

BIODEGRADABLE HYDRAULIC OIL

(40, 68, Arctic 15)

DESCRIPTION

Biodegradable Hydraulic Oils are readily biodegradable by the Organization for Economic Co-operation and Development (OECD) standards. It is derived from extremely high quality renewable base stocks, which are 98% biodegraded after 28 days. These oils do not produce a lasting oily residue on water and do not impact plant and animal life. It can be trusted in all environmentally sensitive areas.

Biodegradable Hydraulic Oils are made of a blend of natural esters and high performance formula of premium additives. The natural esters provide excellent rust and oxidation (RO) resistance to metal components. The additive package is designed to provide unequalled anti wear (AW) and load carrying abilities, minimize foaming, enhance demulsibility and maintain a high degree of biodegradability.

Modern high performance hydraulic systems rely on fluids that can resist changes in viscosity as operating temperatures rise and fall. Shear stable viscosity modifiers provide high viscosity indexes (HVI) resulting in minimal temperature effects on fluid viscosity.

Biodegradable Hydraulic Oils are formulated with enhanced VI properties that enable equipment to maintain maximum hydraulic efficiency and component protection over a wider temperature range allowing year round service.

This proprietary formula readily separates water using advanced demulsibility components that greatly reduces or eliminates hydraulic issues associated with water. This product Meets OEM specifications for hydraulic pumps including Vickers and Dennison Pump tests.

Always practice OEM recommended hydraulic system maintenance procedures. Biodegradable Hydraulic Oils are compatible with mineral based oils, however the mixing of fluids may reduce overall performance and biodegradability. Where possible drain entire system before adding Biodegradable Hydraulic Oil

TYPICAL APPLICATION

- ▶ Biodegradable Hydraulic Oils are the ideal choice when working in environmentally sensitive areas especially around water.
- ▶ They are recommended for hydraulic systems in manufacturing facilities, lifts, winches, cranes, ship and submersible systems, heavy equipment working in environmentally sensitive areas, mobile and stationary equipment and pneumatic systems where the lubricant is exhausted into the air.

FEATURES & BENEFITS

- ▶ Made from high quality canola base stock for advanced biodegradability (Arctic 15 uses synthetic diester base stock)
- ▶ High performance additive packages matches or exceeds performance of mineral and synthetic based oils
- ▶ High flash point and wide operating range including extreme cold
- ▶ Reduced fluid operating temperatures resulting in extended pump, piston and rod life.
- ▶ Longer lasting metal components
- ▶ Reduced environmental damage and liability
- ▶ Extended hose life, reducing frequency of hose replacement
- ▶ Compatible with mineral oil based fluids

Exceeds the biological degradation requirements of CEC- L33-A93 and the OECD

ISO 40: Used in hydraulic equipment specifying ISO 32 or ISO 46 grade oils.

Arctic 15: Used in hydraulic equipment working at temperatures below -10°C

BIODEGRADABLE HYDRAULIC OIL (15, 40, 68)

TYPICAL PROPERTIES	ASTM METHOD	ISO 40	ISO 68	ARCTIC 15
ISO GRADE		40	68	15
Application Range (ISO)		32-46	68	15
Kinematic Viscosity @ -15°C(cSt)	D 445	n/a	n/a	175
Kinematic Viscosity @ 40°C(cSt)	D 445	40-46	68	16.16
Kinematic Viscosity @ 100°C(cSt)	D 445	9.0-10.5	14.84	4.69
Viscosity Index	D 2270	200	234	236
Density @ 20°C (kg/L)	D 1298	0.917	0.92	0.92
Pour Point (°C)	D 97	-35	-27	< -60
Flash Point (°C)	D 92	244	258	196
TAN (mg KOH/g)	D 664	0.83	n/a	n/a
TBN (mg KOH/g)	D 2896	1.93	n/a	n/a

PERFORMANCE TESTING				
Foaming Properties Sequence I - Init/Final (mL)	D 892	20/0 @256 sec	n/a	0/0
Foaming Properties Sequence II - Init/Final (mL)	D 892	35/0 @45 sec	n/a	5/0
Foaming Properties Sequence III - Init/Final (mL)	D 892	10/0 @182 sec	n/a	0/0
Oxidative Stability	D 2272	110 min	n/a	> 1000 min
Copper Corrosion	D 130	1 B	n/a	1 C
Rust Protection	D 665	Pass	Pass	Pass
Water Content (ppm)	D 4377	0.03%	n/a	n/a
Brookfield Viscosity (cP @ 60rpm)	D 2983	3200	n/a	n/a
Scanning Brook Field Viscosity @-35°C	D 5133	33.88	n/a	n/a
5000 cP	D 5133	-30.9	n/a	n/a
10 000 cP	D 5133	-33.2	n/a	n/a
20 000 cP	D 5133	-34.3	n/a	n/a
30 000 cP	D 5133	-34.8	n/a	n/a
40 000 cP	D 5133	-34.9	n/a	n/a
Kinematic Viscosity Storage @ -30°C(cSt)	D 2532	4748-4359	n/a	n/a
for 24 hours (cSt)	D 2532	6431-8783	n/a	n/a
for 72 hours (cSt)	D 2532	Frozen	n/a	n/a
Demulsibility @ 54°C(oil-water-emulsion)	D 1401	41-39-0	n/a	39-39-2
Separation time	D 1401	10 min	n/a	10 min
Dielectric Breakdown (kV)	D 877	n/a	n/a	39.25
Primary Biodegradability (%)	CEC-L-33-A	95	95	94
Ultimate Biodegradability (% @ 17 days)	OECD 306	n/a	n/a	100
Trout Toxicity @96 hrs LC50 (ppm)	OECD 203	n/a	n/a	> 2300

HEALTH & SAFETY

A complete material safety data sheet is available upon request. Used motor oil contains combustion by-products which may be harmful. Avoid prolonged or repeated skin contact. Wash clothing and exposed areas with soap and water. Don't pollute - return used oil to a collection center.