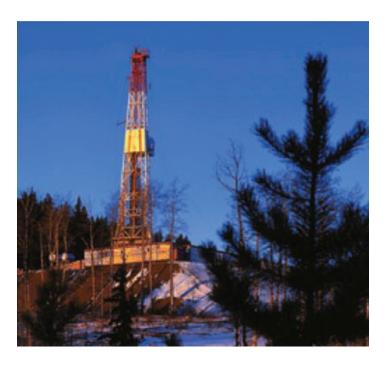
PureDrill™HT-40

Drilling Mud Base Fluid





Performance and Safety

Petro-Canada's PureDrill HT-40 drilling mud base fluid provides enhanced performance compared to diesel-based systems. PureDrill HT-40 represents a breakthrough for producers who want to maximize drilling efficiency while improving health, safety and environmental practices.

Potential Performance Benefits	PureDrill- Based	Diesel- Based	Water- Based
Improved hole stability versus water-based mud	V	V	X
Enhanced rates of penetration	~	X	X
Reduced bit runs	V	Х	Х
Reduced environmental impact	V	Х	V
Reduced risk of fire	V	Х	/
Faster and safer cleanup	V	Х	V
Virtually non-toxic, odourless, biodegradable	~	X	V

Environmental, Health & Safety Benefits

PureDrill HT-40 is a unique blend of synthetic isoalkane fluid and severely hydrocracked low toxicity mineral oil.



Petro-Canada produces PureDrill using the HT purity process combined with hydroisomerization. The result is pure drilling mud base fluid that's clear like water, virtually non-toxic and environmentally friendly.

Here are the advantages:

- Reduced toxicity. Not controlled under OSHA or WHMIS
- Extremely low PNA content well below AEUB Tier 1 standards
- Helps reduce disposal costs
- Low aromatics and toxicity allow biodegradation at significantly higher hydrocarbon concentrations
- Faster biodegradation of oil on cuttings
- PureDrill HT-40 features a higher flash point than diesel, helping to reduce the risk of fire or explosion
- Faster, safer rig cleanup
- Helps to eliminate skin and eye irritation that can result from exposure to diesel-based systems

Facts about PureDrill HT-40

PureDrill HT-40 has been proven to enhance the performance of drilling mud with results showing reduced drilling costs, less downtime and faster drilling times.

- Increases lubricity and hole stability
- Suitable for use in higher temperature applications
- Helps to enhance rates of penetration
- Potentially improves drill bit life
- Helps reduce bit balling
- Helps improve BOP seal life
- Helps reduce corrosion (as a rust inhibitor)
- Helps control formation reactivity
- Minimal impact on many elastomers
- Proven effective for use as a:
 - Heat string fluid
 - Base gel fluid
 - Differential fluid
 - Diluent for liquid mud additives
 - ROP Enhancer

Dependable Supply Today and Tomorrow

- Delivery to where and when you need it
- Petro-Canada maintains inventory at its depot in Edmonton, Alberta
- Available only from Petro-Canada one of the world's most dependable producers of advanced fluids

Typical Performance Data

PROPERTY	TEST METHOD	PETRO-CANADA PUREDRILL™ HT-40	DIESEL (ULSD)
PM Flash Point, °C/°F Hazardous Material Label Combustible Liquid (OSHA)	ASTM D93	119/246 No	64/147 Yes
Saturates, weight % Aromatics, weight % UV	PCM 435	97.5 2.5	74.5 25.5
BTEX, ppm			>3000
Benzene	GC/MS	<1	42
Toluene	Method	<1	645
Ethylbenzene		<1	391
Xylene		<1	2189
Polynuclear Aromatic, ppm	HRMS EPA Method	<10	>1300
Visual Pollution	Sheen	No	Yes
Density, kg/L @ 15°C (60°F)	ASTM D4052	0.84	0.84
Viscosity, cSt @ 40°C	ASTM D445	3.7	1.6 to 2.4
SUS @ 100°F	ASTM D445	38.2	
Colour	ASTM D1500	<0.5	Yellow
Aniline Point, °C/°F	ASTM D611	78/172	60/140
Pour Point, °C/°F	ASTM D5950	-18/0 summer, -33/-27 winter	-27/-17
Sulfur, wppm	ASTM D5453	<2	6
Base Oil Toxicological Summary			
Trout toxicity, LC ₅₀ at 96 hours, mg/L		>500,000*	Fail
MICROTOX™	EPS 1/RM/24	Pass (EC50 >91%)*	Fail (EC50 <1.4%)
Biodegradability, %	OECD 301B or 306 @ 28 days	20 to 60 (inherently biodegradable) [*]	
Human Health & Safety			
Acute Oral LD ₅₀ (rat), mg/kg		>5000 (Virtually Non-toxic)	Toxic
Acute Dermal LD ₅₀ (rabbit), mg/kg		>2000 (Not An Irritant)	Irritant
Acute Eye Irritation / Corrosion		Slightly Irritating	Irritant
Inhalation TLV® 1, mg/m³		5	Irritant
Mutagenicity	Modified Ames	Negative	
Potential Carcinogenic Label		No	Yes

¹- Quantity a person can be exposed to in an 8 hour period. TLV is a registered trademark of American Confederation of Government Industrial Hygienists.

Rubber Compatibility

PureDrill HT-40 has significantly better elastomer compatibility in comparison with diesel (eg with Buna-N rubber). This has the potential of lengthening the life span of articles, which are either made of elastomers or those that incorporate elastomer components.

Health & Safety

To obtain Material Safety Data Sheets (MSDS), contact one of our TechData Info Lines.

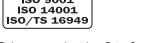
TechData Info Lines

To place an order, please call a Customer Order Management Representative at:

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China Phone +86 (21) 6362-0060

You can also e-mail us at lubecsr@suncor.com





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PureDrill

^{*} Results obtained with a similar product.

The values quoted above are typical of normal production. They do not constitute a specification.

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