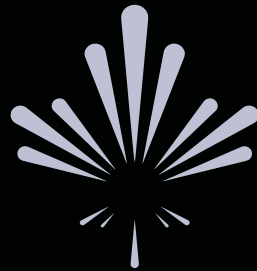


AES VERT

INVERT EMULSION

NEXT GENERATION



AES DRILLING FLUIDS





AES VERT[†]

Invert Emulsion System

Description

AES VERT is a robust, flexible invert emulsion drilling fluid system that provides all of the benefits of invert emulsion with maximum operational efficiency. AES VERT performs across a wide range of densities and temperatures, including long horizontal wells approaching 30,000' measured depth.

AES VERT formulations are modified for performance on specific well applications to minimize cost and maximize the benefits inherent to an invert emulsion system. A key factor in AES VERT performance is its engineered emulsifier and wetting agent packages that provide fluid stability and compatibility with minimal maintenance.

AES MUL X[†] is optimized for use in diesel and similar base fluids to provide a stable emulsion and secondary filtration control. In combination with proper concentrations of AES WA II[†] or AES WA X[†], solids remain oil-wet. AES VERT products are designed to work across a wide range of oil:water ratios and internal phase salinities.

DESCRIPTION

- Invert emulsion drilling fluid system
- Additives optimized for performance and simple maintenance

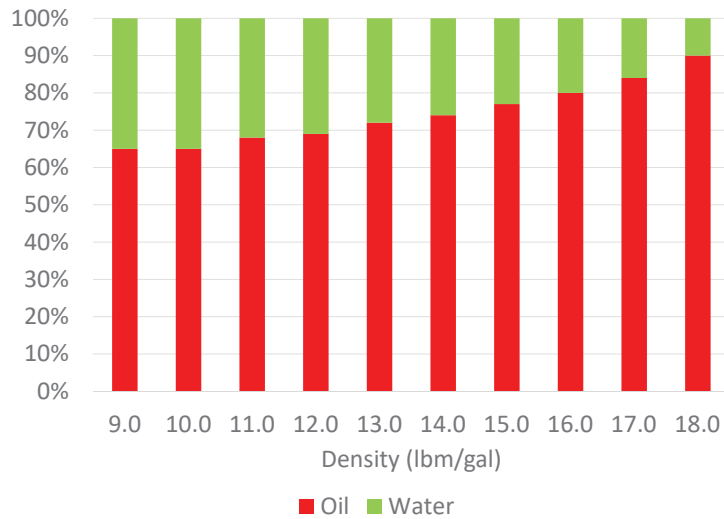
BENEFITS

- Excellent lubricity and rate of penetration
- Flexible to address numerous drilling challenges
- Tolerates formation solids and a wide variety of contaminants for simple maintenance

APPLICATIONS

- Challenging wells where an invert emulsion performance is desired
- Extended reach wells and wells with complex trajectories
- Where diesel or similar base oils are approved for use

Typical Oil:Water Ratio By Density



AES VERT formulations are adjusted for the well conditions, including temperature and density required. Typical oil:water ratios are shown assuming typical internal brine phase salinity and barite weight material.

As with any drilling fluid, successful delivery begins with a properly designed drilling fluids program reviewing offset risks and mitigating procedures. Where necessary, hydraulics simulations and additional laboratory testing is used to determine the operating limitations and plan for contingencies. With proper upfront planning, AES VERT is an ideal solution to simplify some of the most challenging wells.

Applications

AES VERT is ideal for a variety of wells where an invert emulsion system is desired. Compared to water-based systems, AES VERT offers superior inhibition and lubricity to simplify challenging extended reach wells. AES VERT is available at densities ranging below 7.8 lbm/gal to over 20 lbm/gal, although higher densities are possible when needed.

AES VERT provides enhanced lubricity for extended reach wells and complex well trajectories. Its inhibitive properties aid to stabilize shale and maximize rate of penetration. AES VERT resists contamination from formation solids and remains stable at temperatures exceeding 325°F.

AES VERT utilizes diesel or similar base fluids for the oil phase. An optimized solids control program will aid to minimize dilution requirements and lower overall treatment costs.



Performance

From the high pressured formations in the Utica to the Permian Basin, AES VERT continues to deliver on the most challenging wells. Through a properly optimized system with minimal maintenance, AES VERT provides the essential lubricity and inhibition to drill faster and further.

In the Northeast United States, AES VERT is the fluid of choice for extended reach wells, facilitating maximum reservoir contact from pad sites featuring multiple wells. In one record-setting campaign, a 20,362' lateral section was drilled in 5.65 days using a 12.5 lbm/gal AES VERT. In the Permian Basin, AES VERT has delivered hundreds of wells across the wide spectrum of drilling challenges throughout the region.



**AES VERT:
5,000 Wells and
Counting...**





AES DRILLING FLUIDS

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