

TRAMFLOC, INC.

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Technical Information Bulletin

TRAMFLOC® 1018 VISCOSITY REDUCER FOR FRAC FLUIDS

Product Description

Tramfloc® 1018 is the sodium salt of a polycarboxylic acid and is supplied as a granular substance miscible with water in all proportions. This formulation is a very highly charged anionic polymer with viscosity between 100–400 cps. This formulation's function is fluid loss reduction and shale stabilization while increasing lubricity in the borehole

Uses

Tramfloc® 1018 is a proprietary, highly active product specifically developed to effectively disperse solids and lower the rheology of a wide range of oil and synthetic water-based drilling fluids, work-over fluids and completion fluids of any salinity. Product shows excellent performance at Ca levels to 500 ppm. While somewhat higher dosages may be required for higher Ca levels.. Tramfloc® 1018 is effective at very low concentrations and has a strong thinning effect on fluids that exhibit high rheological properties due to solids content. Tramfloc® 1018 will produce a substantial reduction in rheology at low concentrations and are effective at temperatures up to and above 350°F.

Applications

The recommended concentrations of Tramfloc® 1018 are dependent upon concentration and type of solids and the severity of the conditions encountered, however, an application of 0.50-3.0 lbs/bbl will be appropriate for most systems. As with all additives to drilling fluid systems, pilot testing should be performed prior to application to establish product compatibility and optimum concentration. The addition of Tramfloc® 10 to a drilling fluid will generally produce a decrease in the general rheology of the fluid, reducing the viscosity, yield point, gel strengths and low shear rheology. The higher lubricity produced by these formulations reduces drilling torque. This will help maintain borehole integrity in both horizontal and vertical holes.

Advantages

Tramfloc® 1018 helps control fluid losses, promotes fragile gels, inhibits hydrateable, swelling shales, increases resistance of clay muds to contamination, non-fermenting, eliminating preservatives, produces thin, slick, tough filter cake, environmentally suitable, retards drilled solids build-up by preventing cutting disintegration, reduces friction and can reduce equivalent circulating density.

Feeding and Dosage

Tramfloc® 1018 should be fed as a dilute solution to the drilling process. Suggested dosages are as follows.

| <u>Application</u> | <u>Dosage</u> |
|-----------------------------------|---------------|
| Fluid-loss control | 0.10-3.0 ppb |
| Inhibition/Encapsulation | 0.50-3.0 ppb |
| Improved filter cake | 0.25-0.75 ppb |
| Stabilized rheology | 0.50-1.0 ppb |
| Reduction of stuck pipe frequency | 0.50-0.75 ppb |
| Improved hole cleaning | 0.50-3.0 ppb |

Packaging and Storage

Tramfloc®1018 is available in 25 kgs bags and bulk sacks. Storage up to one year should be in a dry place with temperatures between 0-35° C.

Safety and Health

Spills of this product are extremely slippery. Precautions should be taken to prevent them from entering lakes or streams. The product can be flushed with copious amounts of water and disposed of according to local regulations.

Additional Specifications

| | |
|----------------------------------|------------------------------|
| Form: | Granular solid |
| Color: | White to Yellow |
| Approx. bulk density: | 0.45 – 0.65 |
| Average non-volatile solids (%): | > = 88 |
| pH: | 6 – 9 @ 40% aqueous solution |

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