



BAROTHERM[®]

Two-part Thermally Conductive Grout

Description BAROTHERM is a bentonite material designed for use in grouting boreholes containing ground source heat loops. BAROTHERM, when combined with sand at various concentrations, yields a grout with thermal conductivity values ranging between 0.4 and 1.0 BTU/hr-ft.^{°F}. BAROTHERM does not contain any polymers.

Applications/Functions

- Seal or grout plastic ground source heat loops
- Seal or grout water well annular spaces

Advantages

- Provides efficient heat transfer
- Creates a low permeability seal
- Develops a permanent, flexible seal to prevent commingling between aquifers
- NSF/ANSI Standard 60 certified
- No heat of hydration

Typical Properties

- Appearance Beige to tan powder
- Specific gravity 2.6
- Thermal Conductivity (k) range 0.4 – 1.0 BTU/hr-ft.^{°F}
- Yield Volume range 16.4 – 33.7 gal/unit
- Grout Weight range 10.2 – 13.7 lb/gal
- Permeability < 7.0 x 10⁻⁸ cm/sec

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

k Btu/hr ft °F	Silica lb/50 lb	Water gal/50 lb	Yield gal/50 lb	Weight lb/gal	Total Solids
0.4	0	14	16.4	10.2	30.0%
0.52	50	14.6	19.4	11.4	45.1%
0.64	100	15.5	22.7	12.3	53.7%
0.76	150	16.5	26.1	13.0	59.2%
0.88	200	17.6	29.6	13.4	63.0%
1	250	19.3	33.7	13.7	65.1%

Recommended Mixing Procedure

- Using a mixing device, blend one sack of BAROTHERM® into water. Rate of addition should be about 20 to 30 seconds per 50-lb (22.7 kg) bag. Mix for approximately 30 to 90 seconds, depending on the mixer. Add sand at a rate of 20 to 30 seconds per sack and pump.
- Dry sand ranging between 50 and 70 mesh is recommended
- Blend, do not over mix and do not use a centrifugal pump. Pump through tremie into hole without delay.
- The subsurface environment that the respective bentonite sealing material or grout is to be placed into should always be taken into consideration when selecting the appropriate material to compose the well seal. If the formation water chemistry has a total hardness of greater than or equal to 500 parts per million and/or a chloride content of greater than or equal to 1500 parts per million the use of a bentonite material may not be appropriate for this environment. In the event that questions regarding subsurface environments arise 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 is packaged in 50-lb (22.7 kg) multiwall paper bags, containing 0.7 ft³ (0.02 m³).

Availability

BAROTHERM can be purchased through any Baroid Industrial Drilling Products Distributor. To locate the Baroid IDP distributor 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
