

# PRODUCT DATA SHEET

## SikaGrout® HT System

POURABLE, TWO-COMPONENT CEMENTITIOUS GROUT FOR HIGH-THICKNESS (HT) ANCHORING, PRECISION GROUTING AND BASE PLATING



### DESCRIPTION

SikaGrout® HT System is a two-component free flowing and shrinkage compensated, cementitious, pourable mortar for high-thickness works such as anchoring, precision grouting, filling and base plating, meeting the requirements of EN 1504-6.

### USES

SikaGrout® HT System-80 is used as a shrinkage compensated, free flowing, pouring mortar for layer thickness of between 15 mm and 80mm.

SikaGrout® HT System-120 is used as a remarkable shrinkage compensated, free flowing, precision pouring mortar for layer thickness of between 15 mm and 120 mm.

Suitable for:

- Precision grouting between foundations and supports, under base plates, seismic isolators or heavy machinery and equipment
- Anchoring applications such as bolts (anchor, lag, e.t.c.) and metal structures for blocking bedplates, machinery, pile foundations, e.t.c.
- Filling by simple pouring (or pumping) of cavities, cracks, gaps and recesses in concrete, masonry, rocks, e.t.c.
- Bedding joints in pre-cast concrete sections
- Concrete restoration by recasting with mortar into formworks (beams, columns, bridge decks)
- Post fixings
- Structural strengthening (Principle 4, method 4.2 of EN 1504-9). Installing bonded rebars in preformed or drilled holes in concrete.

### CHARACTERISTICS / ADVANTAGES

- Easy to use, ready to mix preweighed bags; only add water
- Remarkable shrinkage compensation (both in plastic and hardening stage)
- Excellent flow properties, workability and stability
- No segregation or bleeding
- High mechanical strengths and excellent adhesion on concrete and steel
- Pourable and/or pumpable
- For high application thickness of up to 120mm in one layer
- In accordance with EN 1504-6 standard as anchoring product
- A1 fire rating

### APPROVALS / CERTIFICATES

CE-marking and Declaration of Performance as Anchoring product for strengthening concrete by installing reinforcing steel (rebars) in buildings and civil engineering works according to EN 1504-6:2006, Principle 4, Method 4.2 according to EN 1504-9:2008, based on certificate of factory production control issued by notified factory production control certification body and type testing.

## PRODUCT INFORMATION

<b>Chemical base</b>	Component A (SikaGrout®-212 Classic or SikaGrout®-312 HP): Portland cement, selected aggregates and special additives Component B (SikaGrout® Quartz Sand): Selected, rounded, no-filler included, well graded aggregates - silica oxide based (SiO <sub>2</sub> ) >99%		
<b>Packaging</b>	SikaGrout® HT System-80: 31.25 kg set (A+B) SikaGrout® HT System-120: 31.25 kg set (A+B)		
		<b>SikaGrout® HT System-80</b>	<b>SikaGrout® HT System-120</b>
	<b>Component A</b> (25 kg bag)	SikaGrout®-212 Classic	SikaGrout®-312 HP
	<b>Component B</b> (6.25 kg bag)	SikaGrout® Quartz Sand	SikaGrout® Quartz Sand
<b>Appearance / Colour</b>	Component A: Grey powder Component B: Aggregates		
<b>Shelf life</b>	Component A: 12 months from date of production Component B: Unlimited		
<b>Storage conditions</b>	Component A: Store properly in original and unopened, sealed and undamaged packaging, in dry conditions at temperatures between +5°C and +35°C. Protect from direct sun light and frost. Component B: Store properly in original, undamaged, unopened, sealed packaging, in dry conditions.		
<b>Density</b>	~ 2.25 kg/l (fresh mortar density)		EN 1015-6
<b>Maximum Grain Size</b>	~ 5.0 mm		
<b>Soluble Chloride Ion Content</b>	≤ 0.05%		(EN 1015-17)

## TECHNICAL INFORMATION

<b>Compressive Strength</b>		<b>1 day</b>	<b>7 days</b>	<b>28 days</b>	(EN 12190)
	<b>SikaGrout® HT System-80</b>	≥ 28 N/mm <sup>2</sup>	≥ 50 N/mm <sup>2</sup>	≥ 75 N/mm <sup>2</sup>	
	<b>SikaGrout® HT System-120</b>	≥ 30 N/mm <sup>2</sup>	≥ 55 N/mm <sup>2</sup>	≥ 70 N/mm <sup>2</sup>	
<b>Tensile Strength in Flexure</b>		<b>1 day</b>	<b>7 days</b>	<b>28 days</b>	(EN 196-1)
		≥ 5 N/mm <sup>2</sup>	≥ 7 N/mm <sup>2</sup>	≥ 9 N/mm <sup>2</sup>	
<b>Pull-Out Resistance</b>		<b>Requirements (EN 1504-6)</b>		(EN 1881)	
	Pull-out strength displacement	≤ 0.6 mm at load 75 kN			
<b>Tensile Adhesion Strength</b>	≥ 2.0 MPa			(EN 1542)	
<b>Reaction to Fire</b>	EuroClass A1				
<b>Capillary Absorption</b>	≤ 0.5 kg m <sup>-2</sup> h <sup>-0.5</sup>			(EN 13057)	

