

# EnerLITE

DIRECT EMULSION  
NEXT GENERATION



**AES DRILLING FLUIDS**





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# EnerLITE<sup>†</sup>

## Direct Emulsion System

### Description

The EnerLITE direct emulsion system provides a simple solution for density control in freshwater or saturated brine environments. Density is controlled through additions of diesel or mineral oil to achieve mud weights well below typical water-continuous systems. NORMUL<sup>†</sup>, a stabilizing surfactant, maintains the dispersion of the oil phase in the water or brine phase.

### DESCRIPTION

- Direct emulsion system
- Density control with diesel or mineral oil non-continuous phase

### BENEFITS

- Precise density control
- Liquid components simplify mixing and maintenance
- Simplified logistics through reduced fluid volumes

### APPLICATIONS

- Saturated salt systems requiring mud weights below 10.0 lbm/gal
- Depleted formations at mud weights below freshwater (8.33 lbm/gal)
- Narrow drilling windows



No Emulsion: In a normal state, oil and water do not mix.



Invert Emulsion (typical OBM): Water droplets are dispersed in an oil-continuous phase



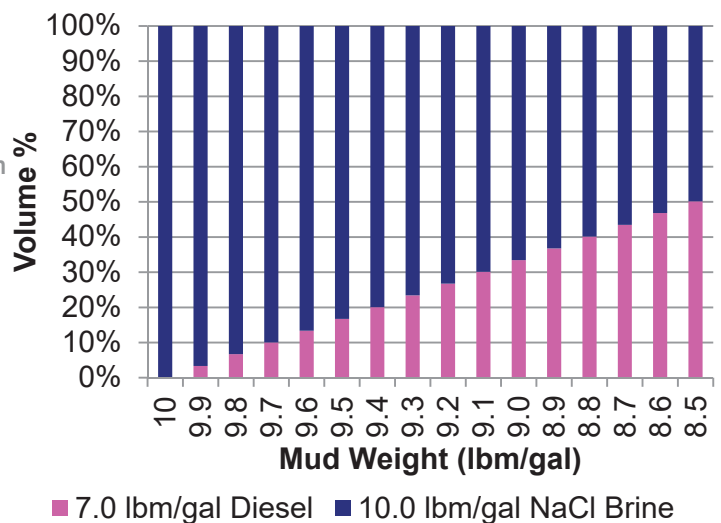
Direct Emulsion: Oil droplets are dispersed in a water-continuous phase.

## Applications

EnerLITE is ideal for depleted formations where a low density is desired as well as drilling salt formations where a saturated salt brine phase is necessary to prevent washout but saturated brine density exceeds the target mud weight.

Typical oil:water ratios range from 10:90 to 50:50 with bottomhole temperatures up to 225°F. Formulations are optimized by application and are engineered beyond these conditions as needed. Test any supplemental additives, such as lubricants or corrosion inhibitors before use.

Mud weight range of saturated brine mixed with diesel at various oil:brine ratios.





Salt cuttings from the shakers indicate complete inhibition with a 9.2 lbm/gal EnerLITE system.

## Performance

In the Permian Basin, EnerLITE was introduced to drill from the surface casing shoe through the salt section all the way through the intermediate section, eliminating a casing string. The challenge was inhibiting salt washout for cement integrity while keeping the density below 9.7 lbm/gal to avoid losses.

EnerLITE provided the necessary salt inhibition using 10 lbm/gal saturated field brine with a typical mud weight of 9.6 lbm/gal using diesel to control the density below the fracture gradient. Drilling performance was excellent, with rates of penetration exceeding expectations. The simplicity of the system reduced trucking requirements. Total savings cited by the client exceeds \$800,000 per well.

**1 Well:  
\$820,000  
Savings**

**Eliminated Casing String  
Reduced Trucking  
Lowered Disposal Volumes**





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Revision 1.01

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