BAROTHERM® MAX

One Sack Thermally Conductive Grout

Description

BAROTHERM® MAX thermally conductive grout is designed for use in grouting of boreholes containing ground source heat loops. BAROTHERM MAX pumpable grout yields a material with thermal conductivity (k) values ranging between 1.1 and 1.6 BTU/hr•ft•ºF (1.9 – 2.77 Watts/meter•ºC). BAROTHERM MAX grout does not require the addition of silica sand to attain the desired thermal conductivity values and does not contain any polymeric additives.

Applications/Functions

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

- Effective grouting for ground source heat loops
- Increased efficiency and performance of ground source heat loop systems

Advantages

- Provides efficient heat transfer
- Creates a low permeability seal
- Develops a flexible seal to prevent commingling between aquifers
- Easily pumpable
- Eliminates the need for silica sand to increase thermal conductivity
- No heat of hydration
- NSF/ANSI Standard 60 certified

Typical Properties

Appearance	Dark gray powder
Specific gravity	2.5
TC range (Standard Units)	1.1 – 1.6 BTU/hr•ft•ºF
TC range (SI Units)	1.9 – 2.77 Watts/meter•ºC
Yield volume range	9.0 –13.0 gal/bag or 49.2 – 34.1liters/bag
Mixed grout weight range	10.7 – 11.6 lb/gal or 1.28 – 1.39 SG
Permeability	< 1.0 x 10^{-7} cm/sec

Recommended Treatment

The recommended treatment is based on the desired thermal conductivity value or k factor. Please refer to the treatment table below.

BAROTHERM® MAX Grout Recommended Treatment Table (U.S. Standard Units)

k Btu/hr• ft• °F	Water (gal/bag)	Yield (gal/bag)	Density (lb/gal)	% Solids (by weight)
1.1	11	13	10.7	35.0%
1.3	9	11	11.1	40.0%
1.6	7	9	11.6	45.0%

Recommended Treatment (Continued)

BAROTHERM® MAX Grout Recommended Treatment Table (SI-Metric Units)				
k watts/m • °C	**Water (liters/bag)**	**Yield (liters/bag)**	**Density (SG)**	**% Solids (by weight)**
1.9	41.6	49.2	1.28	35.0%
2.25	34.1	41.6	1.33	40.0%
2.77	26.5	34.1	1.39	45.0%

Recommended Mixing Procedure

- Using a mixing device, blend one sack of BAROTHERM MAX thermally conductive grout into the recommended pre-measured volume of water. Rate of addition should be about 20 to 30 seconds per 50-lb (22.7 kg) bag. Mix for approximately 30 to 60 seconds, depending on the mixer, and pump grout.
- Blend, do not over mix. Pump grout material through 1.25-inch (~32mm) ID tremie pipe into hole without delay.

Packaging

BAROTHERM MAX thermally conductive grout is packaged in 50-lb (22.7 kg) multiwall paper bags, containing 0.7 ft^3 (0.02 m^3).

Availability

BAROTHERM MAX 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