HydraSpeed
ROP-enhancing primary lubricant

Applications
- Highly deviated wells
- Extended-reach wells
- Horizontal wells

Advantages
- Reduced torque and drag on the drillstring
- Compatibility with all types of water-base drilling fluid systems
- Decreased bit and BHA accretion tendency
- Low foaming potential
- 350-degF [176.7-degC] temperature rating

The HydraSpeed® ROP-enhancing primary lubricant can be used in all types of water-base drilling systems when drilling highly deviated, extended-reach, or horizontal wells in onshore applications. The lubricant’s unique nondiesel-base chemistry provides the optimal combination of lubricity, wellbore stabilization, and filtercake enhancement.

Recommended treatment range varies from 1% to 3% by volume. Higher concentrations of the lubricant may be required depending on the desired reduction of the COF, fluid density, or mud system. Pilot testing is recommended to determine the appropriate treatment for each application.

Additional and periodic treatments should be carried out to maintain the concentration in the programmed range. Factors such as ROP, solids-control equipment efficiency, and dilution rates will dictate the treatments and product usage to be applied to the mud system.

The HydraSpeed lubricant is easy to mix and can be added to the mud system through the mixing hopper or directly to the surface of the system in pits that provide good agitation.

Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical appearance</td>
<td>Amber to black liquid</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.91–0.93</td>
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<tr>
<td>Odor</td>
<td>Sweet</td>
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<tr>
<td>Boiling point</td>
<td>&gt;375 degF [190.6 degC]</td>
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<tr>
<td>Flash point (Pensky-Martens closed cup)</td>
<td>&gt;200 degF [93.3 degC]</td>
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Limitations
- The product will grease in mud systems with soluble hardness and high pH levels.
- The product may slightly lower the pH in water-base muds.

Toxicity and handling
Bioassay information is available upon request. Handle as an industrial chemical; wear protective equipment, and observe the precautions as described in the Material Safety Data Sheet (MSDS).

Packaging and storage
The HydraSpeed lubricant is packaged in 55-galUS [208-L] drums, 456-lbm [206.8-kg] containers, and 264-galUS [1,000-L] one-way totes; other pack units are available on request. Keep containers tightly closed in a dry, cool, and well-ventilated place.