Kla-Cap* additive is a low-molecular-weight, dry acrylamide copolymer designed to provide cuttings encapsulation and clay dispersion inhibition.

The Kla-Cap encapsulator provides minimal viscosity contribution, and can enhance filtration properties. It is designed for use in fluids based on fresh-and saline-water environments. The Kla-Cap additive is an effective encapsulation polymer in highly-inhibitive water-base drilling fluids.

**Typical Physical Properties**

Physical appearance ................................................................. Granular white powder
Odor ........................................................................................................... Odorless
pH (0.05% solution) .................................................................................. 2.5-4.5

**Applications**

The Kla-Cap additive provides excellent cuttings encapsulation by adsorbing onto the clay surfaces and forming a protective film that prevents cuttings from sticking to each other or to the shaker screens. The Kla-Cap encapsulator limits dilution rates and low-gravity solids loading by preventing clay solids from dispersing into the mud system. The product is effective in a wide range of base brines, including seawater, saturated NaCl, and CaCl₂. Typical concentrations of the Kla-Cap additive range between 1.5 to 3.0 lb/bbl (4.28 to 8.59 kg/m³).

Due to the low molecular weight of this polymer, the mixing process requires less shear. The resulting fluid will pass through fine shaker screens without blinding. The Kla-Cap agent should be added to the mud system via premix to ensure proper hydration and shearing but can be mixed directly to the active system if needed. Best results are obtained when mixing the polymer through a powerful hopper and then passing once through a shear unit.

The Kla-Cap additive concentration should be monitored using a modified “ammonia extraction” method. It is important to use a calibration curve for the Kla-Cap additive to determine the amount of total encapsulating polymer. Detailed instructions regarding the Kla-Cap testing procedure are available from the Houston Technical Services department.

Dilution rates with premix should be based on the depletion rate of the Kla-Cap encapsulator. Kla-Cap premix concentrations can range as high as 4 to 5 lb/bbl (11.4 to 14.3 kg/m³), depending on the depletion rates.

The Kla-Cap additive will undergo chemical hydrolysis in the presence of high pH, therefore the pH is to be maintained at less than 10. Add citric acid if necessary to reduce pH below 10.

**Advantages**

- Provides excellent cuttings encapsulation and limits cuttings dispersion
- Enhances removal of drill solids by reducing dispersion tendencies
- Minimal contribution to the viscosity of the system
- Easily added to the active system through a premix
- Provides improved shale stabilization
- Possesses significantly lower screen blinding potential, compared to higher molecular weight encapsulators

**Limitations**

- Fluid systems containing the Kla-Cap encapsulator should be pretreated with citric acid before drilling cement to avoid chemical hydrolysis
- Should not be used in reservoir hole sections in which an acid stimulation treatment may be used
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
The Kla-Cap additive is packaged in 25-kg (55.1-lb), multi-wall, paper sacks.

Store in a dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.