

DUO-VIS L

DUO-VIS* L biopolymer is a high yield, non-clarified xanthan gum which is pre-dispersed in a water-miscible, oil-free and clay-free carrier fluid. The high-molecular-weight DUO-VIS L xanthan gum biopolymer is the primary economical shear-thinning viscosifier for displacement spacers to provide solids transport, solids suspension, friction reduction, and improved displacement efficiency. DUO-VIS L viscosifier produces elevated low-shear-rate viscosity (LSRV) and high, but fragile, gel strengths. These properties provide superior hole cleaning and suspension, improved hydraulics, reduced torque and drag, and assist in minimizing filtrate invasion. The water-miscible carrier fluid of DUO-VIS L additive assists in dispersion and helps prevent lumps or “fisheyes” so that the polymer rapidly and smoothly viscosifies without the need for high shear. DUO-VIS L product will perform effectively in most water-base fluids from low-solids to highly weighted systems. This includes fresh water, salt, and some heavy-brine systems.

Typical Physical Properties

Physical appearance.....	Cream-to-tan colored fluid suspension
Odor	Slight
Solubility in water	Soluble
Specific gravity	1.104
Flash point.....	160°F (71°C)
Boiling point	>300°F (149°C)

Applications

DUO-VIS L viscosifier is primarily used for displacement spacers where the biopolymer will not be in contact with the formation. Because the non-clarified xanthan gum is pre-dispersed in a water-miscible carrier fluid, it provides the unique rheology profile much more readily than dry material. This is especially critical when the proper mixing equipment is not available. DUO-VIS L additive works to provide an optimized rheological profile with elevated LSRV and highly shear-thinning characteristics with low “n” values. These characteristics frequently result in fluids with inverted flow properties, *i.e.*, the yield point being greater than the plastic viscosity. Due to the low-shear rates experienced in the annulus, DUO-VIS L agent enables the fluid to have a high effective viscosity for adequate cleaning of the wellbore and suspending solids. It is used at concentrations of 0.25 to 0.5 gal/bbl (5.95 to 11.9 L/m³). The concentration depends on the desired viscosity and if the DUO-VIS L agent is being used for the original makeup or for maintenance. The recommended levels for special application such as pills and milling operations are 0.75 to 1.0 gal/bbl (17.85 to 23.80 L/m³). DUO-VIS L additive should be added slowly through a hopper or, under special conditions, directly poured into the agitated fluid. Although the product has been specially formulated to prevent separation, should any settling occur in the container, agitate the contents before adding to the system.



Advantages

- Easily dispersible with rapid viscosity development without high shear; small treatments produce significant results
- Shear-thinning rheological profile for improved hydraulics
- Minimum frictional pressure losses for additional hydraulic horsepower
- Reduces torque and drag
- Assists in minimizing filtrate invasion
- Viscous laminar flow in the annulus for improved wellbore stability with maximum hole-cleaning and suspension capacity
- Lower toxicity product and more environmentally acceptable than oil-base carrier fluids
- Easy to mix

Limitations

- Trivalent ions such as chromium and iron may cause biopolymer precipitation and loss of viscosity or cross linking.
- Not tolerant of high pH or high calcium-ion conditions
- DUO-VIS L systems should be pretreated with either sodium bicarbonate or SAPP and possibly citric acid prior to drilling cement.
- Subject to bacterial degradation, a biocide should be used to prevent fermentation under certain conditions.
- The slightly anionic nature of the DUO-VIS L viscosifier requires special mixing procedures when mixed with cationic materials.

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

DUO-VIS L product is packaged in 5-gal (18.9-L) plastic cans.

Store in a well-ventilated area, away from sources of heat or ignition. Keep containers sealed; do not allow water to contaminate DUO-VIS L biopolymer. Use all open containers immediately.

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