NEOFLO™ 3-14

Olefin & Paraffin Drilling Fluids

Updated: February 2016
SICC Product Code: V1391

Description:

- NEOFLO 3-14 is part of our Standard level series in the family of olefin and paraffin drilling fluids.
- NEOFLO 3-14 is especially well-suited for land-based applications. It biodegrades aerobically and is non-toxic in the water column. The product has a low viscosity and pour point and performs as well as or better than mineral oil based fluids.
- NEOFLO 3-14 is a linear paraffin with a carbon chain length between C11 and C14.

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
	C10 & Lower	%m/m	<1.5	SMS 2976
	C11	%m/m	10 – 25	SMS 2976
	C12	%m/m	20 – 35	SMS 2976
	C13	%m/m	20 – 25	SMS 2976
	C14	%m/m	20 – 35	SMS 2976
	C15 & Higher	%m/m	<3	SMS 2976
	C11 – C14 Hydrocarbons	%m/m	>95	SMS 2976
	Total Branching	%m/m	<20	SMS 2976
	Olefins	%m/m	<25	Calculated
	Total Paraffins	%m/m	>75	Calculated
	Total Alcohols	%m/m	<5	SCG 811
	Flash Point, SETA	°F	>160	ASTM D93
	Kinematic Viscosity @ 100°F	cSt	<2.5	ASTM D88
	Pour Point	°F	<20	ASTM D97

a: An official sales specification is available from your local Shell Chemicals representative.

Typical Physical Properties	Property	Unit	Value	Method
	Density @ 20 °C	kg/m^3	759	ASTM D4052
	Aniline Point	°C	83	ASTM D611
	Boiling Range			ASTM D2887
	5%	°C	230	
	95%	°C	260	
	Vapor Pressure @ 20°C	mmHg	0.135	HSGC

Typical Environmental Properties	Property	Method/Endpoint	Value	Notes
	Biodegradation			
	Anaerobic	Modified ISO 11734 275-d	17%	BRR[1] = 3
	Aerobic	OECD 306 28-d	78%	
	Water Column Toxicity			
	Pimephales promelas	TSCA §797.1400 96-h LC_{50}	>1000 mg/L	
	Daphnia magna	TSCA §797.1300 48-h LC_{50}	>1000 mg/L	
	Sediment Toxicity			
	Leptocheirus plumulosus	ASTM E 1367 10-d LC_{50}	220 mg/kg	STR[2] = 13
	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)

Limitation on Use

WARNING: FOR PARAFFIN BASE FLUIDS

OFFSHORE DISCHARGE

DO NOT DISCHARGE THIS PRODUCT OR DRILL CUTTINGS CONTAINING THIS PRODUCT INTO MARINE ENVIRONMENTS WITHOUT VERIFYING THAT IT MEETS ALL REGULATORY REQUIREMENTS FOR MARINE DISCHARGE IN THE REGION OF USE.

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.

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 20°C, the recommended maximum is 40°C and the recommended minimum is -5°C to prevent freezing. NEOFLO 3-14 is classified as "combustible" 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.

Emergency Helpline

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

Shell Warranties

The information contained in this publication is to the best of our knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

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