

INEOS Oligomers

Amodrill® Olefin Fluids for Land Drilling

Ineos Oligomers offers a range of products to the oilfield drilling arena. The following table identifies the products recommended for drilling on land and their typical properties within each of these categories. Ineos alpha olefins are clear, colorless, water-white, mobile liquids, which are 99+% olefinic.

Typical Properties¹

	Amodrill 1410	Amodrill 1400
Kinematic Viscosity, cSt		
40 °C	1.87	1.90
100 °C	0.87	0.91
Pour Point	- 18 °C	- 34 °C
Flash Point	116 °C	116 °C
Aniline Point	65 °C	68 °C
Density		
15.6 °C, g/mL	0.775	0.775
60 °F, lb/gal	6.47	6.47

¹Typical properties will vary within specification limits.

Drilling Performance of Olefin Fluids

Olefin fluids have been used offshore for more than a decade.

In land drilling trials, the low density of LAO fluids has led to improved rates of penetration.

Health Safety and Environmental Attributes of Amodrill Synthetic Olefins

Reduced exposure to fugitive emissions of aromatic compounds vs. diesel and mineral oil

Low volatility

Flash points above 100°C

Lower odor than diesel oil

Rapid biodegradation in soil

Low toxicity in soil to bacteria, plants and worms



Drilling Fluid Comparison Table (Ref 1)

Fluid	Aromatic Content, wt%	Polynuclear Aromatic Hydrocarbon (PAH) Content	Viscosity 40°C, cSt	Pour Point	Flash Point
Amodrill 1410	0%	<0.001%	1.87	-18°C	116°C
Amodrill 1400	0%	<0.001%	1.90	-34°C	116°C
Low Tox Mineral Oil	<2.2%	<0.1%	3.78	-21°C	128°C
Isomerized Paraffin	<0.1%	<0.001%	4.15	-57°C	135°C
#2 Diesel Oil	>30%	12.5%	2.07	-33°C	66°C

Test Results of Drilling Fluids in Soil¹ (Ref 1)

	Amodrill 1410	Isomerized Paraffin
Total Degradation after 93 days ²	96%	45%
Lettuce Seed Germination, Day 93 ³	88	0
Microtox [®] Fluorescent Bacteria Test IC50 ⁴ , Day 0 & 93	83,103	101, 53
Earthworm Toxicity ⁵ Day 0	None	None
Day 93	None	Extreme

¹ All tests run in subsoil at 2% by weight test fluid to dry soil.

² Degradation at 2% in soil for 93 days; difference in total extractable hydrocarbon at beginning and end of test.

³ Lettuce seed germination relative to control soil after 93-day degradation of fluid in soil, Day 93.

⁴ Percent fluorescent bacteria inhibition of water extract from soil relative control soil at Day 0 and Day 93.

⁵ Worm survival at two weeks in soil on addition of fluid, Day 0, and after degradation, Day 93.

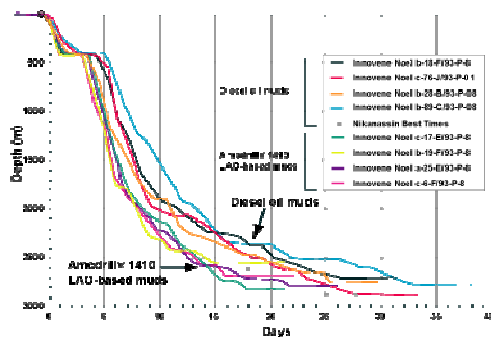
Drilling Performance of Olefin Fluids

Olefin fluids used to drill nine wells in Canada.

Amodrill 1400 and 1410 olefin-based muds (90/10) improved rates of penetration.

In rock with >15,000 psi compressive strength olefin muds drilled nearly 50% faster than similar diesel oil muds.

Noel Nikanassin-Days vs. Depth Days from Spud (to Rig Release)



Reference

Bioremediation Study of Olefins, Mineral Oils, Iso-Paraffin Fluids and Diesel Oils Used for Land-based Drilling," S. Visser, B. Lee, J. Hall, D. Krieger, SPE 73921, 2002.



Regulatory Information

The product and uses described herein may require global product registrations and notifications for chemical inventory listings, or for use in food contact or medical devices. For further information, send an e-mail to: oligomersmsds@ineos.com

Health and Safety Information

The product described herein may require precautions in handling and use because of toxicity, flammability, or other consideration. The available product health and safety information for this material is contained in the Material Safety Data Sheet (MSDS) that may be obtained by calling +1-866-363-2454 (Toll Free-North America), or by sending an e-mail to: oligomersmsds@ineos.com. Before using any material, a customer is advised to consult the MSDS for the product under consideration for use.

The Material Safety Data Sheet for this product contains shipping descriptions and should be consulted, before transportation, as a reference in determining the proper shipping description. If the material shipped by Ineos Oligomers is altered or modified, different shipping descriptions may apply and the MSDS of the original material should not be used.

For additional information, samples, pricing and availability, please contact:

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