MARINE HYDRAULIC

HIGH-PERFORMANCE ASHLESS ZINC-FREE HYDRAULIC OIL

Royal Purple's Marine Hydraulic Oil is an inherently biodegradable, ashless, environmentally responsible, high performance hydraulic oil formulated for those users that need a high-performance oil to protect their equipment yet are concerned about the environment. Marine Hydraulic Oil meets the U.S. Fish and Wildlife Department's and the EPA's toxicity test requirements for marine life. Marine Hydraulic Oil is an excellent, high-performance, hydraulic oil for use in sensitive environments such as on offshore platforms and other marine related services.

The long life and high film strength of Marine Hydraulic Oil greatly increases equipment reliability. Marine Hydraulic Oil also provides excellent protection in highly corrosive environments. It gains its performance advantage over competing oils through its superior blend of base oils plus Royal Purple's proprietary Synerlec additive technology. This unique, synthetic additive technology is proven to make bearings and equipment run smoother, cooler, quieter, longer and more efficiently.

Synthetic base oils enable Royal Purple to make superior lubricants, but it is Royal Purple's advanced Synerlec additive technology that gives its lubricants their amazing performance advantages. Synerlec additive technology truly is beyond synthetic. Synerlec additive technology forms a tough, slippery, synthetic film on all metal surfaces. This proprietary film significantly improves lubrication: first, by increasing the oil film's thickness, and second, by increasing the oil film's toughness, both of which help to prevent metal-to-metal contact. It displaces moisture from metal surfaces and protects all metals against rust and corrosion. It also fortifies the oil against the detrimental effects of heat, which causes oil to oxidize.

For an Environmentally Acceptable Lubricant that meets U.S. VGP guidelines and is EcoLabel certified, we recommend Royal Purple BioMax EAL Hydraulic oil.

PERFORMANCE ADVANTAGES

HIGH FILM STRENGTH - Synerlec® additive technology dramatically reduces metal-to-metal contact, friction, and wear

EXCEPTIONAL CORROSION & RUST PROTECTION - Prevents internal damage to equipment from chemical attack

SUPERIOR OXIDATION & THERMAL STABILITY - Resists oil degradation and varnish formation for longer oil life

OUTSTANDING SYSTEM PERFORMANCE - Provides a wide operating temperature range and excellent shear stability

EXCELLENT DEMULSIBILITY - Rapidly separates from water, allowing free water to be drained from the system

OUTSTANDING ELASTOMER COMPATIBILITY - Will not harm seals designed for use with lubricating oils

ENVIRONMENTALLY RESPONSIBLE - inherently biodegradable, meets the U.S. Fish and Wildlife Department's toxicity requirements and has passed the EPA/600/4-90-027F* toxicity test requirement

PERFORMANCE ADVANTAGES

- B.F. Goodrich 0152
- Cincinnati Milacron P-68, 69, 70
- Denison P-46; T-5D; HF- 0, 1 & 2
- Ford M-6C32
- General Motors LH-04-1, 06-1, 15-1
- Jeffery No. 87
- Lee Norse 100-1
- Sperry Vickers I-286-S; M-2950-S
- U.S. Steel 127, 136
- Vickers 104C Vane; 35VQ-25

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TECHNICAL DATA

Property	Test Method	15	22	32	46	68
Density @15°C, g/cm3	ASTM D4052	0.86	0.87	0.86	0.88	0.89
Viscosity @ 40°C, cSt	ASTM D445	15	22	32	46	68
Viscosity @ 100°C, cSt	ASTM D445	3.5	4.5	5.7	7.1	9.0
Viscosity Index	ASTM D2270	112	118	119	114	107
Flash Point, °C (°F)	ASTM D92	219 (426)	224 (435)	227 (441)	232 (450)	232 (450)
Pour Point, °C (°F)	ASTM D97	-51 (-60)	-48 (-54)	-45 (-49)	-42 (-44)	-42 (-44)
Rust Preventing, Dist. Water	ASTM D665A	PASS	PASS	PASS	PASS	PASS
Rust Preventing, Sea Water	ASTM D665B	PASS	PASS	PASS	PASS	PASS
Copper Corrosion	ASTM D130	1A	1A	1A	1A	1A
Foam Tendency, Seq. I, II, III	ASTM D892	0/0	0/0	0/0	0/0	0/0
Demulsibility, @130°F	ASTM D1401	41/38/1 (5)	40/40/0 (5)	40/40/0 (10)	40/39/1 (10)	42/38/0 (10)
FZG Gear Test, A/8.3/90	ASTM D5182	n/a	12+	12+	12+	12+
Biodegradability, % (28 days)	OECD 301B	20-60	20-60	20-60	20-60	20-60

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