



LUBRIPLATE® BIO-SYNXTREME HF SERIES

Polyalkylene Glycol (PAG)-Based,
Biodegradable (Pw1), Synthetic Hydraulic Fluids



Enabling Superior Performance & Environmental Acceptability

The U.S. Vessel General Permit (VGP), issued under the EPA Clean Water Act, strictly regulates all oil to sea interfaces.

The 2013 VGP regulates discharges incidental to the normal operation of commercial vessels (including vessels being used for transportation) greater than or equal to 79 feet in length. Section 2.2.9 of the 2013 Vessel General Permit states:

- **All vessels must use an EAL in all oil to sea interfaces, unless technically infeasible. "Environmentally Acceptable Lubricants" means lubricants that are "biodegradable" and "minimally-toxic" and are not "bioaccumulative"**

Thus under the 2013 VGP:

- **Low price, mineral oil lubricant options are eliminated** - all vessels must instead use EALs in all oil to sea interfaces.
- **Three options for EALs:** Vegetable Oils, Synthetic Esters, and Polyalkylene Glycols (PAGs).



VGP COMPLIANCE STATEMENT

LUBRIPLATE® BIO-SYNXTREME HF Series Hydraulic Fluids are Environmentally Acceptable Lubricants (EALs) according to the definitions and requirements of the US EPA 2013 Vessel General Permit, as described in VGP Section 2.2.9

The Value Proposition Is Clear... Avoid negative publicity, reduce fines and clean up costs, and choose a lubricant that meets the EPA's VGP as well as provides excellent performance properties. The chart below compares 4 different types of hydraulic oils. Polyalkylene Glycol (PAG)-Based fluids provide the most advantages.

FLUID CHEMISTRY	BIODEGRATION	ECO-TOXICITY	WATER SOLUBILITY	OXIDATION PERFORMANCE	ANTI-WEAR PERFORMANCE	LOW TEMP PERFORMANCE	VISCOSITY INDEX
Petroleum Oil	Poor	Poor	Poor	Good	Good	Poor	Poor
Vegetable Oils	Very Good	Very Good	Poor	Poor	Very Good	Poor	Very Good
Synthetic Esters	Very Good	Very Good	Poor	Good	Very Good	Very Good	Good
BIO-SYNXTREME HF (PAG)-Based Fluids	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good

BIO-SYNXTREME HF Series Polyalkylene Glycol (PAG)-Based Fluids deliver superior deposit control, hydrolytic stability and oxidative stability. They are readily biodegradable, have low eco-toxicity and are non-sheening.

BIO-SYNXTREME HF Series Specifications

LUBRIPLATE PRODUCT	*PRODUCT PART NO.	ISO GRADE	AGMA NO.	SAE GEAR OIL NO.	SAE NO.	VISCOSITY cSt @40°C / 100°C	VISCOSITY INDEX	FLASH POINT	FIRE POINT	POUR POINT
BIO-SYNXTREME HF-32	L1020-	32	-	-	10	35.4 / 8	194	520°F / 271°C	579°F / 304°C	-74°F / -59°C
BIO-SYNXTREME HF-46	L1021-	46	1	75W	20	46 / 9.8	200	594°F / 312°C	600°F / 316°C	-60°F / -51°C
BIO-SYNXTREME HF-68	L1022-	68	2	80W	20	68 / 13.7	209	550°F / 288°C	612°F / 322°C	-60°F / -51°C

*LUBRIPLATE BIO-SYNXTREME HF Series Fluids are available in 5 Gallon Pails (Package Part Number Suffix -060) and 55 Gallon Drums (Package Part Number Suffix -062).

LUBRIPLATE LUBRICANTS COMPANY

Newark, NJ 07105 / Toledo, OH 43605 / 800-733-4755 / www.lubriplate.com / LubeXpert@lubriplate.com





LUBRIPLATE® BIO-SYNXTREME HF SERIES

Polyalkylene Glycol (PAG)-Based,
Biodegradable (Pw1), Synthetic Hydraulic Fluids

Switching is Simple and Sensible

Customers eager for an optimally performing EAL can switch to a BIO-SYNXTREME HF FLUID following the below steps. PAG-based BIO-SYNXTREME HF FLUIDS are not compatible with mineral oils. Ensure the proper transition protocol is followed.

Checklist

- ✓ Ensure hydraulic system is thoroughly clean & free of contamination from previous fluids
- ✓ Oil filters are new
- ✓ Paint, plastics, seals & elastomers are compatible
- ✓ Standard industry procedures are followed

Flush Process

- ✓ Drain previous fluid from the equipment
- ✓ Replace fluid filters
- ✓ Fill the system with Bio-Synxtreme HF Fluid to be used. Run or circulate under minimum load for 24 hours. Bio-Synxtreme Fluid will generally clean varnish and sludge build-up formed from petroleum-based hydraulic fluids.
- ✓ Thoroughly drain the Bio-Synxtreme HF Fluid from the system while still warm
- ✓ Inspect the fluid filters and replace as needed
- ✓ Fill the equipment with fresh Bio-Synxtreme HF Fluid and begin normal operation
- ✓ Inspect and change filters as required

Compatibility

NOTE: BIO-SYNXTREME HF FLUIDS are not compatible with other hydraulic fluids.

Paints	Compatible Elastomers		
Some solvency for common oil-based paints	Viton	EPR	EPDM
Minimal solvency for many epoxy-based paints	Kalrez	Butyl Rubber	Natural Black Rubber
Still possible to convert to Bio-Synxtreme if system is painted	Silicone	Buna N	Natural Red Rubber
Need to monitor pump performance, paint surfaces, and filters	Polysulfide	Fluoraz	Aflas

Plastics Compatibility	25°C	100°C
Polypropylene	Recommended	Recommended
Polyethylene, Low Density	Recommended	Not Recommended
Homalite Polycarbonate	Not Recommended	Not Recommended
Lucite/Plexiglas Polymethylmethacrylate	Not Recommended	Not Recommended
Polyurethane	Not Recommended	Not Recommended

Due to variations that can exist between elastomers or plastics in the same generic family, it is important to test the compatibility of specific elastomers or plastics that are to be used in a critical application.