

THE THERMAL GROUT SELECT

ENGINEERED FOR MAXIMUM PERFORMANCE WITH A SELECTABLE CONDUCTIVITY RANGE



GENERAL INFORMATION:

Thermal Grout Select is a unique bentonite-based two-part, field mixed, high to extreme-high solids, grouting material that can mixed to meet a range of thermal conductivity's from **1.00 to 1.20 Btu/hr ft °F**. It has been specifically developed for closed-loop ground-coupled heat pump applications where thermal conductivity in the vertical bore column is critical to system performance. This product is certified by the National Sanitation Foundation International to ANSI/NSF Standard 60, Drinking Water Treatment Chemicals - Health Effects. **Thermal Grout Select** contains no chemical polymers or organic matter.

Thermal Grout Select provides unequaled performance while offering the contractor proven advantages in handling and clean-up. When properly mixed, more than 30 minutes of working time is available before significant hydration occurs. Unlike many other bentonite grouting materials, **Thermal Grout Select** does not flash hydrate.

Its percentage of solids will range from equivalent, to over 2.5 times greater than that of the best conventional bentonite grout products. As the solids percentage becomes higher, **Thermal Grout Select** will require less water per delivered gallon of yield than other grout as well as a linear shrinkage potential which becomes less and less.

PHYSICAL SPECIFICATIONS:

Thermal Conductivity (TC) Range	1.00 - 1.20	Btu/hr ft °F	ASTM D 5334
Permeability ¹	< 6.9 x 10⁻⁸	cm/s	ASTM D 5084
Percent Solids Range (based on TC)	66.6 - 71.4	%	
Grout Weight Range (based on TC)	14.1 - 14.9	lb/gal	
Linear Shrinkage Potential (based on TC)	40 - < 3	%	
Maximum Particle Size	< 300	µm	
Unit Yield Range (based on TC)	32.0 - 42.2	gal/unit	

NOTE 1: Permeability verified by an independent testing laboratory over a variety of thermal conductivities.



PACKAGING INFORMATION:

Thermal Grout Select, Part I is packaged in 50 lb multi-wall polylined paper bags. **Part II** as supplied by GeoPro, Inc. is typically packaged in 50 pound multi-wall paper bags. Both components are shipped, stretch-wrapped on wooden pallets. Each full pallet of **Part I** contains 54 bags and each standard full pallet of **Part II** contains 54 to 80-50 lb bags.

MIXING INSTRUCTIONS:

1. Place fresh water² in a conventional paddle mixing tank.
2. Start mixer and add Bentonite Base² (**Part I**). Mix for about 1 minute.
3. Add Silica Compound² (**Part II**) at a moderate rate (in about 2 to 3 minutes) and continue to mix for another 1 to 2 minutes to obtain a consistent mixture.
4. Pump with a positive displacement pump (piston pump strongly recommended) through a 1-1/4" inside diameter tremie pipe at a rate of 5 to 15 gallons per minute.

NOTE 2: See other side of this document for exact quantities, which will be based on the specified thermal conductivity.

PURCHASING INFORMATION:

For additional information or to locate the area sales representative closest to you, contact:

The ORIGINAL Developer of Thermally-Enhanced Grouts

GeoPro, Inc.

Phone: (877) 580-9348 • Fax: (877) 580-9371 • www.GeoProInc.com



THERMAL CONDUCTIVITY RANGE - MIX RATIOS:

Thermal Conductivity Btu/hr ft °F	Silica Compound ³ lbs/50# bag	Water gal/50# bag	Yield gal/50# bag	Weight lb/gal	Total Solids %
1.00	250	18.0	32.0	14.07	66.6
1.07	300	19.2	35.7	14.29	68.6
1.14	350	20.4	39.1	14.58	70.2
1.20	400	21.6	42.2	14.93	71.4

NOTE 3: Thermal conductivity values are based on using a silica compound which is supplied by GeoPro, Inc.

QUALITY CONTROL:

The quality of a system is directly related to the quality of the components and the quality of the installation. Black Hills Bentonite, L.L.C. and GeoPro, Inc. are committed to providing a product that meets or exceeds the specified requirements from both the design engineer and the governing regulators. Years of extensive research have gone into the development of **Thermal Grout Select** to insure its performance characteristics.

Thermal Grout Select is sold as a two-part product to help reduce unnecessary costs. It is recommended that either both components (both **Part I** and **Part II**) be supplied by GeoPro, Inc. or locally obtained material be pre-approved by GeoPro, Inc. in order to insure that the stated physical specifications are achieved. In either event, it is strongly recommended that the user participate in the "Field Quality Control" process.

FIELD QUALITY CONTROL:

GeoPro, Inc. will supply, at no charge, three sample containers with return cartons for any commercial project using **Thermal Grout Select**. Through the course of the project, it is recommended that at least three sample specimens be taken of the mixed grouting material. Once GeoPro receives the sample, an analysis will be performed to verify proper thermal performance (which can be equated back to the other performance characteristics) with a report being sent to the entity requesting the analysis.

The installation contractor can submit these reports to the engineer of record to verify compliance with the installation specifications. The engineer can utilize these reports to verify that the specified conductivity is achieved and to help verify that the system will perform according to design.

Thermal Grout Select has been designed to give both the design engineer and the installation contractor additional options without the need for additional component additives or additional inventories.

Superior Performance • Superior Handling • Superior Quality •
Superior Options • Superior Value

Clearly the Superior Choice!



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THERMAL GROUT SELECT

THE STANDARD FOR THERMALLY-ENHANCED GROUTING MATERIALS