



THERM-EX GROUT™



THERM-EX GROUT™ is an engineered system for use as backfill material in earth-coupled heat pump systems. Its elevated thermal conductivity and low permeability allow for excellent heat exchange while protecting groundwater supplies. THERM-EX GROUT™ should be pumped using a positive displacement pump capable of generating pressures in excess of 300 psi. Developed using high swelling Wyoming Bentonite, this new generation of grouting material offers efficient installation of closed-loop geothermal heat pump systems.

MATERIAL SPECIFICATIONS:

Thermal Conductivity:	.93 Btu/hr-ft-°F	1.05 Btu/hr-ft-°F
Permeability:	2×10^{-8}	6×10^{-8}
Solid Content:	64 %	67 %
Slurry Weight:	13.6 lbs/gal	14.4 lbs/gal
Slurry Volume/Batch:	29 gals	36 gals

Thermal Conductivity:	1.13 Btu/hr-ft-°F	1.2 Btu/hr-ft-°F
Permeability:	6×10^{-8}	6×10^{-8}
Solid Content:	69 %	71 %
Slurry Weight:	15.1 lbs/gal	15.2 lbs/gal
Slurry Volume/Batch:	41 gals	41.5 gals

APPROXIMATE VOLUMES FOR GROUT			
Drilled Hole Dia.	Loop Inside Dia.	Anlr. Vol. (cu.ft./ft.)	Anlr. Vol. (gal./ft.)
4	3/4"	0.08	0.57
4.5	1"	0.09	0.70
5	1"	0.12	0.89
5.5	1"	0.15	1.10
6	1"	0.18	1.33
5	1 1/4"	0.11	0.84
5.5	1 1/4"	0.14	1.05
6	1 1/4"	0.17	1.29

APPLICATION RATE:

The combination of fresh water, THERM-EX GROUT™ and silica sand constitute “the system” for backfilling geothermal loops. Use locally available dry silica sand. For best results, use sand ranging in size from 30 mesh to 70 mesh (AFS GFN particle size classification 38 to 50).

Mix as follows:

	.93 Btu/hr-ft-°F	1.05 Btu/hr-ft-°F	1.13 Btu/hr-ft-°F	1.2 Btu/hr-ft-°F
Water	17 gal	20 gal	21 gal	22 gal
THERM-EX GROUT™	1 – 50 lb bag	1 – 50 lb bag	1 – 50 lb bag	1 – 50 lb bag
Silica Sand	200 lb	300 lb	350 lb	400 lb

Add the THERM-EX GROUT™ to the water while agitating. Mix for approximately one minute, then add the sand. Agitate until the sand is uniformly dispersed and pump into place using a tremie line. For best results, place the tremie line near the bottom of the loop and pump into place. Providing local regulations allow, slowly extracting the tremie line as you come up the hole reduces pump pressure, aids the grout in setting quicker, and reduces the opportunity for formation damage.

To increase work time for deep sets, you may add THINZ-IT® to the make-up water. Addition rates may vary, but generally 2 ounces to make-up water yields the desired results.

THERM-EX GROUT™ is packaged in 50 pound bags.