HYDRACAP

ENCAPSULATING ADDITIVE

APPLICATIONS

- Potassium chloride, sodium chloride, or freshwater drilling fluids

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
- For use in KCl, NaCl, or freshwater
- Easily added to the active system through a premix
- Provides improved shale stabilization
- Significantly lower screen-blinding potential compared with higher- molecular-weight encapsulators

LIMITATIONS

- For high-density fluids, concentrations of HydraCap additive might require adjustments to prevent undesirable effects on viscosities.
- Pilot testing is highly recommended.
- Magnesium concentration above 2,700 mg/L might diminish its performance.

The HydraCap* encapsulating additive is a low-molecular-weight, the dry acrylic acid copolymer that provides excellent cuttings encapsulation by adsorbing onto the clay surfaces and forming a protective film that prevents cuttings from sticking to each other or the shaker screens. It limits dilution rates and low-gravity-solids loading by preventing clay solid from dispersing into the mud system. This product is effective in a wide range of base brines, including seawater, saturated sodium chloride, and potassium chloride; however, it should not be used in calcium brines. Typical concentrations of the HydraCap additive range between 0.5 and 4 lbm/bbl [1.4 and 11.4 kg/m3].

Because of the polymer's low molecular weight, the mixing process requires less shear compared with polymers with higher molecular weights. The resulting fluid will pass through fine shaker screens without blinding. HydraCap additive should be added to the mud system via premix to ensure proper hydration and shearing but can be mixed directly into the active system if needed.

HydraCap additive concentration should be calculated by mass balance assuming an approximate depletion rate and observing the quality of the cuttings at the shakers. Cuttings that appear dry inside but ball or stick to shakers may indicate low polymeric encapsulator levels. Conventional ammonia extraction testing cannot be used to determine residual concentration because HydraCap does not produce ammonia when exposed to elevated pH levels.

Dilution rates with premix should be based on the depletion rate of the HydraCap additive. Premix concentrations can range as high as 5 lbm/bbl [14.3 kg/m3] depending on the depletion rates.

Maintain a pH below 10 for optimal performance where applicable. HydraCap additive does not contain acrylamide; therefore, hydrolysis with ammonia release is not an issue.

TOXICITY AND HANDLING

Bioassay information is available upon request.
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

PACKAGING AND STORAGE

HydraCap additive is packaged in 25-kg (55.1-lb) multi-wall, paper sacks. Keep away from flames from open flames, hot surfaces, and sources of ignition. Keep containers tightly closed in a dry, cool, and well-ventilated place.

TYPICAL PHYSICAL PROPERTIES	
Physical appearance	White micropowder
Bulk density	0.6–0.9
pH (at 5 g/L, dilution)	5–8
Solubility in water	Soluble