ISO-9001 Registered Quality System.
ISO-21469 Compliant.

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LUBRIPLATE Biobased Green Hydraulic Fluids

(ISO 32, 46, 68)

"Biobased Lubricants that Perform Like Synthetics"

LUBRIPLATE Biobased Green Hydraulic Fluids are ultimately biodegradable[1] vegetable based formulas that replace mineral oil based hydraulic fluids. They are formulated to perform in hydraulic systems that require Anti-Wear (AW), anti-rust, anti-oxidation, anti-foam and demulsibility properties. They are highly inhibited against moisture and rusting in both fresh and sea water and pass both A and B Sequences of the ASTM D-665 Turbine Oil Rust Test. Incorporating the super high viscosity index of the Stabilized* High Oleic Base Stocks (HOBS) into the formula, increases the viscosity index past synthetic levels (Energy Conserving Formulas). Zinc-free additive systems have also been developed that are environmentally friendly and meet or exceed pump requirements.

LUBRIPLATE Biobased Green Hydraulic Fluids are designed for use in mobile and stationary hydraulic vane, piston and gear-type pumps and have shown to have exceptional anti-wear performance. **Very little wear was encountered, 0 to 25mg (Pass), in accelerated biobased tests using Denison T-5D, Vickers 20VQ, 35VQ-25 (M-2950-S) and V-104C (ASTM D-2882) pump stand tests at pressures and temperatures ranging from 2000 to 3000 psi and from 150º to 210ºF.** The anti-wear performance exceeds the requirements for US Steel 126 and 127, load stage 10 in the FZG (DIN 51354), DIN 51524 and GM (LS-2). They also meet the requirements for ashless GL-3 gear oils in reduction units and gear sets where they meet the viscosity ranges. These fluids meet or exceed Federal Specification A-A-59354 Superseding MIL-H-46001D.

The super high viscosity index of the HOBS naturally improves the thermal shear stability of the formula and increases load capacity. The HOBS's extremely low volatility increases the flash and fire safety features in the formula. They are formulated to provide seal conditioning for longer seal life and to reduce oil leakage from the system. LUBRIPLATE Biobased Green Hydraulic Fluids should be used in hydraulic systems where low toxicity and BIODEGRADABILITY properties are required. Base oils and additives in these products pass and exceed the acute toxicity (LC-50) criteria adopted by the US Fish and Wildlife Service and the US EPA. LUBRIPLATE Biobased Green Hydraulic Fluids are ENVIRONMENTALLY RESPONSIBLE lubricants that are formulated from renewable agricultural plant resources.

[1]Ultimate Biodegradation (PW1) within 28 days in ASTM D-5864 Aerobic Aquatic Biodegradation of Lubricants

LUBRIPLATE Biobased Green Hydraulic Fluids are available in the following packaging:

Container Size	ISO 32	ISO 46	ISO 68
5-Gallon Pail	L1050-060	L1051-060	L1052-060
55-Gallon Drum	L1050-062	L1051-062	L1052-062

(Over for Test Data)

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The test data below show that the LUBRIPLATE Biobased Green Hydraulic Fluids provide high performance in a wide variety of stationary and transportation equipment that operate in broad ranges of environmental conditions. In equipment operating outside, wear from poor cold temperature pumpability; surge loads, moisture and dusty environments are more prominent. LUBRIPLATE Biobased Green Hydraulic Fluids are formulated to improve performance in equipment that requires excellent anti-wear, hydrolytic stability and cold temperature pumpability as low as -35ºC. In addition, the products may be used in machine tool hydraulic systems with the above Denison and Vickers pump requirements and exceeds the requirements of US Steel 126, 127 and DIN 51524 Part 2.

TYPICAL SPECIFICATIONS	METHOD	ISO 32	ISO 46	ISO 68	Spec. Requirements
Specific Gravity @ 15.6ºC	ASTM D-287	0.88	0.88	0.88	Report
Viscosity @ 40ºC	ASTM D-445	30.87	43.8	64.1	Note 1
Viscosity @ 100ºC	ASTM D-445	6.9	9.67	12.5	Note 1
Viscosity @ -15ºC, Brookfield	ASTM D-2983	550 cP	1,100 cP	3,200 cP	Note 1
Viscosity @ -25ºC, Brookfield	ASTM D-2983	1,200 cP	3,000 cP	4,500 cP	Note 1
Viscosity @ -30ºC, MRV TP1	ASTM D-4684	4,500 cP	8,000 cP	15,000 cP	10W = <60,000
Viscosity @ -35ºC, MRV TP1	ASTM D-4684	7,500 cP	11,000 cP	24,000 cP	5W = <60,000
Viscosity Index	ASTM D-2270	184	199	198	90 (min)
Pour Point	ASTM D-97	-40ºC	-40ºC	-39ºC	Note 1
Flash Point (COC)	ASTM D-92	236ºC	243ºC	251ºC	198ºC (min)
Fire Point (COC)	ASTM D-92	260ºC	268ºC	274ºC	218ºC (min)
Hydrolytic Stability,	ASTM D-2619				
Copper Wt. Loss (mg)		0.0139	0.0208	0.0208	0.2
Copper Appearance		1B	1B	1B	Report
Change in Acid Number		0.16	0.20	0.21	Report
Water Layer		3.0	3.0	3.0	4
% Insolubles		0.001	0.001	0.001	Report
Foam Sequence I, II, III (10 min)	ASTM D-892	0 Foam	0 Foam	0 Foam	0 Foam
Rust Prevention	ASTM D-665				
Distilled Water		Pass	Pass	Pass	Pass
Syn. Sea Water		Pass	Pass	Pass	Pass
Copper Corrosion Strip 3hr @ 100ºC	ASTM D-130	1B	1B	1B	DIN 51524 2 (max)
Rotary Bomb Oxidation, (minutes)	ASTM D-2272	360	360	360	USS 120 (min)
Oxidation Stability (Pressure Differential Scanning Calorimeter) min	ASTM D-5483 Modified	70.0 (165ºC)	70.0 (165ºC)	70.0 (165ºC)	Note 2
Neutralization Number mg KOH/g	ASTM D-974	<0.4	<0.4	<0.4	1.5 (max)
Swell of Synthetic NBR-L Rubber, % (Avg.)	DIN 53538, Part 1				
Volume Change (%)		6.0	6.0	6.0	0 to 12
Shore A Hardness Change (%)		-4	-4	-4	0 to -7
Filterability	Denison TP 02100				
A-No Water (s) (Avg)	HF-0 Requirement	113	268	335	600 (max)
B-2% Water (s) (Avg)		187	271	449	2xA (max)
Demulsibility, ML Oil/Water/Emulsion	ASTM D-1401	40/40/0 (10 minutes)	40/40/0 (10 minutes)	40/40/0 (10 minutes)	40/37/3 (max) (30 minutes)
4-Ball Wear, 1h, 167ºF, 1200 RPM, 40 kg	ASTM D-4172	0.3 – 0.4	0.3 – 0.4	0.3 – 0.4	USS 127 0.5 (max)
FZG Test	DIN 51354	12	12	12	US Steel 10 (min)
Biodegradation Classification	ASTM D-5864	Ultimate PW1	Ultimate PW1	Ultimate PW1	Ultimate PW1
Environmentally Friendly	ISO 15380	Yes	Yes	Yes	meets/exceeds
USDA Biobased Tested	New Carbon	Yes	Yes	Yes	over 50%

Note 1: Viscosity Sufficient for Application
Note 2: Not Required

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