millennium energy
Drilling Fluids & Chemicals

PRODUCTS TECHNICAL DATA

1. PRODUCT NAME : OBM filtration control agents, ME-TROL FL-275

COMPOSITION / INFORMATION ON INGREDIENTS AND APPLICATIONS

ME-TROL FL-275 OBM filtration control agents is a modified asphalt and resin compound. Use in temperature-stable invert-emulsion OBM drilling fluid.

ME-TROL FL-275 reduces both API and HPHT fluid loss in all oil-based muds.It helps improve the overall emulsion stability, thermal stability, and suspension characteristics of most oil-based formulations. It can inhibit the dispersion of drilling cuttings, control HTHP filtration, produce thin and dense mud cake, maintain low shear rate under HTHP, reduce the transmission of pore pressure and seal micro fractures and low porosity sand. Keep formation integrity and develop effective filter cake. Because the decomposition temperature of the product is as high as 275 °F, highly-dispersive and fractured shales with sloughing tendencies, hard, brittle shales in which moderate dispersion exhibits severe sloughing, a high-strength adsorption membrane is formed on the surface of mud cake. The plugging principle is used to reduce the permeability of mud cake, improve the quality of mud cake and reduce the filtration loss..

Typical concentrations range from 5.7 to 23 kg/m3, High-temperature situations and special applications require higher concentrations, as much as 29 kg/m3.

When used in the initial formulation, it is recommended to add ME-TROL FL-275 last. Pilot testing is advised to determine the necessary treatment to achieve the desired results and to observe the change in mud properties.

The softening point of ME-TROL FL-275 makes it suitable for use over a wide range of temperatures. It is often used to seal low-pressure and underbalance formation.

Mechanical & Chemical Properties:

Appearance : Black powder PH : >11.7, Gravity : 1.05-1.07
Temperature range 250 degF to 300 degF
Ash content < 5%
The recommended dosage is 5.7 to 23 kg/m3, by the temperature used.

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Application Case

ME-TROL FL-275 , OBM filtration control agents

Operator :CNPC Tarim Oilfield Branch

Location: Tarim Basin, Takla Makan Desert Tazhong Block #11 Well NO.11-2H,Xinjiang, China

The well No11-2H was reached to horizontal well in depth of 5013m,and a horizontal displacement well of 400m length, due to low formation pressure it easily cause water sensitivity etc reservoir damaging problem.

OPERATOR determined to develop the oil-based under-balanced drilling fluid: Low density All Oil based

Drilling fluid system is mainly used to solve the problems of low porosity and low permeability, low formation pressure factor, water sensitive related reservoir protection and deep well underbalance ,etc problems.

Field drilling fluid density was controlled at 0.89 ~ 0.91 g/cm3 to meet the requirements of under-balanced horizontal Wells

Through a large number of laboratory tests, the appropriate typical all-oil-base drilling fluid formula is optimized as follows:

2 # diesel + 2% CaO+ 3% organic Clay + 2% Viscosifier + 1% Emulsifier + 2% synthetic resin fluid loss agent + 2% ME-TROL FL-275 + 1% wetting agent + 3% Clay stabilizer + Lighter agent or weighting agent

In the process of drilling well NO.11-2H horizontal well, ME-TROL FL-275 added drilling fluid system during the entire drilling process, the performance changed little. With the gradual lengthening of the horizontal section, the viscosity and dynamic plastic ratio of drilling fluid were gradually increased, and the dynamic plastic ratio was maintained between 0.44 and 0.78 PA / (MPA · s),. During drifting, in order to further enhance the carrying and plugging performance of the mud, the funnel viscosity of the mud was adjusted to 80s, and the HTHP filtration loss was reduced to less than 6ml. The drilling cuttings return normally during drilling, which indicates that the oil-based mud can meet the carrying requirements of horizontal wells, avoid the formation of cuttings bed, have good rheological property, electrical stability and thermal stability in the process, the drilling process was smooth, and the density was controllable

In the drilling process, the rotary current is 350 ~ 400mA and the friction resistance was 4 ~ 6t. The average drilling speed in the 6 3/4" section was 25min/m, the maximum drilling time was 152min/m for directional drilling, and the minimum drilling time was 6min/m for compound drilling.From the perspective of the whole well construction process.

In the drilling process,API filtration loss and high temperature and high pressure filtration loss were controlled below 3mL and below 8mL by adding ME-TROL FL-275.