BUILDING TRUST

PRODUCT DATA SHEET

SikaGrout® Arctic-100

LOW-TEMPERATURE SUBSTRATE, PILE AND ROCK BOLT GROUT

AVAILABLE ON INDENT ORDER ONLY

DESCRIPTION

SikaGrout® Arctic-100 is a preblended, cementitious, ready to use, pile and rock bolt grout. When pre-conditioned, SikaGrout® Arctic-100 can be placed into substrates with temperatures ranging from -10 °C to +4 °C (14 °F to 39 °F). It was formulated to meet the severe requirement specifications for pile grouting at the Short Range Radar Stations in the Canadian Arctic.

USES

- **Designed for work in permafrost conditions**
- Standard piling operations in permafrost conditions
- Anchoring rebar in piling jacket under permafrost conditions
- When substrate temperatures below +4 °C (39 °F) prohibit the use of normal cement pile grouts

CHARACTERISTICS / ADVANTAGES

- High heat of hydration to off-set low substrate temperature
- Early strength gain
- Easy-to-mix, ready-to-use, pre-packaged system
- Formulated with inert, non-reactive aggregates to eliminate potential Alkali-Aggregate Reactivity (AAR)
- Easily pumped
- Flowable consistency
- Proven applications in Arctic environment

PRODUCT INFORMATION

Packaging	25 kg (55 lb) bag
Shelf Life	12 months in original, unopened packaging.
Storage Conditions	Store dry, ensuring that product is not exposed to rain, condensation or high humidity. Condition product between +18 °C and +29 °C (65 °F and 84 °F) before using.
Appearance / Colour	Powder / Brown

Compressive Strength

Wet Grout Temp.		Substrate Temp.		Compressive Strength at 24 hours	
+20 °C	68 °F	-10 °C	14 °F	28 MPa	4 062 psi
+20 °C	68 °F	-5 °C	23 °F	32 MPa	4 643 psi
+20 °C	68 °F	+1 °C	34 °F	26 MPa	3 772 psi

As determined in a simulated pile grout test cell on 150 x 300 mm (6 x 12 in) cylinders

Wet Grout Temperatures for Various Water/Dry Grout Temperatures

Wet Grout		Bagged Grout		Water	
+20 °C	68 °F	-10 °C	14 °F	+50 °C	122 °F
+20 °C	68 °F	0 °C	32 °F	+40 °C	104 °F
+20 °C	68 °F	+10 °C	50 °F	+30 °C	86 °F
+20 °C	68 °F	+20 °C	68 °F	+20 °C	68 °F
+25 °C	77 °F	-10 °C	14 °F	+60 °C	140 °F
+25 °C	77 °F	0 °C	32 °F	+50 °C	122 °F
+25 °C	77 °F	+10 °C	14 °F	+40 °C	104 °F
+25 °C	77 °F	+20 °C	68 °F	+30 °C	86 °F

Yield	Approx. 14.2 L (0.50 ft³) of fluid grout per bag	
Flowability	15 to 20 sec	(Flow Cone)
Mixing Ratio	6.1 L (1.61 US gal.) water/25 kg (55 lb) bag	
Setting Time	30 min max.	
Initial Set Time	1 h 25 min to 1 h 50 min	(+20 °C, Vicat Needle)

BASIS OF PRODUCT DATA

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods. Properties tested at +23 °C (73 °F) and 50 % R.H. unless stated otherwise.

LIMITATIONS

- **Important**: Protect stored material from exposure to rain, condensation and high humidity as moisture may penetrate packaging, causing lumps.
- For best results, condition product to +18 °C to +29 °C (65 °F to 84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times.
- SikaGrout® Arctic-100 WET grout temperature must be +20 °C to +25 °C (68 °F to 77 °F) prior to and during placing.
- Ambient substrate temperature must be in the range of -10 °C to +4 °C (14 °F to 39 °F).
- Do not use when substrate temperature exceeds +4 °C (39 °F).
- If substrate temperature exceeds +4 °C (39 °F), use SikaGrout®-212.
- If substrate temperature is below -10 °C (14 °F), contact Sika NZ for advice.
- Do not place grout at mix temperatures less then +20 °C (68 °F), unless authorized.
- Grout bore hole using grout tube placed to bottom of hole to minimize heat loss.

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.

SUBSTRATE QUALITY / PRE-TREATMENT

All free standing water (ice) and other foreign materials must be removed from interior of pile jacket or drill hole. Steel pile should be held securely in position so that it does not move during grouting and until grout has attained minimum 24 hour cure. The “down-hole” placement temperature range should be -10 °C to +4 °C (14 °F to 39 °F). If down hole temperature exceeds +4 °C (39 °F), use SikaGrout®-212. If down hole temperatures are below -10 °C (14 °F), contact Sika NZ. Implement protection of grouting operation under adverse weather conditions.

MIXING

A mechanical mixer, paddle, mortar type, is strongly recommended to mix the grout. The mixer size should be appropriate for the required volume of grout. Refer to “Pump Application” for recommendations on pumping grout. Insure potable water is available.

Pre-measure temperature of the DRY bagged grout. Pre-heat mixing water so that mixed WET grout temperature is between +20 °C and +25 °C (68 °F and 77 °F) (refer to Wet Grout Temp. Chart). Compensate for any pre-cooling of water while in mixing container prior to addition of DRY grout. Measure 6.1 L (1.61 US gal.) of water per 25 kg (55 lb) bag and mix for three (3) minutes. Check WET grout temperature to ensure it is between +20 °C and +25 °C (68 °F and 77 °F).

APPLICATION

Once mixed, the grout will remain fluid for placing up to 15 minutes. If longer placing times are required, keep grout agitated and place within 30 minutes. DO NOT pre-batch excessive units of grout if placement cannot comply to the above time limitations. With pile and/or anchor preset into bore hole, pump or pour mixed grout into bore hole using a grout tube placed at the bottom of the hole.

Pump Application
Equipment recommendation: Chem Grout CG-550P Mini Grout and mixer, with 25 mm (1 in) ID x 15 m (50 ft) of Grout Hose. With mixer blades running at approx. 60 - 75 rpm mix grout for three (3) minutes (after all dry product has been added to required mixer water). Grout will be a creamy smooth, lump free consistency. Do not allow grout to sit for more than five (5) minutes without resuming pumping and/or recirculation operation.

CLEANING OF TOOLS

Clean all tools and equipment after use with water. Once hardened, the product can only be removed manually or mechanically.

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.

Sika (NZ) Limited
85-91 Patiki Road
Avondale, Auckland 1026
New Zealand
0800 745 269
www.sika.co.nz