RHEFLAT

The RHEFLAT* polymeric rheology modifier is specifically designed to build a flat rheology profile while having minimal viscosity increases when subjected to low-temperature regimes in deepwater applications. RHEFLAT modifier will enhance low-end rheology readings as well as yield points by interaction with solids such as organophilic clay and low-gravity solids. This interaction is temperature dependent - enhancement is greater at high temperatures and weaker at low temperatures.

Typical Physical Properties

Physical appearance.....Dark liquid
Flash point.....>203°F (95°C)

Applications

RHEFLAT rheological modifier was designed to build a rheological profile in a RHELIANT* synthetic-base drilling fluid system while having a minimal viscosity increase when subjected to low temperatures. This property is highly desirable in deepwater drilling applications.

RHEFLAT modifier is a specifically engineered organic polymer that develops viscosity efficiently in a RHELIANT system and maintains a consistent rheological profile for deepwater applications from 40°F to 250°F (4°C to 121°C).

RHEFLAT modifier exhibits an excellent balance between dispersability for the initial viscosity required at the mud plant and tolerance to solids-loading while drilling. This enhances the ability to control ECD management and is a significant improvement compared to drilling fluids using conventional rheological additives.

The required concentration of RHEFLAT rheology modifier is dependent on the synthetic/water ratio and density requirement, as well as the concentrations of the emulsifier package. A system with a higher S/W ratio (90:10) will require more RHEFLAT modifier than one with a lower S/W ratio (70:30). A fluid with a higher density will usually require less RHEFLAT agent compared to a lower-density fluid.

Typical concentrations of RHEFLAT viscosity modifier range from 0.5 to 3.0 lb/bbl (1.4 to 9 kg/m^3).

RHEFLAT agent can be added at the mud plant when building new mud or can be added directly to the mud pits when building volume while drilling. RHEFLAT modifier should not be used in combination with any other rheological additives without pilot testing.

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Advantages

- "Flat" rheology with decreasing temperature for reduced low-temperature gelation and improved ECD control
- Stable to bottomhole temperatures of 250°F (121°C)
- Shear-thinning rheological profile for improved ROP
- Optimized for use in synthetic-base fluids (e.g., isomerized olefins)
- Compatible with conventional invert emulsion drilling fluid additives

Limitations

- RHEFLAT viscosity modifier should not be added to NOVA* or VERSA* systems unless the system contains organophilic clay or oil-wet active drill solids.
- Less effective at temperatures above 250°F (121°C)
- Should not be used in combination with any other polymeric rheological additives without first pilot testing

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 Material Safety Data Sheet (MSDS).

Packaging and Storage

RHEFLAT viscosity modifier is packaged in 55-gal (208-L) steel drums and 550-gal (2131-L) totes.

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

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