Poly-Sal

POLY-SAL starch is a high-quality, preserved polysaccharide used to provide filtration control and rheology stability in all types of water-base drilling fluids. This non-ionic, natural polymer is effective in all make-up waters, including high-salinity and high-hardness brines such as NaCl, KCl, MgCl2, CaCl2 and complex brines.

Typical Physical Properties

Physical appearance	Off-white powder
Specific gravity	1.5
pH (1% solution)	6 - 8
Solubility in water	Soluble
Bulk density	481 kg/m3

Applications

POLY-SAL is designed to reduce fluid loss and increase viscosity in all water-base muds. It is especially applicable and economical in saturated salt and brine systems where other products are not effective. This includes clear brines used during workover and completion operations.

POLY-SAL encapsulates particles with a protective polymer coating to function as a protective colloid.

It is effective as a drilling fluid stabilizer, as well as a fluid-loss reducer, when evaporite formations such as anhydrite or salt must be drilled and when drilling hydratable shales.

POLY-SAL contains a preservative and does not normally require a biocide. Normal treatments range from 2 to 6 lb/bbl (5.7 to 17.1 kg/m3) POLY-SAL, depending on the makeup-water chemistry and desired fluid loss. Treatments of 2 to 3 lb/bbl (5.7 to 8.6 kg/m3) usually reduce API fluid loss values to the 6 to 8 cc range in freshwater mud systems.

Higher concentrations are required for comparable results in brine systems. A minimum concentration of POLY-SAL is necessary before a significant reduction in fluid loss will be observed.

POLY-SAL is sensitive to high solids, and it functions best in clean, low solids mud systems. For this reason, the drill solids concentration should be controlled at optimum values.

Initial treatments may cause a viscosity “hump” in high-solids or non-dispersed systems; subsequent additions will reduce this viscosity “hump” in clean, low-solids non-dispersed systems. POLY-SAL should not be added to high-solids systems which already have rheology problems. The reactive solids concentration should be reduced prior to adding POLY-SAL.

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Advantages

- An economical, one-sack, preserved product for filtration control and viscosity
- Effective in a wide range of makeup waters, including high-salinity, high-hardness brines
- Functions in NaCl, KCl, MgCl2, CaCl2 and complex brines
- Performs satisfactorily over a wide pH range
- Minimizes filtration damage to production zones
- Pregelatinized for maximum effectiveness
- Provides wellbore stability through filtration control and encapsulation
- A preserved product which does not require a biocide

Limitations

- POLY-SAL rapidly degrades when exposed to temperatures in excess of 275°F (135°C)
- Less effective in high pH / high calcium, saturated brine systems

Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

Packaging and Storage

POLY-SAL is packaged in 50-lb (22.7-kg) and 25 kg, multi-wall, paper sacks.
Store in a dry location away from sources of heat or ignition and minimize dust.

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