LUBE-1722* lubricant is specifically designed to be used in freshwater, seawater and brine applications to decrease the coefficient of friction.

Decreasing the coefficient of friction reduces torque, drag and the potential of differential sticking of the pipe in the wellbore.

Typical Physical Properties
Physical appearance ................................................................. Dark amber liquid
Odor ................................................................................................. Oily
Solubility in water ........................................................................... Soluble
Specific gravity .................................................................................. 0.924
pH (4% solution in H₂O) ................................................................... 6.85
Flash point ...................................................................................... >93°C (> 200° F)

Applications
LUBE-1722 lubricant is a non-sulfur surfactant blend developed for use in drilling fluids and brines to improve the Coefficient of Friction (CoF), thus reducing torque and drag.

LUBE-1722 additive is very effective when long periods of sliding are planned and for high build angle rates to quickly reduce friction and thus improve tool response and longevity.

LUBE-1722 lubricant should be added at 0.5 to 3% by volume depending on the severity of the problem. Pilot testing is strongly recommended to determine any effects on the system properties for all initial applications and large treatments.

LUBE-1722 lubricant should be added slowly directly to the mud system by maintaining a small constant stream wherever there is good agitation. For improved mud properties, premix LUBE-1722 additive into a separate tank and then transfer to main system as needed.

CoF data derived from tests using both the HLT (1) and the LEM (2) devices gave the following results:

<table>
<thead>
<tr>
<th>Fluids</th>
<th>CoF with HLT</th>
<th>CoF with LEM-NT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.34</td>
<td>0.33 – 0.35</td>
</tr>
<tr>
<td>Seawater</td>
<td>0.28 – 0.30</td>
<td>0.28 – 0.30</td>
</tr>
<tr>
<td>Seawater +1% V/V LUBE-1722 lubricant</td>
<td>0.11 – 0.12</td>
<td>0.15 – 0.16</td>
</tr>
<tr>
<td>Seawater +3% V/V LUBE-1722 lubricant</td>
<td>0.11 – 0.12</td>
<td>0.16</td>
</tr>
<tr>
<td>Seawater +1% V/V Lubricant C</td>
<td>0.16</td>
<td>0.24 – 0.26</td>
</tr>
<tr>
<td>Seawater +3% V/V Lubricant C</td>
<td>0.12 – 0.13</td>
<td>0.21 – 0.22</td>
</tr>
<tr>
<td>Seawater +1% V/V Competitor Brine Lubricant</td>
<td>0.16</td>
<td>0.18 – 0.19</td>
</tr>
<tr>
<td>Seawater +3% V/V Competitor Brine Lubricant</td>
<td>0.14 – 0.16</td>
<td>0.16 – 0.18</td>
</tr>
</tbody>
</table>

(1): High Temperature Lubricity Tester
(2): Lubricity Evaluation Monitor
Advantages
- Effective in drilling fluid and brine applications
- Effective, all purpose lubricant for freshwater, seawater, NaCl, KCL and CaCl₂ brine applications
- Decreases Coefficient of Friction which reduces torque and drag
- Reduces the potential for and the severity of differential sticking
- Improves lubricity in sliding operations and high build rates at concentrations as low as 0.5% by volume
- Stable over a wide range of temperature and pressure

Limitations
- Lube-1722 additive is not fully soluble and will contribute to “oil and grease” testing for offshore discharge in brines
- Preferably added through a premix or on top of the mud tanks and not using a mixing hopper

Toxicity and Handling
Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

Packaging and Storage
Lube-1722 lubricant is available in 208 l (55 gal) drums.

Store away from sources of heat or ignition. Keep container closed all the time. Follow safe warehousing practices regarding palletizing, banding, shrink-wrappping and/or stacking.