## APPLICATION INFORMATION

<b>Mixing Ratio</b>		<b>Quantity of water</b>
	<b>SikaGrout® HT System-80 (A+B)</b>	3.5 - 4.0 lt per set
	<b>SikaGrout® HT System-120 (A+B)</b>	3.6 - 3.9 lt per set

<b>Consumption</b>	~ 2.0 kg of SikaGrout® HT System per 1 mm thickness per m <sup>2</sup> , depending on the substrate's roughness and fresh mortar's density.		
<b>Yield</b>	31.25 kg of HT System (A+B) yields approximately 15.6 litres of mortar		
<b>Layer Thickness</b>	<b>SikaGrout® HT System-80</b>	min. 15mm - max. 80mm	
	<b>SikaGrout® HT System-120</b>	min. 15mm - max. 120mm	
<b>Flowability</b>	<b>SikaGrout® HT System-80</b>	210-260mm	EN 13395-1 (modified method)
	<b>SikaGrout® HT System-120</b>	200-250mm	
	<b>SikaGrout® HT System-80</b>	70-80 cm	EN 12350-2 With Abrahms cone
	<b>SikaGrout® HT System-120</b>	70-80 cm	
<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>	~30 minutes (at +20°C)		

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY / PRE-TREATMENT

#### Concrete:

Substrate must be structurally sound, thoroughly clean and free from dust, dirt and loose material, surface contamination such as oil or grease and cement laitance which reduce bond, prevent suction or impair the grout flow. Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete - but not to the detriment of the structural integrity - shall be removed by suitable mechanical preparation techniques, such as high-pressure water cleaning or sandblasting. Vibration-free cleaning methods are preferable. Roughen concrete surface to expose aggregates to a 2mm depth, in accordance with EN 1766 or CSP 5 from ICRI Guidelines. The edges of the area affected by the intervention will have to be cut perpendicular (90 degrees) up to a minimum depth of 5 mm. The concrete's tensile strength (pull-off) shall be > 1.5 MPa. Follow the directions given by the Supervising Officer or Qualified Engineer. In cases of base plating, concrete surfaces shall be generally levelled (within tolerances) and shall not be laid to a gradient, so grout flows to the lowest end.

#### Steel:

Steel reinforcement surface as for other parts such as metal plates and/or metal bolts in base plating works must be free from rust products, mill scale, mortar, concrete residues, oil, grease, dust and other loose materials which may reduce bond or may contribute to corrosion. In case of rust, clean uniformly by using abrasive blast cleaning techniques or high pressure waterblasting to Sa 2 in accordance with ISO 8501. Protect cleaned bars from further contamination, prior to application of the mortar.

#### Formwork:

Any formwork shall be capable of withstanding the load and forces imposed on it. Formwork shall be clean and placed in position after preparation of the substrate and of the steel parts / plates. Release

agents, such as Sika® Separol® series, shall be applied prior to application to avoid contact with prepared substrate. Formwork shall be correctly designed in order to allow air and water bleed to escape, to support pouring technique, to provide a complete filling, to ensure free flowing, to prevent leakage of the product, e.t.c.

*Please consult Sika Hellas' S.A. technical support for more specific directions.*

*Reference should also be made to EN1504-10 for specific requirements.*

### MIXING

SikaGrout® HT System can be mixed with a low speed (~500r.p.m.) electrical hand drill mixer with vertical axes for 1 to 2 bags taking care not to entrap air in the mix or using a force action pan mixer for 2 to 3 bags - or more- at once, depending of the type and size of the mixer.

Pour the water in the correct, desired proportion into a suitable mixing container. While stirring slowly, add Component A (SikaGrout®-212 Classic or SikaGrout®-312 HP) to the water. Mix thoroughly at least for 3 minutes until homogeneity with no lumps. Afterwards, gradually add Component B (SikaGrout® Quartz Sand) and mix slowly for 1-2 more minute until obtaining a homogeneous mix. Mix full bags for best results. Do not exceed maximum water mixing ratio.

### APPLICATION

SikaGrout® HT System can be applied manually using traditional techniques by pouring into the cavities or the formworks. If necessary, it can be mechanically pumped by means of standard equipment (e.g. Turbosol, Putzmeister). For free flowing grout application, it is essential to provide a hydrostatic head of the grout. A feed hopper is recommended.

