



# BORZAN<sup>®</sup>

BORZAN<sup>®</sup> is a true biopolymer designed for use in horizontal drilling applications where conventional bentonite based drilling fluids may not be desirable. BORZAN<sup>®</sup>'s highly concentrated xanthan gum formulation allows for less material to be used than most other bio-polymers. Normal application rates are only 3 to 3½ pounds per 100 gallons to achieve a 45 second Marsh Funnel viscosity. BORZAN<sup>®</sup>'s superior gel strengths suspend solids and prevent sticking and frac out. It is particularly effective in vapor extraction wells where it can be broken out of the system with no residual wall-cake once the drilling operation is completed. Use bleach (sodium hypochlorite) at 1000 ppm and flushing the well.

With its ability to “shear thin”, mud made with BORZAN<sup>®</sup> tends to thin at higher velocities and thicken at lower velocities. This allows for the movement of solids away from the bit area and superior suspension of solids in the hole. BORZAN<sup>®</sup> fluids offer tremendous advantages over bentonite-based fluids since they:

- Optimize bit hydraulics increasing penetration rates
- Reduce circulating pressure losses
- Minimize drill solids settling during static conditions
- Lower overall drilling costs due to concentrated formulation
- Excellent hole cleaning capabilities

The chart below illustrates various mixing ratios and approximate fluid characteristics achieved.

Lbs/100 Gallons	Marsh Funnel Viscosity	PV/YP Ratio	Gel Strengths 10 Sec/10 Min	6/3 RPM's
2.40	39 sec/qt	4/10	6/8	5/4
4.75	53 sec/qt	6/28	16/22	18/17
7.00	94 sec/qt	9/42	23/31	26/23

**CLEAN-UP** and removal of this fluid can easily be done by circulating clean water to displace the BORZAN<sup>®</sup> fluid at the completion of the job. Any remaining BORZAN<sup>®</sup> will biodegrade leaving no residual wall cake. BORZAN<sup>®</sup> is more stable than other natural polymers such as guar gum.

**BORZAN<sup>®</sup> is conveniently packaged in a resealable water proof plastic jug containing 12 lbs. (3 jugs per case) or 10 – 2 lb. packages in a plastic pail.**