

ROYAL PURPLE® *MARINE HYDRAULIC OIL™*

PASSES 600/4-90/027A



High Performance Synthetic Blend 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 off-shore 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.

Synerlec® additive technology makes the difference!

Synthetic oils enable Royal Purple to make superior lubricants, but it is Royal Purple's proprietary, advanced, Synerlec® additive technology that enables Royal Purple to make truly amazing lubricants. Royal Purple's lubricants formulated with Synerlec® additive technology have redefined lubrication excellence. Synerlec® additive technology's performance truly is *beyond synthetic™*.

Synerlec® additive technology forms a tough, slippery, synthetic film on all metal surfaces. This 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. Synerlec® additive technology 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.



Royal Purple's Marine Hydraulic Oil™ components are TSCA listed and meet EPA, RCRA and OSHA toxicity requirements.

Performance Advantages:

- **High Film Strength**
Royal Purple's Marine Hydraulic Oil™ with Synerlec® additive technology protects hydraulic components beyond the ability of other environmentally friendly hydraulic oils.
- **Longer Oil Life**
Marine Hydraulic Oil™ has outstanding oxidation stability and keeps equipment clean.
- **Extremely Clean Oil**
Clean oil is critical to the life and reliability of hydraulic systems. Marine Hydraulic Oil™ is packaged in new poly containers that will not rust in salty atmospheres. It has a typical ISO 4406:99 Cleanliness Level of 14/13/11 (currently for ISO viscosity grades 32, 46 & 68 only). This is up to 250 times cleaner than other new hydraulic oils delivered in steel drums, which will rust in salty atmospheres, or by bulk delivery.
- **Excellent Corrosion Protection**
Royal Purple's Marine Hydraulic Oil™ with Synerlec® additive technology's tough oil film forms an ionic bond on metal surfaces. This film not only protects during operation and acts as a preservative oil during shutdown, but it also provides instant lubrication upon startup to prevent wear.
- **Improved System Performance**
Marine Hydraulic Oil™ frequently lowers operating temperatures and restores smooth, consistent performance to erratically operating hydraulic systems.
- **Rapidly Separates from Water**
Marine Hydraulic Oil™ rapidly and completely separates from water, which can easily be drained from the bottom of oil reservoir to keep the oil dry.
- **Synthetic Solvency**
Marine Hydraulic Oil's natural solvency cleans up dirty equipment and keeps it clean.
- **Compatible with Seals**
Marine Hydraulic Oil™ has excellent seal compatibility.
- **Environmentally Responsible**
The components of Marine Hydraulic Oil™ are TSCA listed and meet EPA, RCRA and OSHA requirements. It is inherently biodegradable, meets the U.S. Fish and Wildlife Department's toxicity requirements and has passed the EPA/600/4-90/0274 toxicity test requirement. It extends oil drain intervals due to longer oil service life, eliminates premature oil changes due to oil / water emulsions, greatly reduces oil purchases and disposal costs and conserves energy.

MARINE HYDRAULIC OIL™

High Performance Synthetic Blend Hydraulic Oil



Beyond Synthetic™

Marine Hydraulic Oil™ meets or exceeds the requirements of these manufacturers:

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

Typical Properties*	ISO Grade					
	22	32	46	68	100	150
Viscosity						
cSt @ 40°C	22.0	32.0	46.0	68.0	100.0	150.0
cSt @ 100°C	4.4	5.6	7.0	9.1	11.9	15.9
SSU @ 100°F						
SSU @ 210°F						
Viscosity Index	105	111	110	109	111	109
Flash °F	405	415	445	475	505	505
Pour Point °F	-40	-40	-35	-35	-25	-25
ISO Cleanliness Level 14/13/11	**	Yes	Yes	Yes	—	—
D-1401 Demulsibility	Pass	Pass	Pass	Pass	Pass	Pass
D-130 Copper Corrosion						
3 hrs. @ 210°F	1A	1A	1A	1A	1A	1A
24 hrs. @ 210°F	1A	1A	1A	1A	1A	1A
Cincinnati Millicron "A"						
Corrosion / Oxidation	Pass	Pass	Pass	Pass	Pass	Pass
D-665 Rust Test						
Fresh Water	Pass	Pass	Pass	Pass	Pass	Pass
Salt Water	Pass	Pass	Pass	Pass	Pass	Pass
D-892 Foam Tendency	Nil	Nil	Nil	Nil	Nil	Nil
Specific Gravity @60°F	0.872	0.880	0.885	0.890	0.893	0.899
Lbs / Gal	7.26	7.33	7.37	7.41	7.44	7.47

*All properties are typical and may vary.

**Check with manufacturer regarding availability with 14/13/11 cleanliness.

Note: When changing to Marine Hydraulic Oil™, its solvency cleans wear metals and deposits left by previous oils. These wear metals and deposits may cause abnormally high values based on used oil analysis until equipment is clean.

Spillage and Disposal: All spills of Royal Purple's Marine Hydraulic Oil™ should be handled in the same manner as conventional mineral oil spills.