Legend™ LD-2900 Anionic Liquid Friction Reducer

OIL-EXTERNAL EMULSION REDUCES PIPE FRICTION PRESSURES DURING FRACTURING WITH FRESH WATER AND LIGHT BRINES

OVERVIEW
Legend™ LD-2900 anionic liquid friction reducer (FR) is designed to help reduce pipe friction pressures generated during hydraulic fracturing treatments using fresh water and light brines. LD-2900 friction reducer is a single-stream oil external emulsion which is easily inverted with a minimal amount of shear. It is effective at concentrations between 0.25 gallons per 1,000 gallons in fresh water, and has equivalent performance with concentrations up to 1.0 gallons per 1,000 gallons in brines up to 30,000 mg/L. Higher salt and TDS level waters sometimes will require higher loadings of LD-2900 friction reducer, as seen with other FRs.

APPLICATIONS
LD-2900 is a single-stream anionic friction reducer specially designed to rapidly hydrate and maintain friction reduction throughout the treatment. Oxidizing breakers, such as LD-4550, are recommended to break FR polymer chains and aid in fracturing treatment cleanup. Core regained permeability studies showed an increase of 59% on average in regained permeability of fluids containing 1 gal/Mgal FR and 1 lb/Mgal LD-4560 as compared to FR fluids with no breaker.

FEATURES
» Anionic liquid friction reducer
» Oil-external emulsion single-stream friction reducer
» Used with fresh water and light brines
» Compatible with many stimulation chemicals

BENEFITS
» Reduces pipe friction pressure while pumping during hydraulic fracturing
» Effective at low concentrations (0.25 to 1.0 gallons per 1,000 gallons) in fresh water
» Works in brines with TDS up to 30,000 mg/L
» Mixes on-the-fly without the characteristic lumping associated with dry powder materials
» Can be foamed using nitrogen
» Can increase fluid viscosity at higher concentrations (≥ 1 gpt)
At elevated concentrations, LD-2900 friction reducer increases fluid viscosity which helps carry proppant. The ability to carry proppant with FR provides improved logistics as compared to the additional chemicals and/or equipment needed in order to increase fluid viscosity using linear gel.

**Fluid Viscosity at Various Concentrations of LD-2900 FR in Tap Water**

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**COMPATIBILITIES**

LD-2900 friction reducer is compatible with most stimulation chemicals. Because compatibility depends on chemical concentrations, LD-2900 friction reducer should always be tested for compatibility when used with other materials, and particularly, with cationic materials.

**Product Specifications**

<table>
<thead>
<tr>
<th>Form</th>
<th>White emulsion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity</td>
<td>1.0 - 1.1</td>
</tr>
<tr>
<td>Density</td>
<td>8.34 - 9.17 lb/gal</td>
</tr>
<tr>
<td>Pour Point</td>
<td>&lt; -4°F (&lt; -20°C)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt; 248°F (&gt; 120°C)</td>
</tr>
<tr>
<td>Ionic Charge</td>
<td>Anionic</td>
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</tbody>
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For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com/multichem

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