

POLYPAC UL

POLYPAC* UL polyanionic cellulose (PAC) is a high-quality, water-soluble polymer designed to control fluid loss, and because it is an “ultra-low” (UL) additive, it causes a minimal increase in viscosity in water-base muds.

Typical Physical Properties

Physical appearance	White, free-flowing powder
Specific gravity	1.5-1.6
pH (1% solution)	6.5-8.0

Applications

POLYPAC UL additive controls fluid loss in freshwater, seawater, KCl and salt muds. It forms a thin, resilient, low-permeability filter cake which minimizes the potential for differential sticking and the invasion of filtrate and mud solids into permeable formations. POLYPAC UL additive resists bacterial attack and does not require a biocide or preservative. It is effective in low concentrations, with the normal concentration to control fluid loss ranging from 0.25 to 1 lb/bbl (0.71 to 2.85 kg/m³). In saltwater and PAC-polymer systems, higher concentrations are required for encapsulation, with normal concentrations ranging from 1 to 3 lb/bbl (2.85 to 8.6 kg/m³).

POLYPAC UL additive is an “ultra-low” additive which generates less viscosity than regular POLYPAC additive. The viscosity generated depends on the solids concentration, salinity and makeup water chemistry.

POLYPAC UL additive is an anionic polymer which attaches to, and encapsulates exposed shales and drill cuttings. This protective polymer “envelope” inhibits the dispersion of shale cuttings and restricts fluid interactions with exposed shales.

In saturated salt systems, POLYPAC UL additive tends to work significantly better than regular-viscosity PAC materials. For difficult filtration-control fluids, a combination of UL and regular-viscosity PAC products is generally more effective.

Advantages

- Effective in low concentrations to control fluid loss
- Produces minimal viscosity increase
- Encapsulates shale particles to inhibit swelling and dispersion
- Resists bacterial attack; no biocide or preservative is necessary
- Functions over a wide range of salinity and hardness
- Effective over a wide range of pH levels
- Has application in all water-base muds, ranging from low-solids, non-dispersed polymer systems to high-density, dispersed systems; compatible with all common mud-treating additives
- Excellent environmental acceptability

Limitations

- Circulating temperature stability is approximately 300°F (149°C)
- Effective in systems with a total hardness <1,000 mg/L (as calcium) but can be precipitated in the combined presence of high hardness and high pH