



Top 5 Questions to Ask Potential Chemical Providers About Their *Lubricants*

1. Can your lubricants cause fluid compatibility challenges?

About 75% of lubricants on the market are hydrocarbon or water-based. Many of these types of lubricants can cause fluid compatibility challenges. Good lubricants will emulsify in fluid systems and not attach to cuttings.

Greenwell's lubricants are vegetable-oil based so they don't impact viscosity or rheology and they emulsify in any base fluid.

2. Should I be concerned that your lubricants may impact clay content and cause possible swelling?

Water-based lubricants often can cause swelling. Customers need to ask their potential providers the base composition of their lubricants to understand possible risks and side effects.

Customers don't have to worry about this concern with Greenwell's solutions. As its lubricants are vegetable oil-based, they naturally act as shale stabilizers and protect against clay content and swelling. Customers will never experience any 'gumming up.'

3. Lubricants are notoriously slow to go into solution. How do I know I'm getting a benefit?

We frequently hear from customers how frustrated they were when previously using certain lubricants on the market. The lubricants would not blend easily, disperse evenly or stay in the solution. Specifically, petroleum-based solutions have emulsion problems and don't disperse evenly in mixing tanks. Oftentimes these problems can delay drilling schedules. To avoid blending issues, lubricants need to be dispersible in the fluid system for which they are introduced.

Greenwell's lubricants are blended easily and can be batched treated. Again, this is a benefit of vegetable oil-based lubricants. Customers will not experience any coagulating or floating.



GREENWELL
ENERGY SOLUTIONS

2000 B Edwards
Houston, Texas 77007
(713) 993-7772 Office
(713) 993-7762 Fax
www.greenwellsolutions.com



4. Can I use your lubricants in oil-based muds?

Many lubricants are only effective in water-based systems. Because these lubricants are limited to working in an aqueous environment, they can't be applied to oil-based muds. It's critical that providers understand their customers' environment before recommending a lubricant.

Greenwell's lubricants are some of the only lubricants on the market proven to work in oil-based muds.

5. How are your lubricants better than the others on the market?

The best performing lubricants run cooler and cleaner bits, reduce torque and drag and increase the rate of penetration. Although it's also important lubricants be effective in extreme temperatures, many lubricants fall short in this area—about 75% can't perform in temperatures above 350° F.

Greenwell's lubricants have proven to perform better than competing products and we like to share the case studies with customers. Our lubricants also perform in temperatures up to 500° F—the highest available on the market.

About Greenwell Energy Solutions

Greenwell Energy Solutions is an independent specialty supplier delivering proprietary-blended chemicals, water treatment and environmental services for the upstream energy industry. Its services span well stimulation, pressure control systems and fully managed secondary containment that reduce clients' environmental impact and operating costs. Through unbiased testing at partner and third-party labs, Greenwell is able to ensure its solutions provide consistent quality, performance and durability. The company dedicates countless R&D hours to designing environmentally-friendly chemicals and solutions that perform reliably on every project. For more information, visit greenwellsolutions.com.



GREENWELL
ENERGY SOLUTIONS

2000 B Edwards
Houston, Texas 77007
(713) 993-7772 Office
(713) 993-7762 Fax
www.greenwellsolutions.com