CLAYTONE-II

Economy rheological additive for diesel-based drilling fluids to increase the carrying capacity and hole cleaning capabilities.

Product Data

Composition
Alkyl quaternary ammonium bentonite

Typical Properties
The values indicated in this data sheet describe typical properties and do not constitute specification limits.

Sieve passing (200 mesh/74µm):	85 %
Specific Gravity:	1.6
Loss on ignition (1 h, 1000 °C):	37 %
Bulk density:	(26 lb/ft³) 416 kg/m³
Supplied as:	Free-flowing powder in 50-lb bags

Food Contact Legal Status
For the current food contact legal status, please contact our product safety department or visit www.byk.com for further information.

Storage and Transportation
Moisture sensitive. Pallet stacking should be no more than two pallets high in order to prevent compaction.

Applications

Oil-Based Drilling Fluids

Special Features and Benefits
CLAYTONE-II is an economy grade, organo-modified clay rheological additive recommended for use in oil based muds. In addition to imparting excellent rheological properties, it increases the carrying capacity and hole cleaning capabilities of the drilling fluid. CLAYTONE-II also has the secondary benefits of improving filtration control and emulsion stability.

Recommended Use

CLAYTONE-II is recommended for drilling fluids utilizing diesel as the base oil and where the bottom hole temperatures will not exceed 350 °F (175 °C).

Example formulation: 11.0 pounds/gallon 75/25 Diesel

	350 ml formulation	Multi-mixer at 11,000 rpm
Diesel #2	218 ml	
CLAYTONE-II	6 g	Mix 5 min.
Lime	3 g	Mix 5 min.
EnvaMul™ 1699 *	4 g	Mix 5 min.
$CaCl_2$ (25 % in water)	79 ml	Mix 20 min.
Barite	150 g	Mix 5 min.
OCMA (drill solids)	20 g	Mix 5 min.
Silverson homogenizer at 6,000 rpm		Shear 5 min.

* EnvaMul™ 1699 is a product of MWV Specialty Chemicals

figure 1

Results of aging test

Properties (at 120 °F)	Initial	After Hot Rolling	
		16 h at 150 °F	16 h at 250 °F
Rheological properties			
600 rpm reading	50	60	57
300 rpm reading	34	41	38
200 rpm reading	27	34	30
100 rpm reading	20	25	22
6 rpm reading	10	14	12
3 rpm reading	8	12	9
Plastic Viscosity (cP)	16	19	19
Yield Point (lb/100 ft²)	18	22	19
Electrical Stability			
Peak Volts	592	722	603

figure 2

Recommended Levels

A 2-8 lb/barrel (5.7-23 kg/m³) addition is typically used for most conventional oil-based invert drilling fluids. Actual CLAYTONE-II usage will depend on the base oil, oil/water ratio, solids, and the emulsifier package. The above recommended levels can be used for orientation. Optimal levels are determined through a series of laboratory tests.

Incorporation and Processing Instructions

CLAYTONE-II requires high shear mixing and temperature to fully yield. A small stream of water can be used to reduce yield time. (The water phase of invert emulsions provides the polar activation).

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