DELTA-P™

RECOMMENDATIONS

Delta-P™ can be used as a seepage loss reducing additive either as a pretreatment at 2-8 lb/bbl or as a slug treatment. Slugs, pills, or sweeps can be prepared by mixing high concentrations (10-50 lb/bbl) of Delta-P™ in slugging tanks and sweeping holes on a regular basis.

Delta-P™ is recommended as a seepage loss additive in most types of water based drilling fluids. Delta-P™ can also be used as a seepage loss reducing additive in oil based and synthetic based mud systems. Pilot tests should be run to determine the effect on a specific oil
mud system. Delta-P™ is designed to seal low pressure, depleted sands and microfractured shales. It is not recommended where gross lost circulation occurs. It can be used advantageously in conjunction with more conventional LCM products. Delta-P™ is biodegradable and nontoxic. Where necessary, suitable biocides can be used to extentd the effective life of a seal.

Delta-P™ has little effect on rheology of the muds when used at recommended concentrations. Highly concentrated pills can develop excessive viscosity. Pumpable concentrations can be determined by pilot testing.

Delta-P™ is more than 35% soluble in standard 15% hydrochloric acid and above 90% soluble in strongly alkaline solutions. Due to its solubility in acid, biological degradation and limited thermal stability, Delta-P™ should exhibit little formation damage. Delta-P™ can be used effectively in brine based spotting fluids during workover and drilling operations when formulated with other polymers.

Delta-P™ is compatible with the major workover/ completion fluids and additives.

Delta-P™ can be used to reduce the sticking tendency of drill pipe exposed to low pressure depleted sands. It is highly effective in lowering the permeability of wall cake or porous formations.

Where higher temperatures are encountered, Ven-Fyber 201™ should be used. Ven-Fyber 201™ is more resistant to both thermal and biological degradation.

GENERAL INFORMATION

High differential pressures across permeable sands can cause severe problems during drilling operations. Some of the more severe and costly problems are stuck pipe, torque and drag and loss of whole mud. For nearly four (4) decades our team has supplied the oil & gas industry with Ven-Fyber 201™, a product designed specifically for problems related to highly permeable sands. For the last 30 years we have offered a low cost/high performance companion product called Delta-P™. It has been engineered primarily to control seepage loss in water base fluids.

However, it can be used in oil muds. Delta-P™ is a polysaccharide complex designed to reduce seepage loss in low pressure, depleted sands during drilling, workover and completion operations. Delta-P™ is a low cost alternative where continuous seepage control is required but usage conditions are relatively short term, hole temperatures are mild and low to moderate permeabilities exist. Where long-term exposure, high temperatures, and weighted systems (specifically
oil muds) are required, Ven-Fyber 201™ should be considered.

PACKAGING

Delta-P™ is packaged in Twenty Five (25) lb multi-wall paper bags with an internal polyethylene liner.

PHYSICAL PROPERTIES

Composition	:	Polysaccharide Complex
Form	:	Fibrous powder
Color	:	Varies - light tan to brown
Bulk Density,	:	Compacted 38.9
lb/cu ft	:	Uncompacted 26.7
Moisture, %	:	12% max
Solubility	:	Limited solubility in water and oil
pH, 5% in Water	:	6.0—9.0
Particle Size (Dry)	:	50% passes a -60 mesh

TYPICAL RESULTS

COMPOSITION	SEEPAGE CONTROL IN 10.5 LB/GAL LIGNOSULFONATE MUD(A)(B)				
Base Mud, bbl		1	1	1	1
Delta-P™, lb	0	5	10	15	
PROPERTIES					
Plastic Viscosity, cpDelta-P™, lb		29	43	55	70
Yield Point, lb/100 sq.ft. Sand		7	14	21	32
Pack, 16/30 mesh, ml(B)		Blow-Out	47	11	3
Shut-Off Time, sec.		No Control	9	5	3

(A) Detailed test data available on request.
(B) Tom Brookey, Larry Edwards, Jack Cowan, "Slugging Technique Saves Oil Mud Costs." World Oil, June, 1982, pp. 265-276.

PRECAUTIONS

See the Safety Data Sheet for more detailed information concerning storage, handling, transportation, disposal and safety requirements.

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