



U.S.A. REPORT #50-03

• Stability In Oil -Based Fluids

SUMMARY:

Several Lost Circulation Material (LCM) products were tested to determine their respective stability in oil-based drilling fluids. Samples of oil muds that were being returned for reconditioning from several major mud service companies were collected for this evaluation. Though the rheological properties of the muds would not be representative of fluids ready for field use, they were sufficient in determining any potential detrimental effects caused by the LCM products.

TEST METHOD:

Four LCM products were tested in this evaluation, including both Pheno Seal® Fine and Pheno Seal® Medium gradations. All LCM's were tested at a dosage of 20 pounds per barrel in three different mud weight examples. All samples were hot-rolled overnight at 300 degrees F. The Pheno Seal® LCM's were screened out of the fluid prior to testing.

TEST RESULTS:

The charts below contain the fluid test results of the four LCM product types as compared to a control in various measurement areas. No adverse effects to the fluids were observed, concluding that Pheno Seal® has no detrimental effects on oil-based muds.

Stability in Oil-Based Fluids Mud Weight: 15.7 PPG

<u>Sample</u>	<u>Control</u>	<u>Pheno Seal F.</u>	<u>Pheno Seal M.</u>	<u>Kwik Seal</u>	<u>Nut Plug M.</u>
600 R.P.M	119	121	120	136	120
300 R.P.M.	64	66	66	75	65
6 R.P.M.	5	5	5	5	5
3 R.P.M.	4	4	4	4	4
P.V.	55	55	54	61	55
Y.P.	9	11	12	14	10
A.V.	59.5	60.5	60	68	60
10 SEC.GEL	5	6	5	8	8
10 MIN.GEL	17	15	16	20	21
ELEC.STAB.	1258/1240	1274/1270	1262/1260	990	1170

Mud Weight: 15.0 PPG

<u>Sample</u>	<u>Control</u>	<u>Pheno Seal F.</u>	<u>Pheno Seal M.</u>	<u>Kwik Seal</u>	<u>Nut Plug M.</u>
600 R.P.M	165	160	161	+300	+300
300 R.P.M.	91	88	88	195	270
6 R.P.M.	9	10	10	6	7
3 R.P.M.	9	8	9	4	5
P.V.	74	72	73	xx	xx
Y.P.	17	16	15	xx	xx
A.V.	82.5	80	80.5	xx	xx
10 SEC.GEL	26	23	25	8	11
10 MIN.GEL	54	50	53	34	30
ELEC.STAB.	678/670	674/678	678/680	650	640

Mud Weight: 14.8 PPG

<u>Sample</u>	<u>Control</u>	<u>Pheno Seal F.</u>	<u>Pheno Seal M.</u>	<u>Kwik Seal</u>	<u>Nut Plug M.</u>
600 R.P.M	190	177	186	+300	210
300 R.P.M.	107	100	106	+300	119
6 R.P.M.	10	6	7	21	6
3 R.P.M.	8	5	5	13	5
P.V.	83	77	80	xx	91
Y.P.	24	23	26	xx	28
A.V.	95	88.5	93	xx	105
10 SEC.GEL	11	8	9	17	8
10 MIN.GEL	28	23	24	33	23
ELEC.STAB.	760/746	750/726	764/738	805	890

[From "Pheno Seal Evaluation In Oil Muds," Montello, Inc., 1996.]

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