



**PRODUCT DATA SHEET**

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CSC Master Format™ 03 62 13  
NON-METALLIC, NON-SHRINK GROUTING

# SikaGrout® Arctic-100

## LOW-TEMPERATURE SUBSTRATE, PILE AND ROCK BOLT GROUT

<b>Description</b>	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 to 4 °C (14 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.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>▪ <b>Designed for work in permafrost conditions.</b></li> <li>▪ Standard piling operations in permafrost conditions.</li> <li>▪ Anchoring rebar in piling jacket under permafrost conditions.</li> <li>▪ When substrate temperatures below 4 °C (39 °F) prohibit the use of normal cement pile grouts.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ High heat of hydration to off-set low substrate temperature.</li> <li>▪ Early strength gain.</li> <li>▪ Easy-to-mix, ready-to-use, pre-packaged system.</li> <li>▪ Formulated with inert, non-reactive aggregates to eliminate potential Alkali-Aggregate Reactivity (AAR).</li> <li>▪ Easily pumped.</li> <li>▪ Flowable consistency.</li> <li>▪ Proven applications in Arctic environment.</li> </ul>

Technical Data						
<b>Packaging</b>	25 kg (55 lb) bag					
<b>Colour</b>	Brown					
<b>Yield</b>	Approx. 14.2 L (0.50 ft³) of fluid grout per bag					
<b>Shelf Life</b>	12 months in original, unopened packaging. Store dry, ensuring that product is not exposed to rain, condensation or high humidity. Condition product between 20 and 25 °C (68 and 77 °F) before using.					
<b>Mix Ratio</b>	6.1 L (1.61 US gal.) water/25 kg (55 lb) bag					
<b>Properties at 23 °C (73 °F) and 50 % R.H.</b>						
<b>Flow Cone</b>	15 to 20 sec					
<b>Initial Set (20 °C, Vicat Needle)</b>	1 hr 25 min to 1 h 50 min					
<b>Placement Time</b>	30 min max.					
<b>Compressive Strength</b>						
As determined in a simulated pile grout test cell on 150 x 300 mm (6 x 12 in) cylinders						
<b>Wet grout temp</b>		<b>Substrate temp</b>		<b>Compressive strength at 24 hrs</b>		
°C	°F	°C	°F	MPa	psi	
20	68	-10	14	28	4062	
20	68	-5	23	32	4643	
20	68	1	34	26	3772	
<b>Wet Grout Temperatures for Various Water/Dry Grout Temperatures</b>						
<b>Wet grout</b>		<b>Bagged grout</b>			<b>Water</b>	
°C	°F	°C	°F	°C	°F	
20	68	-10	14	50	122	
20	68	0	32	40	104	
20	68	10	50	30	86	
20	68	20	68	20	68	
25	77	-10	14	60	140	
25	77	0	32	50	122	
25	77	10	50	40	104	
25	77	20	68	30	86	

*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.*

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**HOW TO USE****Surface /  
Pile Conditions**

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 to 4 °C (14 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), call Sika Canada Technical Service. Implement protection of grouting operation under adverse weather conditions.

**Mixing/Application**

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 and 25 °C (68 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 and 25 °C (68 and 77 °F).

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 5 minutes without resuming pumping and/or re-circulation operation.

**Clean Up**

Clean all tools and equipment after use with water. Once hardened, the product can only be removed manually or mechanically. Wash soiled hands and skin thoroughly in hot soapy water or use Sika® Hand Cleaner towels.

**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 to 29 °C (65 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 to 25 °C (68 to 77 °F) prior to and during placing.
- Ambient substrate temperature must be in the range of -10 to 4 °C (14 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), call Sika Canada Technical Service.
- Do not place grout at mix temperatures less than 20 °C (68 °F), unless authorized.
- Grout bore hole using grout tube placed to bottom of hole to minimize heat loss.

**Health and Safety  
Information**

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN  
FOR INDUSTRIAL USE ONLY

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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, within their shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: [www.sika.ca](http://www.sika.ca)

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