

GARAMITE-1958

Low-end rheology synergist

GARAMITE-1958 is a mixed mineral thixotrope that boosts 6-rpm rheology, allowing for proper hole cleaning and faster drilling, providing minimal effect on high-end rheology. With the ability to improve both yield point (YP) and plastic viscosity (PV), GARAMITE-1958 can create a robust system in any oil-based mud program. GARAMITE-1958 incorporates much faster than traditional organoclays and can be incorporated at any time, including while at a mud plant, or at a rig through a chemical hopper.

To test GARAMITE-1958, a typical mud system that would experience issues with low-end rheology was chosen. GARAMITE-1958 performance was benchmarked against organo-attapulgite. The test system was a 12-ppg, 75/25 diesel invert system with the following formulation:

Test formulation

Component	12.0 ppg 75/25 OBM
Diesel # 2	0.603
CLAYTONE-II	7.0
GARAMITE-1958	0.0 – 1.0
Organo-attapulgite	0.0 – 3.0
Lime	3.0
Primary emulsifier	5.0
25 % CaCl ₂	0.215
Barite 4.1	220



The complete rheological data obtained from the variations are shown below. The data was collected after hot-rolling at 250° F for 16 hours and were measured at 120° F.

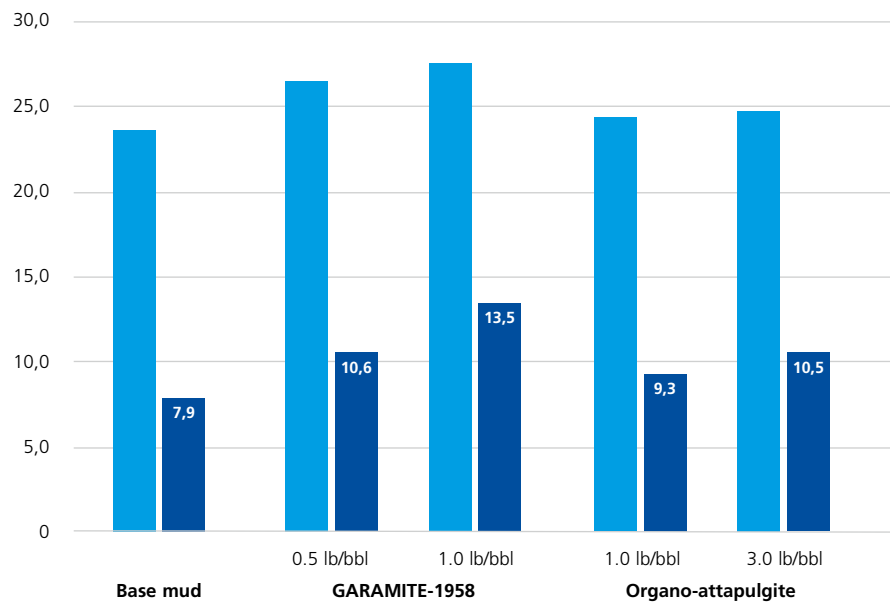
CLAYTONE-II (lb/bbl)	7.0	7.0	7.0	7.0	7.0
GARAMITE-1958 (lb/bbl)	0	0.5	1.0		
Organo-attapulgite (lb/bbl)				1.0	3.0
600-rpm	64.0	69.3	76.5	62.9	64.7
300-rpm	40.3	42.8	48.9	38.5	40.0
200-rpm	29.5	33.5	39.0	29.8	31.5
100-rpm	19.7	23.7	28.4	20.5	22.1
6-rpm	7.9	10.6	13.5	9.3	10.5
3-rpm	7.2	9.8	12.7	8.3	9.3
Plastic viscosity (cP)	23.7	26.6	27.6	24.4	24.7
Yield Point (1 bs/100 ft ²)	16.7	16.2	21.3	14.1	15.3
10 sec gel (1 bs/100 ft ²)	7.0	8.7	12.3	8.0	9.0
10 min gel (1 bs/100 ft ²)	7.0	10.0	13.0	8.0	9.0
Electrical stability (volts)	385	387	352	371	392

GARAMITE-1958 at 0.5 lb/bbl provided the equivalent 6-rpm performance as 3 lb/bbl of organo-attapulgite with minimal increase in PV. This results in 6 times more efficient performance over organo-attapulgite, providing superior value.

GARAMITE-1958 provides superior performance and economics per use in an easily manageable 10-kg sack. The low-end rheology boost allows for better hole cleaning leading to an increase in rate of penetration (ROP).

The efficiency of GARAMITE-1958 in boosting low-end rheology is demonstrated in G.02. Small additions of GARAMITE-1958 have a greater positive impact on mud properties in comparison to higher doses of other clay based additives.

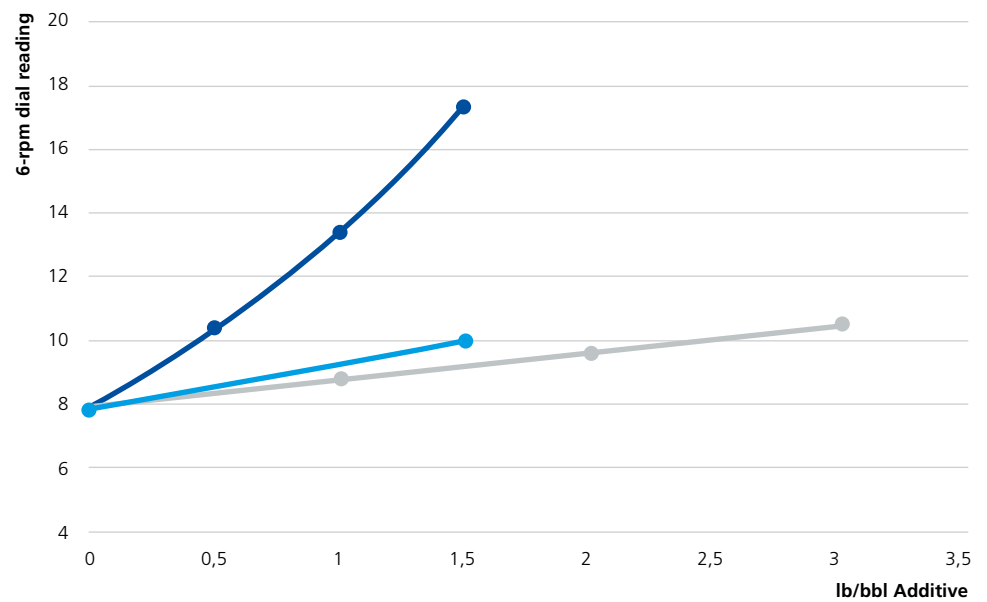
6 x Efficiency



● PV (cP) ● 6-rpm dial reading

G.01

Dosage vs 6-rpm dial reading



Data derived from formulations containing 7 lb/bbl CLAYTONE II organo-clay as the base.

● +GARAMITE-1958 ● +Organo-attapulgite ● +Additional organoclay

G.02

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This issue replaces all previous versions.

