**KLAFLOC I**

**KLAFLOC I** additive is a liquid-blend, amine shale inhibitor used in polymer-base drilling and drill-in fluids.

Shale inhibition is achieved by preventing water uptake by clays and by providing superior cuttings integrity. **KLAFLOC I** additive effectively inhibits shale from hydrating and minimizes the potential for bit balling. **KLAFLOC I** inhibitor can be added directly to the mud system with no effect on viscosity or filtration properties.

**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical appearance</td>
<td>Clear, yellow-brown liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild amine</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Soluble</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.04</td>
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<tr>
<td>pH (5% solution)</td>
<td>9.7</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;200°F (93°C)</td>
</tr>
</tbody>
</table>

**Applications**

**KLAFLOC I** inhibitor is a liquid additive that acts as a clay hydration suppressant by intercalating and reducing the space between clay platelets so that water molecules cannot penetrate and cause shale swelling. **KLAFLOC I** additive provides outstanding shale inhibition and minimizes dilution rates.

Additionally, the chemistry of **KLAFLOC I** inhibitor provides a buffered pH in the 9.0–10.0 range, eliminating the need for additional caustic soda or potassium hydroxide.

The recommended concentration is 1–4% by volume, depending on shale reactivity and the amount of shale in the interval to be drilled. **KLAFLOC I** inhibitor concentrations should be monitored using a filtrate amine pH-based titration method. Premix dilution rates should be based on the depletion rates and the inhibitor concentration in the premix.

The initial mixture can contain more **KLAFLOC I** additive than specified in the mud program to act as a buffer against high consumption (e.g., 4–5% v/v).

**KLAFLOC I** additive can also be used as a shale inhibitor in gravel pack fluids to maintain wellbore stability during high-rate water packs. The concentration is usually 1–2% for this type of application.

**Advantages**

- Provides excellent shale inhibition and limits cuttings dispersion
- Reduces accretion potential and consequently bit and BHA balling
- Proper concentration of **KLAFLOC I** additive provides a buffered pH in the 9.0-10.0 range, eliminating the need for additions of caustic soda or potassium hydroxide
- Tolerant to common contaminants such as cement, hard water, CO₂, drill solids and crude oil
- Environmentally acceptable for both onshore and offshore applications
- Can be added to the active system without adverse effects on viscosity and filtration properties
**Limitations**
- Can have reservoir formation or formation fluid incompatibilities—test for incompatibilities
- Can precipitate some salts out of brine solutions—test for precipitation
- Cannot be used with aldehyde-base biocides

**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**
Klafloc I additive is packaged in 55-gal (208-L) drums.

Store in a dry, well-ventilated area. Keep container closed. Keep away from heat, sparks and flames. Store away from incompatibles.