TRENCHLESS SAILING THROUGH COARSE & DIFFICULT MATERIALS

GEOGREASE™

The ideal material for annulus lubrication through unstable coarse or porous soils.
Reduces frictions while holding the ground in place.

INFORMATION SHEET

Formulation type	Dual-phase lubricant incorporating a fine grained vermiculite over-saturated with various geo-fluids.
Physical properties	Brown soft paste Slight odor. pH: 8 to 12 Specific gravity varies with saturation liquid Dry Specific Gravity : 2.4 Bulk weight: 63 to 70 lb/CF Vermiculite will split into finer particles under shear stress in the dry. Saturated vermiculite will release some of the absorbed liquid phase if under pressure: material is more fluid under stress.
Proportioning	Ready to use product; proprietary formulations
Mixing	Manufactured in high torque, low rpm dedicated mixer/pumping unit.
Pumping	High viscosity requires higher pressures when confined.
Pumping rates	Typically 2 to 5 gpm, to match annulus formation.
Environment	Harmless inert minerals and liquids compatible with applications.
Packaging	Delivered premixed in mixer/pumping unit (5000 gal. max.)
Storage and Handling	Varies with liquid phase composition. Viscosities may well vary with Temperature. Water base formulation will freeze. (Similar product FREEZLUBE is formulated with anti-freeze)
Spillage	Contain spill by sweeping and vacuuming. Salvage for use. Use absorbent material to wipe out moisture.
Precautions	Non toxic product under any formulation. Sensitive skins to alkaline pH may get irritation.
Longevity	Vermiculite is a mineral substance that will remain intact in the ground. The liquid phase, when not biodegradable, will remain intact at pH>8.

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GEOGREASE

TECHNICAL
INFORMATION

The reason for developing GEOGREASE originates with the difficulties encountered when augering or microtunneling in coarse alluvium where cohesion is limited or non-existent. Typical bentonite slurries are absorbed in large volume without building a counter pressure and filter cake fast enough to prevent the arch from sloughing onto the pipe; pure polymer slurries permeate even more readily and should not be used in these formations as a rule. The goal in developing GEOGREASE is to in fact backfill the annulus with a light weight but nevertheless solid matter in the form of a paste which has good lubricating properties. By blocking the ground from falling into an empty or liquid filled annulus cavity, it becomes possible to maintain the ground in place around the bore so as to preserve the annulus. The dual phase formulation assures that the solid phase cannot permeate the ground and is forced to stay in the annulus; the polymer creamy phase participates in the lubrication while saturating and stabilizing the interface. Hence the bore's arching strength can be best preserved and friction loads on the pipe are minimized when GEOGREASE is properly placed by being introduced at a 6 o'clock port, under constant pressure equalized with the head slurry pressure, and at a pumping rate consistent with the rate of advance, GEOGRASE should fill the entire annulus. By raising the pipe off the bottom, which is the area of maximum friction, conditions for pipe flotation are created. At the same time, the gap between the crown and the ground is reduced and the GEOGREASE support is more effective. The key point is the ability to place the pasty material immediately as the annulus is being formed. The lubrication line should be equiped with a check valve at the port to maintain the pressure in the annulus during the interruption for the addition of a new pipe section.

By its formulation, GEOGREASE can be considered as a multipurpose lubricant material for most trenchless installation that may benefit from lubrication and that incorporate lubrication ports at the business head:

- pipe bursting with or without enlargement,
- pipe ramming,
- auger boring and
- microtunneling.

With the solid phase filling a continuous annulus, lubrication along the bore may not be required as long as proper introduction of GEOGREASE proceeds in the trailing tube. Since GEOGREASE is polymerized, it will also perform well in clays. In pure clay jobs, however, it may be more economical to use our dedicated products such as ready made PUSHLUBE or on site batched PREMIX plus PLUG.

GEOGREASE is a ready to use product supplied in a skid mounted remixing 4000 gal.tank combined with a pumping unit. Just connect the discharge hoses and plug in a 110 V cord and you are ready to grease. When short of space, stacking the 8' x 20' foot print over a container is possible. This approach eliminates all labor and set up related to lubrication.

If the contract specifications require the annulus to be grouted once the pipe has been installed, GEOGREASE may be a satisfactory substitute. If the Engineer cannot be convinced we recommend reverting to a reformulated GEOLUBE to perform like SLOWGROUT with progressive sets beyond 4 weeks time. In all cases, this should allow contractors to eliminate the grouting phase, whatever the type of materials the installation has to go through, while respecting the specifications intent.

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