

THERM-EX GROUT

BACKFILL MATERIAL

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.

Thermal Conductivity	.93 Btu/hr-ft-OF	1.05 Btu/hr-ft-OF	1.13 Btu/hr-ft-OF	1.2 Btu/hr-ft-OF
Permeability	$\downarrow 2 \times 10^{-8}$	6×10^{-8}	6×10^{-8}	6×10^{-8}
Solids Content	64%	67%	69%	71%
Slurry Weight	13.6 lb/gal	14.4 lb/gal	15.1 lb/gal	15.2 lb/gal
Slurry Volume/ Batch	29 gals	36 gals	41 gals	41.5 gals

Approximate Volumes for Grout			
Drilled Hole Diameter	Loop Inside Diameter	Anlr. Volume (ft ³ /ft)	Anlr. Volume (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

MIXING & HANDLING

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-OF	1.05 Btu/hr-ft-OF	1.13 Btu/hr-ft-OF	1.2 Btu/hr-ft-OF
Water	17 gal	20 gal	21 gal	22 gal
Therm-Ex Grout	1-50lb bag	1-50lb bag	1-50lb bag	1-50lb bag
Silica Sand	200lb	300lb	350lb	400lb

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.

WHMIS: Controlled (see SDS)

TDG: Not regulated

Packaging: 50lb sack / bulk