

Lignat D2 Thinner

Lignat D2 is a low cost thinner product used for rheology control in water-based muds. It is effective in a wide range of water-based mud types and does not require the use of caustic soda.

Lignat D2 is applied in the same way as CF Desco. It can be used in freshwater, seawater and salt saturated mud systems as well as calcium based lime and gypsum systems.

The following tables illustrate the thinning efficiency of **Lignat D2**. These tests were developed to test the thinning efficiency at 150 deg F and 300 deg F. The acceptable thinning efficiencies are generally recognised at 80% for 5 ppb concentration and 150 deg F and 60% at 10 ppb and 300 deg F. **Lignat D2** significantly exceeds these standards at 91% and 73% respectively.

Lignat D2 is a dark brown powder.

Please see MSDS for handling instructions.

Packaging:

25 lbs sacks, 80 sacks per pallet.

Base Mud

Ingredient	Amount
Water (g)	2000
Sodium Chloride (g)	12.67
Calcium Sulfate (g)	25.52
Bentonite (g)	166.67
API Standard Evaluation Base Clay (g)	466.67

Base mud was sheared for 45 minutes before being used.

Samples

Ingredient/Sample	A,A',&A''	B	C	D	E
Base Mud (g)	395	395	395	395	395
Barite (g)	50	50	50	50	50
Thinner (g)	----	5	10	5	10
Caustic Soda	as	needed	for	pH	10

Samples were sheared for 30 minutes before being hotrolled.

Property/Sample	A	A'	B	C	A''	D	E
Rolled 16 Hrs @	Initial	150°F	150°F	150°F	300°F	300°F	300°F
600 rpm	TTTM [^]	228	34	16	130	105	54
300rpm		218	26	9	125	95	43
6 rpm		79	13	1	86	67	23
3 rpm		76	12	1	85	64	22
PV @ 120°F		10	8	8	5	10	11
YP		208	18	2	120	85	32
Gel Strengths (10s/10m/30m)		78/89/97	12/24/26	3/12/15	63/69/72	45/50/53	28/34/38
% Thinning	-----	----	91	99	----	29	73

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Lignat D2 Thinner

I.) THINNING EFFECIENCY

	Thinner concentration (gr)	% Thinning Efficiency (minimum)
150°F	10	60
150°F	10	60

II.) TEST PROCEDURE

Preparation of Base Mud:

Material	Amount (gr)	Mixing time (min.) (Silversson mixer or equivalent)
Distilled water	3000	-
NaCl (reagent grade)+ CaSO ₄ (de-hydrate)	19+38	5
API Test Calibration Bentonite	250	20
API Standard Evaluation Base Clay	700	20

Test muds will be prepared separately for each temperature and will be conditioned for 24 hours at room temperature.

Preparation of Test Mud:

Before the test mud is prepared as described below, base mud should be mixed for 5 minutes with Silversson mixer at maximum speed.

Materials	Amount (gr)	Mixing Time (min) (Multimixer, Model 9B with 9B29X Impeller blade)
Base mud	395	-
API Test Calibration Barite	50	10
Thinner	*	1
NaOH (%25 w/w)	**	20

*: Concentration given in the “thinning efficiency” section.

** : While the pH of the muds treated with thinner will be adjusted to 10. NaOH will not be added to the blank mud.

Prepared muds will be conditioned dynamically for 16 hours in roller oven, at 150°F and 300°F temperature with a pressure of 200 psi (nitrogen). After conditioning, muds will be cooled to room temperature, and the pH of the muds excluding blank mud will be adjusted to 10. After mixing the muds with multimixer for 5 minutes, 600 and 300 rpm dial readings will be measured with Fann-35 viscometer. % thinning efficiency will be calculated using the following equation..

$$\% \text{ Thinning Efficiency} = 100 * (Y_{Pt} - Y_P) / Y_P$$

Y_P: YP of test mud

Y_P: YP of mud treated with thinner

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