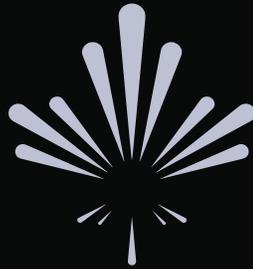


PURESTAR

CHLORIDE-FREE INVERT EMULSION

NEXT GENERATION



AES DRILLING FLUIDS





AES DRILLING FLUIDS

DESCRIPTION

- Invert emulsion system utilizing polyol internal phase, eliminating initial chlorides
- Minimizes environmental impact

BENEFITS

- Invert emulsion performance and benefits with reduced health, safety and environmental concerns
- Improved biodegradation characteristics versus conventional and synthetic invert emulsion systems with a brine internal phase
- Eliminates handling of calcium chloride and reduces lime consumption over 50%

APPLICATIONS

- Sensitive areas, such as near waterways or residential areas
- Locations seeking to reduce waste and water consumption versus water-based drilling fluids
- Operations seeking goodwill with landowners

PURESTAR[†]

Chloride-Free Invert

Description

PURESTAR provides the performance of invert emulsion systems while minimizing overall environmental impact through the use of a readily biodegradable non-aqueous base fluid and the elimination of added chlorides in the internal phase. Using a polyol, water activity is managed at similar levels to a conventional invert emulsion without the requirement for elevated salinity.

PURESTAR offers an advanced level of environmental sensitivity without compromising on drilling performance or the waste reduction benefits associated with improved inhibition and lower dilution.

The novel chemistry of the PURESTAR system utilizes specially formulated additives provide the performance of conventional invert emulsions with simple maintenance. An added benefit with PURESTAR is the elimination of calcium chloride handling on location and a reduction in lime consumption.

Key Components of the PURESTAR System

PURESTAR BASE[†]

Synthetic base fluid

DURATEC ER[†]

High temperature fluid loss control additive

PURE CHEK[†]

Fluid loss control additive

PUREMUL[†]

Primary emulsifier for the PURESTAR system

STAR MUL[†]

Secondary emulsifier for the PURESTAR system

PUREWET[†]

Wetting agent for the PURESTAR system

PUREVIS[†]

Organophilic clay viscosifier for the PURESTAR system

PURETHIN[†]

Dispersant for the PURESTAR system

PURESTAR's simplicity requires few additional tests to confirm appropriate internal phase activity and quantity of polyol. Laboratory testing and extensive field experience combine to provide an optimized drilling fluids program. Where necessary, AES Drilling Fluids is available to assist with compliance testing and reporting throughout the drilling process.

Applications

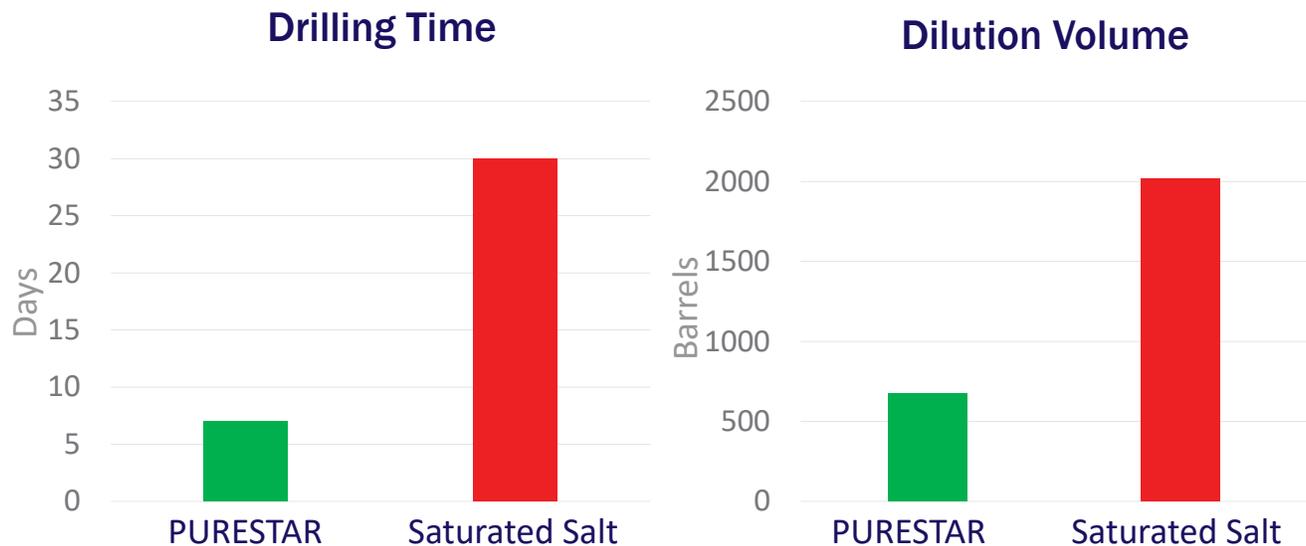
PURESTAR is ideal anywhere invert emulsion performance is desired, but high salinity must be avoided due to regulations, or where there is a desire to further reduce environmental impact. Depending on regulations in the area, PURESTAR may open new disposal options that reduce or eliminate transportation.

In sensitive areas or near populated regions, PURESTAR offers the benefit of dramatically reducing time on location with higher rates of penetration while reducing the potential for environmental impact with improved biodegradation. In some areas, PURESTAR has proven essential to gain favor with landowners concerned about the potential impact of drilling activity on their property.



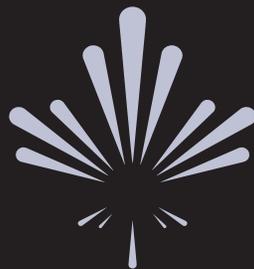
Performance

In Pennsylvania, an operator was using a saturated salt system to drill wells featuring water-sensitive shales. Typical wells required 30 days to drill with significant waste volumes due to dilution requirements. PURESTAR was introduced, reducing average drilling days to 7 and with over 60% less dilution. PURESTAR provided identical performance to a standard synthetic-based system with internal phase chlorides remaining below 4,000 mg/l throughout the well.



PURESTAR reduced dilution volumes and drilling days to minimize impact to the nearby area





AES DRILLING FLUIDS

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Revision 1.00

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