



MICRO-GEL™



MICRO-GEL™ is a bentonite product designed and engineered for micro-tunneling and tunneling applications. It is engineered to promote low fluid loss and increased lubricity, which translates to low jacking pressures. The integrity of the tunnel wall is maintained by the effect of the superior filter cake and gel strengths exhibited by MICRO-GEL™ fluid. Uniquely MICRO-GEL™ can be used both as the slurry fluid, carrying the cuttings away from the cutter head, and the lubricating fluid. Each function will necessitate a different mix ratio, but the contractor using MICRO-GEL™ needs only one bentonite product on location. MICRO-GEL™ mixes easily through most conventional mixing systems. MICRO-GEL™ is environmentally safe and non-hazardous.

MICRO-GEL™ has been designed to be resistant to many chemicals found in tunneling operations. MICRO-GEL™ has a very high tolerance for calcium and salts, making it an ideal fluid for any tunnel with salt water influence.

Fluid Loss Control

Losing the fluid phase of a slurry into the soil can compromise the integrity of the formations. This can allow materials to fall in against the segments, increasing drag and elevating jacking pressures. MICRO-GEL™ slurries protect against excessive fluid loss by laying down a thin tough filter cake that limits the water phase influence on surrounding formations. Traditionally used slurries demonstrate fluid loss values nearly twice the level of MICRO-GEL™.

Mixing and Application as the Slurry Fluid

Maintaining formation integrity while cutting lays the foundation that keeps jacking pressures low. Using MICRO-GEL™ as the slurry fluid limits negative impact on soils and maintains the bore wall continuity. Mixing rate should be 320 pounds of MICRO-GEL™ per 1000 gallons (144 kg/3.8m³). Fluid characteristics will have a Marsh Funnel Viscosity of 45 to 48 sec/qt.

Mixing and Application as Lubricating Fluid

For best results, a venturi or other high-shear equipment should be used. Mix rate is 22.5 pounds per barrel or 535 pounds per 1000 gallons (241 kg/3.8 m³) of make-up water. This mix ratio will yield a Marsh Funnel Viscosity of 80 to 85 sec/qt.

MTA-1™ Additive

MTA-1™ is a fluid conditioner designed to further lower fluid loss and aid in reducing friction during jacking. Adding MTA-1™ at the rate of 2 to 3 ounces per 1000 gallons (90 ml/3.8 m³) can drop the fluid loss values in the lubricating fluid to a range of 5-7 cc.

MICRO-GEL™ is conveniently packaged in 50 pound multi-walled paper bags, palletized and shrink-wrapped.