PLATINUM D-D
Aqueous surface active additive blend

APPLICATIONS
- Onshore and offshore drilling with water-based fluids

ADVANTAGES
- Minimizes bit and BHA balling
- Reduces the surface tension of the liquid phase, helping to drop sand and remove drill solids
- Improves water-wetting action on all solids and reduces the sticking tendency of reactive shale cuttings
- Is effective in all water-based fluids

LIMITATIONS
- The freezing point of PLATINUM D-D* aqueous surface active additive blend is 32 degF [0 degC]. D-D* drilling detergent, a special cold-weather formulation with a freezing point of -29 degF [-20 degC], is also available.

PLATINUM D-D aqueous surface active additive blend has application in all drilling areas and can be used in virtually any water-based drilling fluid. It is used primarily in upperhole drilling to minimize bit and BHA balling, reduce surface tension, and aid in dropping sand and removing drill solids.

The detergent frequently reduces torque and drag, even when no oil is present in the system. Normal treatments range from 0.1 to 0.2 lb/bbl [0.29 to 0.57 kg/m³] and provide satisfactory performance under most conditions. In severe gumbo shale areas, 4 to 6 lb/bbl [11.4 to 17.1 kg/m³] concentrations of detergent are recommended to minimize bit and BHA balling; higher concentrations can cause foaming and require a defoamer. This product is effective in all water-based systems including freshwater, brackish water, seawater, and saturated saltwater fluids. It is designed to reduce the surface tension of all water-based fluid systems and reduce the sticking tendency of water-sensitive shale cuttings.

Toxicity and handling
Bioassay information is available on request. Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the MSDS. Fluids containing high concentrations of PLATINUM D-D blend may not be suitable for discharge into all marine environments.

Packaging and storage

Typical Physical Properties

<table>
<thead>
<tr>
<th>Physical property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Physical appearance</td>
<td>Light red liquid</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.038</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>7.5 to 8.5</td>
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<tr>
<td>Solubility in water</td>
<td>100%</td>
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<tr>
<td>Flash point</td>
<td>&gt;200 degF (&gt;93 degC)</td>
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