



REDI-COAT

ENCAPSULATING/FILMING POLYMER, PHPA

DESCRIPTION

REDI-COAT is a unique polymer formulation developed by Messina as the key to a new level of performance in waterbase drilling fluids. REDI-COAT encapsulates drilled cuttings of clay and shale, and leaves a bonded protective film on exposed shales to prevent shale hydration, cleavage, sloughing, and dispersion. REDI-COAT also serves other important functions in a variety of drilling fluids. REDI-COAT is available in liquid and dry forms.

APPLICATION

In Messina REDI-COAT fluid systems, REDI-COAT is the primary ingredient, providing cuttings encapsulation, shale filming/inhibition, flocculation of drilled solids, viscosity and lubricity. REDI-COAT is functional as an encapsulator/filmer in fresh, sea, and salt systems, but viscosity development will vary with salinity, hardness, and solids concentration.

REDI-COAT's strong attraction to clays and shales coats the reactive surfaces of cuttings and exposed formations with a tenacious polymer film that blocks the absorption or imbibition of water from the drilling fluid. This encapsulating/filming action stabilizes clay and shale formations, or, more precisely, prevents their destabilization. The same mechanism coats clay and shale cuttings to prevent their disintegration and dispersion into the mud as they are carried up the annulus from bit to surface. Thus REDI-COAT allows the drilling of a gauge hole while keeping the drilling fluid clean to maximize drill rate.

The shear-thinning, non-Newtonian flow behavior of REDI-COAT fluids also helps maximize drill rate by exhibiting low bit viscosity and high lifting capacity at the lower shear rates which occur in the annulus.

REDI-COAT's functionality can sometimes be enhanced by the addition of selected organic or inorganic salts which act ionically to prevent clay swelling. "Relative abundance" principals are also applied successfully in REDI-COAT fluids, keeping sodium content at a minimum in the fluid, while maintaining higher relative availability of potassium, ammonium, or other compounds which contribute to clay stabilization.

For efficient drilling of stable, large-diameter surface holes at minimum cost, REDI-COAT-L (liquid) is added to fresh or sea water to form viscous pills which are used intermittently to sweep the hole while drilling with water. The product can be poured directly into the open end of the drill pipe during connections, and pumped through the bit as a concentrated polymer slug. Upon mixing with water and solids downhole, a viscous sweep is formed which carries cuttings to the surface and leaves a stabilizing film on the wellbore. In sea water, the presence of drilled solids is the key to viscosity development.

Other uses of REDI-COAT include bentonite extension, flowline flocculation of drilled solids, and friction reduction in clear water drilling.



RECOMMENDED TREATMENT

Dosage and mode of addition will vary with specific application and with water hardness and salinity. A Messina technical service representative should be consulted for detailed recommendations, but the following general guidelines are offered:

As encapsulator/filmer, 0.3-1.0 ppb ($0.86-2.85 \text{ kg/m}^3$).

As viscosifier, 0.5-2.0 ppb ($1.43-5.70 \text{ kg/m}^3$).

As bentonite extender, 0.02-0.10 ppb ($0.06-0.29 \text{ kg/m}^3$).

As flowline flocculant, extremely low and variable, diluted 200:1 in water and added on demand basis upstream from shale shaker.

PACKAGING

REDI-COAT-L is available in plastic pails of 42 lb and 25 kg net weight, and in steel drums of 210 kg net weight.

REDI-COAT-S granular solid is available in heavy-duty sacks of 25 kg and 50 lb net weight.

REDI-COAT is a Messina trademark

