially designed for concrete repair and installation of onshore wind turbine at low temperatures.

USES

SikaGrout[®]-3170 R may only be used by experienced professionals.

- Concrete Restoration (Principle 3, Methods 3.1 and 3.2)
- Structural Strengthening (Principle 4, Methods 4.2 and 4.4)
- Preserving / Restoring Passivity (Principle 7, Methods 7.1 and 7.2)
- Grouting of rail support systems
- Grouting of Onshore Wind Turbines

SikaGrout[®]-3170 R is not designed for thin and flat coatings.

CHARACTERISTICS / ADVANTAGES

- Ready to use, just add water
- Good flowability in vertical and horizontal orientation
- Suitable for pumping
- Self-compacting properties
- Self-levelling
- Low shrinkage
- Expansion compensated
- Resistant to freeze-thaw according to CDF
- Fast early strength (even at low temperatures)
- High final strength

APPROVALS / CERTIFICATES

- Meets the requirements of guideline DAfStb-Richtlinie "Herstellung und Verwendung von zementgebundenem Vergussbeton und Vergussmörtel"
- CE Marking and Declaration of Performance to EN 1504-3: Concrete repair product for structural repair
- CE Marking and Declaration of Performance to EN 1504-6: Anchoring of reinforcement steel bar

PRODUCT INFORMATION

Composition	Cement, selected aggregates and special additives	
Packaging	Bag / Palett:	25 kg / 42 x 25 kg = 1.050 kg
	BigBag:	1.000 kg
Appearance / Colour	Grey powder	
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 +30 °C. Always refer to packaging.	
Maximum Grain Size	D _{max} : 5 mm	

TECHNICAL INFORMATION

Compressive Strength	Compressive Strength Class C70/85 Early strength $\beta_{24h} \geq 40 \text{ N/mm}^2$ (class A)	(EN 206-1 / DIN 1045-2) (DAfStb Guideline)
	Temperature +5 °C	Temperature +20 °C
	$\beta_{3h} \geq 1 \text{ N/mm}^2$	$\beta_{3h} \geq 15 \text{ N/mm}^2$
	$\beta_{24h} \geq 30 \text{ N/mm}^2$	$\beta_{24h} \geq 55 \text{ N/mm}^2$
	$\beta_{7d} \geq 70 \text{ N/mm}^2$	$\beta_{7d} \geq 80 \text{ N/mm}^2$
	$\beta_{28d} \geq 85 \text{ N/mm}^2$	$\beta_{28d} \geq 90 \text{ N/mm}^2$
	$\beta_{90d} \geq 90 \text{ N/mm}^2$	$\beta_{90d} \geq 100 \text{ N/mm}^2$
	Permissible exposure classes: X0 / XC 1-4 / XD 1-3 / XS 1-3 / XF 1-4 / XA 1-2 / WA (EN 206-1 / DIN 1045-2)	
Modulus of Elasticity in Compression	> 35.000 N/mm ²	(EN 13412)
Shrinkage	Shrinkage class SKVB 0	(DAfStb Guideline)
Expansion	> 0,1 % volume after 24 hours	(DAfStb Guideline)

APPLICATION INFORMATION

Mixing Ratio	3,1 – 3,25 litres of water for 25 kg bag at temperatures between +5 °C and +30 °C (12,5 % - 13,0 % water)	
Fresh Mortar Density	2,295 kg/l	
Yield	25 kg of powder yields approximately 11,0 litres of mortar	
Layer Thickness	20 mm minimum / 200 mm maximum	
Flowability	a3 ($\geq 700 \text{ mm}$)	(DAfStb Guideline)
Ambient Air Temperature	0 °C min.	
Substrate Temperature	0 °C min.	
Pot Life	~30 – 60 minutes at temperatures of the concrete between +5 °C to +30 °C (depending on the ambient and concrete substrate temperature)	

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 should also be cleaned of all debris.

Shutter Formwork

Where formwork is to be used, all formwork should 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. As a guide leave a gap of approximately 15 cm on one side and 5 cm on the opposite side.

MIXING

Compulsory Mixer

Pour the correct amount of water into a suitable clean mixing container. While stirring slowly add the complete bag of powder into the water. Mix continuously for 3 to 5 minutes to achieve a uniform and lump free smooth consistency. Do not add more water than the maximum specified.

Concrete mixer

SikaGrout®-3170 R must be mixed using suitable grout mixing equipment combined with agitator for continuous large volume mixing. Volume capacity of equipment should be applicable to the volume of material being mixed for a continuous operation. Equipment trials should 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 3 to 5 minutes. Do not add more water than the maximum specified.

APPLICATION

Pre-wetting

The prepared concrete substrate must be thoroughly saturated with clean water for a recommended 4–8 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 pour or pump 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 should 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 using warm water to assist with achieving strength gain and maintaining physical properties.

Mechanical application of SikaGrout®-3170 R see "Ausrüstungsplaner Inotec Pumpe".

CURING TREATMENT

After pouring the surface must be protect against water evaporation and frost exposure until the sufficient strength has been achieved.

Suitable curing treatment:

- Water spray
- Foil covers with jute strips, thermal foils or moisturing cover strips
- Sika® Nachbehandlungsmittel NB 100

CLEANING OF EQUIPMENT

Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be mechanically removed (at least 5 days).

IMPORTANT CONSIDERATIONS

- Not suitable for hand mixing.
- Protect applied material from frost and freezing.
- Protect freshly applied material immediately.
- Keep exposed surfaces to a minimum.
- Avoid application in 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 pokers.
- Pour or pump from one side only.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- To avoid cracking in warm temperatures keep bags cool & use cold water for mixing.
- Avoid exposure during rainfall and prior to final set.

BASIS OF PRODUCT DATA

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

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.

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. Further notes and information data sheets on product safety and disposal can be found on the Internet at www.sika.de.

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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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