



BAROID BORE-GEL®

Boring Fluid System - U.S. Patent Number 5,723,416



Description BORE-GEL® single-sack boring fluid system is specially formulated for use in horizontal directional drilling (HDD) applications. BORE-GEL fluid system is a proprietary blended product using high-quality Wyoming sodium bentonite. When BORE-GEL fluid system is mixed with fresh water, it develops an easy-to-pump slurry with desirable fluid properties for HDD.

Applications/Functions

The use of BORE-GEL fluid system promotes the following:

- Optimum gel strength for cuttings suspension and transport
- Pumpable slurry with minimal viscosity
- High reactive solids concentration for improved borehole stability in poorly consolidated/cemented sands and gravel formations
- Reduced filtration via a thin filter cake with low permeability
- Lubrication of pipe in microtunneling operations

Advantages

- Minimizes the number of boring fluid products required
- Easy to mix and fast to yield
- Low viscosity minimizes pump pressures
- Provides lubricity for pulling product line
- Can be used in Water Wells in unconsolidated formations or when additional gel strengths are required to compensate for low annular velocity
- NSF/ANSI Standard 60 certified

Typical Properties

- | | |
|------------------------------------|----------------------|
| • Appearance | Tan to gray powder |
| • pH (4% slurry or 15 lb/bbl) | 10.2 |
| • Bulk density, lb/ft ³ | 68 to 72 (compacted) |

Recommended Treatment

Add slowly and uniformly through a high-shear, jet-type mixer over one or more cycles of the volume of slurry. Continue to circulate and agitate the slurry until all unyielded bentonite is dispersed.

| Approximate amounts of BORE-GEL® fluid system added to fresh water | | |
|---|-------------------|-------------------------|
| <i>Boring Application</i> | lb/100 gal | kg/m³ |
| Normal boring conditions | 25 – 35 | 30 – 42 |
| Poorly consolidated sand/gravel | 35 – 60 | 42 – 72 |
| Lubrication fluid for microtunneling | 50 – 60 | 60 – 72 |

Packaging

BORE-GEL boring fluid system is packaged in a 50-lb (23-kg) multiwall paper bag.