

Humalite

Description:

Humalite. It is a naturally occurring raw material found adjacent to the sub-bituminous coal fields of, Canada.

Humalite is a soft, brown coal-like material, which has many similarities to leonardite but is very rich in humified organic matter and low in ash, and other impurities. This ore contains some of the highest quality humic material that is found in the world today.

Characteristics:

Humalite is developed by treating humalite with caustic material to enhance its solubility in water. Humalite is used in water-based muds as a thinner (dispersant), and a secondary filtration control agent. Humalite is a much more stable thinner and filtration control additive at high temperatures than are the lignosulfonates

Physical Properties:

Humic Acid	>80%
Ash	< 20%
Moisture	28 – 30 %
pH	9.6
Appearance	Brownish – Black powder
Bulk Density	92.7 lbs./ft ³ (1,500 kg/m ³)
Solubility	Soluble in water

Screen Analysis (% by weight)

Sieve size` Tyler	% Retained
10	7%
40	45%
60	28%
100	5%
200	9%
Pan	6%

Application:

Concentrations vary from 3.0 - 30.0 kg/m³ (1.05 – 10.5 ppb) depending upon the solids content of the system.

Mix directly through the mud hopper. It is advisable to use a dust mask and eye protection while mixing all powdered products.

Packaging:

50 lb. Bags (up to 50 bags per pallet), 2000 lb.

TITLE – Flexible Drilling Fluid Formulation and Application.

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PARTIAL OBJECTIVE – To use Humalite and other sub-bituminous coal derivatives as an additive used in drilling fluid. The emphasis was on reduction of viscosity and filtration rate.

FORMULATION DESIGN

Formulation	Based Material	Additives to be Investigated
1	Water Bentonite Defloculant Cellulose Potassium salt/Hydroxide Barite	Methyl glucoside / sulfonated asphalt
2	Water Bentonite Xanthan gum Lignosulfonate Lignite Caustic soda Barite	Methyl glucoside / sulfonated asphalt Complex Esters
3	Water Sodium chloride Polymer Caustic Polyglycerol Barite	Humalite Lignite

RESULTS AND DISCUSSION

Colloidal materials such as clay, starch, and cellulosic derivatives are used to lower filtration of drilling fluid. However they tend to increase viscosity, thus reducing rate of penetration. Additives derived from sub-bituminous coal deflocculates clay and lowers both viscosity and filtration rate. When the drilling fluid contains non-aqueous complex, such as complex ester, the additive will concentrate into emulsion film and results in further reduction in filtration with minimal viscosity increase. Sub-bituminous coal derived additives are also effective for filtration control at high chloride environment.

As shown below, Humalite performed well with respect to viscosity and filtrate

Formulation	Additives	Plastic viscosity @120 F (cPs)	API Filtrate (ml/30min)
1	None	26	4.5
	Methyl glucoside/sulfonated asphalt	35	4.0
2	None	20	5.8
	Complex Ester	21	5.5
3	Humalite	17	4.4
	Lignite	19	6.4

Performance Comparison Sheet

