

DUO-VIS biopolymer viscosifier

Increases viscosity in water-based drilling fluids

Applications

- Increases viscosity for cuttings transport and suspension
- Performs effectively in all water-based fluids, including highly weighted and low-solids systems, freshwater, seawater, salt, and heavy-brine fluid systems

How it improves wells

DUO-VIS* biopolymer viscosifier provides viscosity and weight material suspension for all water-based mud systems. It delivers an optimized rheological profile with elevated low-shear-rate viscosity and highly shear-thinning characteristics. These characteristics frequently result in fluids with inverted flow properties—i.e., with the yield point greater than the plastic viscosity. Shear-thinning fluids have low effective viscosities at the high shear rates encountered inside the drillstring and at the bit. This low effective viscosity generates minimal pressure losses and standpipe pressures, enabling optimized hydraulics and increased ROP. Conversely, for the low shear rates experienced in the annulus, DUO-VIS viscosifier enables the fluid to have a high effective viscosity that adequately suspends cuttings and cleaning of the well.

How it works

DUO-VIS viscosifier should be added slowly through the hopper to prevent lumping and minimize waste. It should be added at the rate of one 25-lbm sack every 7 min. The time required for the product to yield its ultimate viscosity depends on salinity, temperature, and shear.

The addition of thermal stabilizers and associated additives improves temperature stability in fluids from 250 to 300 degF [121 to 148 degC].

Advantages

- Minimum frictional pressure losses for additional hydraulic horsepower at the bit and low, high shear-rate viscosity for maximum ROP
- Viscous laminar flow in the annulus for improved wellbore stability with maximum hole-cleaning and suspension activity
- Ease of mixing

Limitations

- Trivalent ions such as chromium and iron can cause biopolymer precipitation and loss of viscosity or crosslinking
- Intolerant of high-pH or high-calcium-ion conditions
- DUO-VIS viscosifiers should be pretreated with either sodium bicarbonate or sodium acid pyrophosphate and possibly citric acid prior to drilling cement
- Subject to bacterial degradation; a biocide should be used to prevent fermentation
- Slightly anionic nature of DUO-VIS viscosifier requires special mixing procedures when it is combined with cationic materials

Toxicity and handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the safety datasheet.

Packaging and storage

DUO-VIS viscosifier is packaged in 25-lbm [11.3-kg] or 55.1-lbm [25-kg], plastic-lined, multiwall, paper sacks.

Store at room temperature in a dry, well-ventilated area. Keep in original container. Keep container closed. Store away from incompatibles.

Typical Physical Properties

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| Physical appearance | Cream-to-tan powder |
| Specific gravity | 1.4–1.6 |

All specifications are subject to change without notice.