



BAROID 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·°F (1.9 – 2.77 Watts/meter·°C). 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

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| • Appearance | Dark gray powder |
| • Specific gravity | 2.5 |
| • TC range (Standard Units) | 1.1 – 1.6 BTU/hr·ft·°F |
| • TC range (SI Units) | 1.9 – 2.77 Watts/meter·°C |
| • Yield volume range | 9.0 – 13.0 gal/sack or 49.2 – 34.1 liters/sack |
| • Mixed grout weight range | 10.7 – 11.6 lb/gal or 1.28 – 1.39 SG |
| • Permeability | $< 1.0 \times 10^{-7}$ 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 ft³ (0.02 m³).