

PRODUCT DATA SHEET

King[®] Nordic

HIGH PERFORMANCE SANDED GROUT FOR COLD WEATHER APPLICATIONS



PRODUCT DESCRIPTION

King[®] Nordic is a high performance, easily pumpable, preblended, and pre-packaged anchoring grout specifically designed for cold weather applications with temperatures ranging from 14 °F to 40 °F (-10 °C to 5 °C). It contains very fine natural aggregate and other carefully selected components. Nordic resists water wash-out making it ideal for cold weather applications, such as the grouting of bored piles in permafrost and the anchoring of cables, tendons or bolts of various dimensions in different substrates subject to frost.

USES

- Structural grout medium for the installation and grouting of bored piles and micro piles used for structures erected on permafrost or other substrates subject to frost
- Structural grout for the construction of grout columns around shafts and standard helical pier foundation system piles

- Grouting of most types of anchors used in permafrost or other substrates subject to frost such as tendons, cables, dowels or bolts
- For applications where ambient temperature is above 40 °F (5 °C), refer to MS-Cable or In-Pakt Precision

Contact your Sika STM Technical Representative for recommendations or more information

CHARACTERISTICS / ADVANTAGES

- Excellent compressive strength development in cold weather and permafrost
- Excellent pumpability
- Excellent cohesion and plastic stability
- Excellent resistance to wash-out
- Thixotropic properties reduce material loss in fractured ground
- Improved resistance to sulphate attack
- Very low permeability
- Non-corrosive, non-chloride, non-metallic
- Designed with natural normal-density non-reactive fine aggregate to eliminate potential alkali-aggregate reactivity (AAR)

PRODUCT INFORMATION

Packaging	55 lb bag (25 kg) Custom packaging is available to suit specific job requirements	
Shelf Life	12 months in original, unopened packaging	
Storage Conditions	Store in a dry, covered area, protected from the elements For optimum performance it is recommended to store the material between 40°F - 95°F (5°C - 35°C) Protect from moisture, discard material if damp	
Density	134 lb/ft ³ (2150 kg/m ³) <i>Hardened Finished Product</i>	ASTM C39

TECHNICAL INFORMATION

Compressive Strength		ASTM C39						
	<table><tr><td>1 Day</td><td>4350 psi (30 MPa)</td></tr><tr><td>7 Days</td><td>5075 psi (35 MPa)</td></tr><tr><td>28 Days</td><td>6000 psi (42 MPa)</td></tr></table>	1 Day	4350 psi (30 MPa)	7 Days	5075 psi (35 MPa)	28 Days	6000 psi (42 MPa)	
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7 Days	5075 psi (35 MPa)							
28 Days	6000 psi (42 MPa)							
	Grout temperature of 73 °F (23 °C) Curing Temperature of 14°F (-10 °C) at 50% R.H. Cylinder sample 4" diameter x 8" height (100 mm x 200 mm)							
Bleeding	0.0% (No Segregation)	ASTM C940						

APPLICATION INFORMATION

Coverage	Approx. 0.49 ft ³ (14.0 L) of grout per 55 lb (25 kg) bag Yield in service may slightly vary according to projects conditions			
Flowability	25 ± 5 seconds Grout temperature of 73 °F (23°C)	ASTM C 939		
Set Time	<table><tr><td>Initial</td><td>1-2 hours</td></tr></table> Ambient temperature of 21°C (70°F)	Initial	1-2 hours	ASTM C 191
Initial	1-2 hours			
Application Time	Maximum: 20 minutes			

BASIS OF PRODUCT DATA

The following data was obtained under laboratory conditions with the pre-packaged bags of Nordic, batching water and mixing equipment conditioned to a temperature ranging from 70 °F to 77 °F (21 °C to 25 °C) as recommended in the Procedures section. Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

AVAILABILITY/WARRANTY

Other means of identifications: King® Nordic NT

LIMITATIONS

- Not recommended for areas subjected to extremely high vibrations.
- Adhere to recommended water additions. Exceeding water:material ratio will result in reduced compressive strengths and inferior physical properties.
- Not recommended when ambient temperature is greater than or equal to 40 °F (5 °C). Refer to In-Pakt Precision or MS-Cable when ambient temperature is greater than or equal to 40 °F (5 °C).

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

APPLICATION INSTRUCTIONS

MIXING

In order to achieve the mechanical and plastic properties listed in the Technical Data section, the plastic temperature of King® Nordic after mixing must be between 70 °F and 77 °F (21 °C and 25 °C). The pre-packaged bags of King® Nordic and the batching water used to mix the grout must be maintained in a dry, closed container/environment that is protected from the elements and conditioned to a temperature ranging from 70 °F and 77 °F (21 °C and 25 °C), prior to mixing. It is recommended to store and to operate the mixer in a dry and closed container/environment protected from the elements and conditioned to a temperature ranging from 70 °F and 77 °F (21 °C and 25 °C).

For a 55 lb (25 kg) bag, the recommended volume of water is 1.45 US gal (5.50 L). Use potable water only. Introduce the required volume of water into the paddle mixer and gradually add King® Nordic while operating at medium speed. Increase mixer speed and continue mixing for 2 minutes. Mortar style mixers are not recommended for this purpose. Decrease mixer speed to low and continue mixing while placing the grout. The time between the mixing and pumping of a batch should not exceed 20 minutes.

When mixing two 55 lb (25 kg) bags of King® Nordic or less, it is possible to use a hand-held electrical drill mixer with an appropriate mixing paddle designed to mix a sanded grout.

OPTIMUM PERFORMANCE

- It is recommended to use a piston grout pump with a minimum interior hose diameter of 1" (25 mm) when pumping King® Nordic.
- Freshly mixed grout temperature must be between 70 °F and 77 °F (21 °C and 25 °C).

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Product Data Sheet

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CLEANING OF TOOLS

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

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

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