#### Pre-Wetting:

Concrete surfaces shall be saturated with clean water minimum 2 hours before application, ensuring that all pores and pits are adequately wet. The surface shall not be allowed to dry before application of the grout. Just before application, remove excess water and en-

sure there is no standing water of the surface. The surface shall achieve a dark matt appearance without glistering and surface pores and pits shall not contain water (saturated surface dry - SSD). Use pressurised air (oil free) to blow away excess water in difficult to reach areas (especially the underside of the base plate and formwork).

#### **Pouring / Filling:**

The product should be poured directly on the wet mat substrate or inside the formwork prepared for the casting. By using more than one mixer and with the proper organizing, you can pour the fresh material reducing construction joints.

After mixing SikaGrout® HT System, leave the grout to stand for ~1-2 minutes; stir again with a trowel and then pour immediately into sealed, rigid - stable prepared formworks. Ensure air displaced by the mortar can easily escape; otherwise entrapped air will prevent full contact grouting. To make optimum use of the product's expansion properties apply the grout as quickly as possible (within max. 15 minutes). Pot life shall also be taken into consideration, adjusting for climatic conditions, when planning the work duration. Pour the grout through the "mouth" of the formwork allowing the material to flow to the opposite end. Ensure that a continuous and sufficient head of pressure is maintained to keep the grout flowing to avoid air entrapment and prevent the material flow from coming to a stop before the operation is completed. Never make an application from two places as it will be difficult to determine if all air has been released, and the entire void has been filled.

- Always check the material after pumping
- Ensure formwork is strong enough to hold the fresh mortar and sealed to prevent leakage
- Cure exposed surfaces immediately with protective sheet or membrane. Shield the fresh mortar from direct sun, wind and frost
- Finish exposed surface as desired as soon as the mortar has started to stiffen. Do not add additional water on surface
- Avoid the free fall of the material to prevent segregation of the aggregate

#### **Bonding primer / Reinforcement Corrosion Protection:**

On a well prepared and roughened substrate, a bonding primer is generally not required. Where a bonding primer and/or a reinforcement coating is required (eg. Sikadur®-32 EF, Sika MonoTop®-910 or SikaTop® Armatec®-110 EpoCem®) refer to the relevant Product Data Sheet for more detailed information.

In any case, the bonding primer / reinforcement corrosion protection shall be applied on a pre-wet substrate and subsequent application of SikaGrout® HT System shall be applied **wet on wet**. Open time of the bonding primer and/or the reinforcement corrosion protection shall be taken into account if it fulfills the application demands.

#### **Increased maximum layer thickness:**

For large volumes (>20 lt) or thick application (>120mm), increased maximum layer thickness can be achieved by built-up layers.

#### **Built-up in layers:**

The first layer shall be hardened and exothermic reaction of the material shall be completed. The 1st layer shall be started to set and be at ambient temperature before applying the second layer. Do not smooth the first layer before applying a second layer. The first layer shall be cleaned using low pressure water or compressed air before applying subsequent mortar layers.

#### **CURING TREATMENT**

Protect the freshly applied mortar from early dehydration and/or from premature drying by using the relevant curing methods (at least for 24 hours), e.g. curing compound such as Sika® Antisol® or Sikafloor® Proseal once surface water has been evaporated. Use suitable curing covers such as jute and water, plastic sheets or other suitable membranes.

#### **CLEANING OF EQUIPMENT**

Removal of fresh remnants from tools and application equipment can be carried out using water immediately after use. Hardened / cured material can only be mechanically removed.

#### **FURTHER DOCUMENTS**

- For base plating works refer to the Sika Method of Statement for "Cementitious Grouting of Machine Bases and Base Plates" (Ref. 8502101) for more information regarding application, substrate and formwork preparation, pouring techniques, e.t.c.
- For concrete repair works refer to the Sika Method of Statement for "Restoring Concrete Structures by Recasting Using Sika® Ready to use Mortars" (Ref. 8503202) for more information regarding repair system application, substrate preparation and/or refer to the recommendations provided in EN 1504-10.

#### **IMPORTANT CONSIDERATIONS**

- Use Component B (SikaGrout® Quartz Sand) only in combination with Component A (SikaGrout®-212 Classic or SikaGrout®-312 HP).
- Do not add water over the recommended dosage.
- Do not add cement or other substances that could affect the properties of the mortar.
- Do not add water or fresh mortar to a mortar mix which has already started setting.
- Avoid application in direct sun and/or strong wind.
- Apply only on sound, prepared substrate.
- Protect freshly applied material from freezing and rain.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- Record ambient and substrate temperatures before and during application.
- Mixing must always be performed with mechanical means; hand mixing does not allow obtain the optimum workability.
- In case of floor casting, especially outdoors, avoid too rapid curing of the product in the early days of curing.
- Do not cast floors under bad weather conditions, which could affect in a negative way the setting and

hardening process of the product.

- Not to be used as an overlay in unconfined spaces.
- Keep exposed surfaces to a minimum.
- Do not vibrate.

## 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.

## 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.

## 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.

## 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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