EnduraSurf
Anticrete and ROP-enhancing additive

APPLICATIONS
- Onshore unconventional drilling
- ROP enhancement for EnduraDril* inhibitive divalent water-based drilling fluid
- Bit balling preventer for EnduraDril fluid

ADVANTAGES
- Contains surfactant, metal-wetting agents that reduce the potential for bit and BHA balling
- Effectively increases ROP

LIMITATIONS
- Optimum performance may not be realized if the material is not added continuously in sufficient concentration while drilling.

EnduraSurf* anticrete and ROP-enhancing additive is designed for the EnduraDril fluid for unconventional drilling prospects in onshore operations.

For ROP enhancement, 1 to 3 vol% by volume of EnduraSurf additive should be added directly to the mud system at or near the pump suction over one circulation period. Ideally, the initial treatment should be made prior to drilling out the casing shoe or before entering the open hole while the bit and BHA are clean. If required after initial treatment, the product may be continually added or injected into the mud stream at the pump suction while drilling.

The injection rate will vary according to hole size, pump rate, dilution rates, formation type, and ROP. EnduraSurf additive concentrations of up to 3 vol% by volume will not affect drilling fluid properties or environmental toxicity.

Toxicity and handling
Bioassay information is available upon request. Handle as an industrial chemical, wearing protective equipment and observing the precautions as described in the SDS.

Packaging and storage
EnduraSurf additive is generally packaged in 55-galUS [208.2-L] drums and is available in bulk. Keep containers tightly closed in a dry, cool, and well-ventilated place.

Typical Physical Properties

<table>
<thead>
<tr>
<th>Physical appearance</th>
<th>Yellow brown liquid</th>
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<tbody>
<tr>
<td>Odor</td>
<td>Hydrocarbon-like</td>
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<tr>
<td>Specific gravity</td>
<td>0.78 to 0.85</td>
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<tr>
<td>Solubility in water</td>
<td>Insoluble</td>
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<tr>
<td>Flash point</td>
<td>201 degF [94 degC]</td>
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