NEOFLO™ 1-68

Olefin & Paraffin Drilling Fluids

Updated: February 2016
SICC Product Code: V1392

Description:

- NEOFLO 1-68 is part of our Premium series of synthetic olefin and paraffin drilling fluids. Suitable for shelf applications, NEOFLO 1-68 helps reduce the risks associated with offshore discharges.
- NEOFLO 1-68 biodegrades in both aerobic and anaerobic conditions, is non-toxic in the water column and has low sediment toxicity.
- The product has a low viscosity and performs as well as or better than traditional oil-based fluids.
- NEOFLO 1-68 is a linear alpha olefin with a carbon chain length between C16 and C18.

Classification:

This product is classified as a synthetic according to the US EPA definition. "Synthetic material as applied to synthetic-based drilling fluid means material produced by the reaction of specific purified chemical feedstock, as opposed to the traditional base fluids such as diesel and mineral oil which are derived from crude oil solely through physical separation processes. Physical separation processes include fractionation and distillation and/or minor chemical reactions such as cracking and hydro processing." *

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*(Notice of Final NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico {GMG290000, Section G. Definitions, 77 "Synthetic Material," pg. 62}).

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Typical Chemical Properties [a]	Property	Unit	Value	Method
	C14 & Lower	%m/m	<3.0	SMS 2895
	C16	%m/m	50 – 60	SMS 2895
	C18	%m/m	37 – 47	SMS 2895
	C20 & Higher	%m/m	<3.0	SMS 2895
	Total Branched Olefins	%m/m	<5.0	SMS 2895
	Total n-Alpha Olefins	%m/m	>93.0	SMS 2895
	Total Paraffins	%m/m	<0.2	SMS 2895
	Appearance		CSFVI[b]	Visual
	Color, Pt-Co		<10	ASTM D1209
	Water	mg/kg	<100	ASTM E1064

a: An official sales specification is available from your local Shell Chemicals representative.
b: Clear and Substantially Free of Visible Impurities

Typical Physical Properties	Property	Unit	Value	Method
	Density @ 20 °C	kg/m^3	788	ASTM D4052
	Flash Point	°C	138	ASTM D93
	Fire Point	°C	172	ASTM D92
	Pour Point	°C	13	ASTM D97
	Aniline Point	°C	93	ASTM D611
	Kinematic viscosity @ 40°C	cSt	3.0	ASTM D445
	Boiling Range 5% 95%	 °C °C	 286 318	ASTM D2887
	Vapor Pressure @ 40°C	mmHg	<0.05	Calculated[1]

[1] Calculated from data on single carbon number olefins.

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Typical Environmental Properties	Property	Method/Endpoint	Value	Notes
	Biodegradation			
	Anaerobic	Modified ISO 11734 275-d	75%	BRR[1] = 0.8
	Aerobic	OECD 306	86%	
	Water Column Toxicity			
	Cyprinodon variegatus	OECD 203 96-h LC_{50}	>1000 mg/L	
	Sediment Toxicity			
	Leptocheirus plumulosus	ASTM E 1367 10-d LC_{50}	350 mg/kg	STR[2] = 0.7
	PAH	EPA 1654A	<5 mg/kg	

[1] BRR = biodegradation rate ratio (% biodegradation of C1618 internal olefin reference /% biodegradation of test material)
[2] STR = sediment toxicity ratio (C1618 internal olefin reference LC50/test material LC50)

Storage and Handling

NEOFLO products may be stored in carbon steel tanks. Hoses manufactured from polyethylene, butyl rubber, or neoprene liners are suitable for discharging. A nitrogen blanket is recommended to reduce potential for product degradation. Antioxidants can be added, upon request, to enhance the long-term stability. The recommended storage temperature is 40°C, the recommended maximum is 40°C and the recommended minimum is 15°C to prevent freezing. NEOFLO 1-68 is classified as "non-regulated" by the United States Department of Transportation (US DOT). Additional advice on the storage and handling of NEOFLO products can be found on our website at www.shell.com/business-customers/chemicals/our-products/higher-olefins-and-derivatives, or by contacting your local Shell chemicals companies' representative.

Hazard Identification

NEOFLO products have been demonstrated to have a relatively low order of toxicity by the routes of exposure (oral, dermal, inhalation) encountered in normal handling. Like many hydrocarbon liquids, olefins will dry and de-fat the skin on prolonged contact and will result in skin irritation and dermatitis. Also, like other hydrocarbons, this product can be dangerous when aspirated or ingested. Before handling the product, refer to the Safety Data Sheet that is available from your local Shell chemicals companies' representative. Additional information can be found on our website at www.shell.com/business-customers/chemicals/our-products/higher-olefins-and-derivatives in the Safety Data Sheet section.

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Emergency Helpline

For emergency telephone numbers refer to the Safety Data Sheet relevant for your company's country and language.

Shell Warranties

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