



BAROTHERM® SPECIAL

Thermally Conductive Grout

Description

BAROTHERM® SPECIAL thermally conductive grout contains a mixture of sodium bentonite and high-purity silica (quartz) sand. BAROTHERM SPECIAL is specially designed for use in grouting horizontal boreholes containing ground source heat loops and yields a grout with a thermal conductivity of 1.0 BTU/hr-ft.°F (1.73 watts/m.°C).

Applications/Functions

The use of BAROTHERM SPECIAL thermally conductive grout promotes the following:

- A thermally conductive grout medium for efficient heat transfer in horizontally placed ground source heat loop installations.

Advantages

- **HDD rig compatible**
- U.S. 200 mesh (74µm) product – minimal abrasion
- Low pumping pressure (typically <850 psi)
- Pre-blended grout system – no need to source high quality silica sand
- Excellent sand suspension for effective horizontal placement.
- Produces a uniform slurry for smooth pumping
- Helps form a low permeability seal to prevent commingling of aquifers
- Promotes efficient heat transfer
- Contains no cement - No heat of hydration
- NSF/ANSI Standard 60

Typical Properties

• Appearance	White to grey powder
• Specific gravity	2.6
• Thermal Conductivity (k)	1.0 BTU/hr-ft.°F (1.73 watts/m.°C)
• Yield Volume	9.06 gal/sack (34.1 liters/sack)
• Grout Slurry Weight	11.74 lb/gal (1.4 SG)
• Total Percent Solids	47.0%
• Typical Permeability	< 1.0 x 10 ⁻⁷ cm/sec

Recommended Treatment

- Using a mixing device, blend 1 sack of BAROTHERM SPECIAL thermally conductive grout in 6.75 gallons of water to create a 47.0% total solids by weight grout with a density of 11.74 lb/gal (1.41 g/cm³)
- Typically, the recommended treatment is to blend 4 sacks of BAROTHERM SPECIAL thermally conductive grout into 27 gallons of water. Rate of addition should be about 30-40 seconds per 50-lb bag.
- Immediately place grout into hole using the HDD rig or a tremie line.

k Btu/hr-ft.°F	BAROTHERM SPECIAL (50-lb bags)	Water (gallons)	Slurry Volume Yield (gallons)	Density (lb/gal)	Total Solids
1.0	4	27.0	36.22	11.74	47.0%
1.0	6	40.5	54.34	11.74	47.0%
1.0	8	54.0	72.45	11.74	47.0%
1.0	10	67.5	90.56	11.74	47.0%

Additional Information

- The grouting material and method selected will depend upon the specific subsurface environment including all prevailing geological and hydrological factors and any existing regulatory requirements.
- The use of bentonite may not be appropriate in environments where the formation water chemistry has a total hardness greater than 500 parts per million and/or a chloride content of greater than 1500 parts per million.
- If questions arise regarding subsurface environments it is always best to consult your local Baroid IDP representative to determine if the Baroid product of choice is appropriate for the given conditions.

Packaging

BAROTHERM SPECIAL thermally conductive grout is packaged in 50-lb (22.7 kg) multiwall paper bags, containing 1.05 ft³.

Availability

BAROTHERM SPECIAL thermally conductive grout can be purchased through any Baroid Industrial Drilling Products Retailer. To locate the Baroid IDP retailer nearest you contact the Customer Service Department in Houston or your area IDP Sales Representative.

**Baroid Industrial Drilling Products
Product Service Line, Halliburton**

3000 N. Sam Houston Pkwy. E.
Houston, TX 77032

Customer Service	(800) 735-6075 Toll Free	(281) 871-4612
Technical Service	(877) 379-7412 Toll Free	(281) 871-4613

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