

PRODUCT DATA SHEET

SikaGrout[®]-9850

Ultra-high performance cementitious (UHPC), flowable grout with advanced technology for rapid strength development in offshore wind installations

DESCRIPTION

SikaGrout[®]-9850 is a ready-to-use, silo-based cementitious grout that forms a flowable, cohesive, and impermeable ultra-high performance cementitious (UHPC) grout when mixed with water. SikaGrout[®]-9850 develops high compressive strength rapidly, even in low temperatures, and is ideal for narrow constrictions and offshore wind foundation systems. With excellent flowability, anti-washout properties, low water permeability, and high resistance to aggressive ions, it also offers structural corrosion protection and flexibility in installation methods.

USES

SikaGrout[®]-9850 has been especially formulated for large scale, pump applications.

- Grouting of grouted connections in offshore installations, e.g. foundations of wind turbines or oil & gas installations.
- Typical applications are pile-sleeve and stab-in-pile grouted connections, clamp repair, leg filling etc...
- Grouting under very harsh conditions, e.g. offshore applications or below water grouting, at temperatures as low as 0°C or up to 40°C.
- All void filling from 25 mm to 700mm thickness where high strength is important.

Contact the Technical Department of your local Sika office regarding any application or dimensions required not mentioned here.

CHARACTERISTICS / ADVANTAGES

- Quick return to service and removal of temporary supports due to high early strength build-up. ≥ 50 MPa @ 24hrs at 20°C.
- High early strength at low temperatures.
- No segregation or bleeding to ensure consistent physical performance inside the grouted connection, and to prevent pump blockages.
- Excellent fatigue resistance
- No wash-out during below water grouting.
- Pump able over long distances and large heights.
- Available as silo material
- Excellent flowability
- Shrinkage compensated

APPROVALS / STANDARDS

DNV Type Approval Certificate no. TAK00001ZB

PRODUCT INFORMATION

Packaging	SikaGrout®-9850 is supplied in special 25 kg bags and 500, 1000, 1500 kg big bags		
Shelf Life	12 months from date of production		
Storage Conditions	Product must be stored in original, unopened and undamaged sealed packaging in dry conditions away from direct sunlight and heat, within 5 to 40 °C. When stored under extreme low or high temperatures, and high humidity conditions, the shelf life may be reduced.		
Density	Temperature	ton/m ³	(EN 12390-7)
	at 20 °C	2.28 - 2.33	
	at low temperatures < 3 °C	2.25 - 2.28	

TECHNICAL INFORMATION

Compressive Strength	Age	N/mm ²	(ASTM C109/C109M)	
	1 day	≥ 50		
	3 days	≥ 70		
	7 days	≥ 90		
	28 days	≥ 125		
	50 mm cubes, at 20 °C			
	Age	N/mm ²	(EN 12190)	
	1 day	≥ 50		
	3 days	≥ 70		
	7 days	≥ 85		
28 days	≥ 120			
150 x 300 mm cylinders, at 20 °C				
Modulus of Elasticity in Compression	41.000 N/mm ²		(EN 12390-13)	
	Poisson ratio:	0.20	(ASTM C469)	
Tensile Strength in Flexure	16.5 N/mm ²		(EN 1015-11)	
Expansion	0.1% (net expansion)	at 56 days	(ASTM C1698)	
Shear Adhesion Strength	Age	N/mm ²	(ASTM C882)	
	14 days	40.0		
Splitting tensile strength	8.0 N/mm ²		(EN 12390-6)	
Chloride Ion Diffusion Resistance	< 200 (very low penetrability)		(ASTM C1202)	

APPLICATION INFORMATION

Mixing Ratio	Approximately 12.4 – 13.6 % water / powder ratio		
Consumption	Approximately 500 liters per ton material		
Layer Thickness	25 - 700 mm		
	Minimum	25 mm (valid for anchor cage grouting) 40 mm (valid for annuluses in tubular / conical grouted connections)	
	Maximum	700 mm	

Product Temperature	0 °C min. / +40 °C max.		
Ambient Air Temperature	0 °C min. / +40 °C max.		
Substrate Temperature	0 °C min. / +40 °C max.		
Pot Life	2 hours		
Flowability	Flow table		
	at 20 °C	360 - 390 mm	(ASTM C1437)
	low temperatures < 3 °C	300 - 330 mm	
	Slump flow		
	by Abraham cone	≥ 760 mm	(EN 12350-8)
	Slump flow class	SF3	(EN 206)
Setting Time	<u>Initial</u>	<u>Final</u>	<u>Temperature</u>
	4.5 - 5.5 hours	5 - 6 hours	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®-9850

ECOLOGY

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

NOTES ON INSTALLATION

- SikaGrout®-9850 has been especially formulated for use in specific applications. As such SikaGrout®-9850 should be installed by experienced fully trained contractors. Full application procedures are available on request.
- The temperature of walls and spaces where the grout is to be pumped should be between 5°C and 35°C for optimum results. If application temperature is outside of above range, contact the Technical Department of your local Sika office for technical support.
- Sands or other products that could affect the products properties must not be added.

EQUIPMENT

Mixer type	Paddle mixer
Mixing time	Approximately 6 minutes
Application method	One continuous pour

MIXING

SikaGrout®-9850 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. Put most of the water required in the mixer and add slowly the grout material. Mix until a homogeneous mortar (3 to 4 minutes), add the remaining water and continue mixing for at least another 2 minutes until the required fluid or flowable consistency is obtained. Mix with potable water only. Do not add more water than the maximum specified.

CLEANING OF TOOLS

Tools and spillages can be cleaned with water while SikaGrout®-9850 is still uncured. Once hardened, the material can only be removed mechanically.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product 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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Product Data Sheet

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