



NEOFLO

Drilling fluids

Typical property data



Shell Chemicals

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The NEOFLO product grade names are based on their environmental performance category and their carbon number distribution. Products are coded first by category:

- Premium = 1
- Enhanced = 2
- Standard = 3

The following two numbers then represent the carbon number range. For example, NEOFLO 1–58 is a Premium grade base fluid with a carbon number range of 15 to 18.

	NEOFLO 1 Premium	NEOFLO 2 Enhanced	NEOFLO 3 Standard
Zero polyaromatic hydrocarbons (PAH)	•	•	•
Aerobic biodegradability	•	•	•
Low water column toxicity	•	•	•
Anaerobic biodegradability	•	•	
Low sediment toxicity	•		

NEOFLO products are clear, colorless, and mostly odorless liquids. Many NEOFLO products have optimal pour points, viscosity profiles, and flash points for both deepwater and shelf applications.

Contact us: Our website, www.shell.com/chemicals/neoflo, is always open and provides technical data as well as telephone numbers to our international customer care centers.

Typical properties data for NEOFLO Premium, Enhanced and Standard series of products

Parameter	ASTM Method	Unit	NEOFLO Grade									
			1-58	1-6	1-68	1-68i	2-4	2-46	2-48	3-13	3-14	3-56
Compound type			Internal olefin	Alpha olefin	Alpha olefin	Internal olefin	Alpha olefin	Alpha olefin	Alpha olefin	Synthetic paraffin	Synthetic paraffin	Synthetic iso-paraffin
Carbon number range			15 – 18	16	16 – 18	16 – 18	14	14-16	14-18	11 – 13	11 – 14	15 – 16
Density @ 20°C	D-4052	kg/m ³	787	780	788	788	771	775	778	752	759	786
		lb/gal	6.57	6.51	6.58	6.58	6.44	6.47	6.50	6.28	6.33	6.56
		lb/bbl	276	274	276	276	270	271	272	263	266	275
Kinematic viscosity @ 40°C	D-445	cSt	2.9	2.6	3.0	3.4	2.0	2.1	2.5	1.3	1.5	3.1
Pour point	D-97	°C	-12	4	13	-4	-14	-7	-2	-24	-17	< -40
Flash point	D-93	°C	135	130	135	141	102	115	115	74	83	133
Fire point	D-92	°C	146	146	172		135	126	120		88	127
Aniline point	D-611	°C	77.7	73	93.3		> 66	67.6	70.3		82.8	83.8
Boiling range, 5%	D-2887	°C	268	285	287		240	249	225	198	230	252
Boiling range, 95%	D-2887	°C	367	302	342		246	294	299	210	260	297
Color	D-1209	Pt-Co	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	5	5

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Typical environmental property data for NEOFLO Premium, Enhanced and Standard series of products

Parameter	Method/Endpoint	NEOFLO Grade										
		Unit	1-58	1-6	1-68	1-68i	2-4	2-46	2-48	3-13	3-14	3-56
Biodegradation												
Anaerobic	Modified ISO 11734 275-d	%	70	60	62	61	78	82	73	9	17	8
	BRR ¹		0.6	0.8	0.8	0.6	0.6	0.5	0.6	4.6	2.4	5.0
Aerobic	OECD 301 or 306 28-d	%	58 - 76	60 - 71	86	58	> 60	63 - 73	61	61	58	64
Water Column Toxicity												
Fathead minnow	96-h LC ₅₀	mg/L									> 1000	
<i>Daphnia magna</i>	48-h LC ₅₀	mg/L								200	> 1000	> 1000
<i>Cyprinodon variegatus</i>	OECD 203 96-h LC ₅₀	mg/L	> 1000 ³		> 1000			> 1000				
<i>Acartia tonsa</i>	48-h EC ₅₀	mg/L	> 1000	> 1000				> 1000				
<i>Skeletonema costatum</i>	72-h EC ₅₀	mg/L	> 1000					> 1000				
<i>Mysidopsis bahia</i>	96-h LC ₅₀	mg/L	> 1000				> 1000		> 1000			
Sediment toxicity												
<i>Leptocheirus plumulosus</i>	Formulated sediment 10-d LC ₅₀	mg/kg	2700	1500	1700	1600	180	260	430	180	220	270
	STR ²		0.8	0.7	0.7	0.9	8	5	3	7	13	11
PAH	EPA 1654A	mg/kg	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10

¹ BRR = biodegradation rate ratio (% biodegradation of C1618 internal olefin reference/% biodegradation to test material).

² STR = sediment toxicity ratio (C1618 internal olefin reference LC₅₀/test material LC₅₀).

³ Non-toxic. Acute aquatic toxicity of >1000 mg/L is defined as non-toxic by GESAMP (2002). IMO/FAO/UNESCO-IOC/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP). 2002. The Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships. Reports and Studies No. 64.

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WARNING: FOR PARAFFIN BASE FLUIDS (NEOFLO 3 SERIES)

OFFSHORE DISCHARGE

DO NOT USE THIS PRODUCT FOR DRILLING OPERATIONS INVOLVING MARINE DISCHARGE OF CUTTINGS CONTAINING THIS PRODUCT. DO NOT DISCHARGE THIS PRODUCT OR DRILL CUTTINGS CONTAINING THIS PRODUCT INTO ENVIRONMENTS THAT MAY BE OR MAY BECOME ANAEROBIC (ABSENT OF OXYGEN). Anaerobic conditions are likely to exist at the seafloor and within cuttings piles in certain conditions. Testing jointly developed by the E&P industry and the US EPA indicates that this product does not biodegrade anaerobically.

LAND DRILLING AND ZERO DISCHARGE OPERATIONS

THIS PRODUCT SHOULD ONLY BE USED FOR LAND DRILLING OPERATIONS AND ZERO DISCHARGE OPERATIONS WHERE DRILL CUTTINGS ARE MANAGED VIA ACCEPTED CUTTINGS MANAGEMENT PRACTICES SUCH AS INJECTION, THERMAL TREATMENT, LAND FARMING, OR COMPOSTING. Similar to diesel cuttings, if drill cuttings containing this product are discharged to or placed in the environment, best cuttings management practices should be used.

Disclaimer

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