

PRODUCT DATA SHEET

NX BIODRILL D

Description

NX-BIODRILL D is an innovative nano-based drilling fluid customized to suit the drilling process and reservoir conditions. **NX-BIODRILL D** is manufactured using a proprietary technology i.e. chemo mechanical process that integrates sub molecular to form a stable nano enhanced drilling base fluid that exhibits a good stability which translates into superior performance down hole. The product is ideal for conventional drilling, deep sea drilling, high pressure drilling and HPHT drilling.

NX-BIODRILL D is an environmentally friendly, biodegradable product that allows easier disposal of cuttings and ameliorates health issues faced with standard drilling fluids. It is a high flash point product with a lower risk of vapor exposure that offers enhanced safety in high temperature drilling.

NX-BIODRILL D is almost aromatic free, low toxicity and low viscosity base oil suitable for non-aqueous drilling. It is suitable for both offshore and sensitive land base areas.

NX-BIODRILL D is a smart drilling fluid that has nano benefits such as excellent fluid loss, stable viscosities, adequate lubrication to drill bits, good cutting carrying ability and thermal stability.

NX-BIODRILL D is effective at temperatures as high as 450 F, which facilitates drilling in extreme conditions. The product attacks heat, preventing heat build up from occurring at points of contact of drill bits and drill strings, reducing costly wear. It has very good lubricity that reduces differential pressure sticking problems and non-productive time.

Properties

Property	Unit	Value	Test Method
Physical State Soybolt color Odour Appearance	Liquid at ambient temperature Odourless Clear and Bright	30+	ASTM D156
Boling Range IBP FBP	°C °C	213 283	ASTM D86
Vapour Pressure @ 40°C	KPa	0.5	Calculated
Density @ 15 C	Kg/m ³	0.8006	ASTM D4052
Kinematic Viscosity @ 40°C	mm ² /s	2.016	ASTM D445
Sulphur	ppm	<1.0	ASTM D3120
Aromatics	%	N T	SMS 2728
Pour Point	°C	< -51	ASTM D97
Flash Point	°C	91.0	ASTM D93
Anline Point	°C	79.0	ASTM D611
Auto ignition point	°C	230	ASTM E659
Fire Point	°C	115	ASTM D92
Solubility in water		Insoluble	
Copper corrosion 3 hrs @ 100 °F		1 a	ASTM D130

Environmental Properties

Property	Test Protocol	Value	Toxicity Classification
<u>Biodegradation</u> Aerobic	OECD 306 28-d	>70%	Biodegrades
Water Column Toxicity			Non Toxic
Sediment Toxicity			Non Toxic
Partition Coefficient	Log P _{ow}	<1.15	No bioaccumulation <2
<u>Aromatic Content</u> PAH Content	US EPA-16 PAHs	0	

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Storage and Handling

NX-BIODRILL D may be stored in carbon and stainless steel tanks. The use of both welded and riveted tanks is acceptable. Tanks may have internal floating roofs made of Aluminum. Nitrogen blanketing can be used. **NX-BIODRILL D** is compatible with nitriles, fluoro-elastomers.

Hazard Identification

The product is practically non-toxic. It is of relatively low toxicity upon exposure (oral, dermal, inhalation), encountered in normal handling. It has very mild irritation upon prolonged skin contact.