AEGIS®

Two-Cycle Natural Gas Engine Oil

ROYAL PURPLE®

Beyond Synthetic™

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Aegis® is an ashless, high performance, synthetic gas engine oil blend designed to offset rising fuel and operating costs. Aegis® is primarily formulated for two-cycle gas engines, but its oxidation stablity makes it an excellent four-cycle engine oil. It is tailor-made for companies seeking to increase profits through reductions in operating expenses.

Aegis® is formulated with Royal Purple's proprietary Synerlec® additive technology. Synerlec® additive technology forms a tough oil film on all metal surfaces, which virtually eliminates metal-to-metal contact.

Aegis® has a lower coefficient of friction, which saves fuel, and it keeps engines clean for maximum combustion efficiency. Its high film strength properties prevent piston ring / cylinder scuffing and seizing and extends bearing life. Aegis® also keeps filters from plugging and greatly extends the oil life in four-cycle engines.

Synerlec® additive technology makes the difference!

Synthetic 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.

Performance Advantages:

- **Saves Fuel**
  Slippery, synthetic molecules reduce fluid friction, which saves money by reducing fuel consumption — the single largest operating expense.
- **Protects Against Corrosion**
  Synthetic inhibitors provide superior rust and corrosion protection during operation and shutdown.
- **Extended Equipment Life**
  Synerlec® additive technology's superior high film strength extends equipment life and overhaul intervals.
- **Cleaner Equipment**
  Aegis® keeps ports, pistons, crankcases and filters clean.

Performance Advantages, Continued

- **Low Temperature Fluidity**
  The fluid, synthetic molecules in Aegis® offer excellent low temperature pumpability, which reduces the need for engine oil heaters.
- **Prevents Piston Ring / Cylinder Seizing and Scuffing**
  Aegis® contains Royal Purple's proprietary Synerlec® additive technology, a super-tough, slippery, synthetic lubricating film that makes gas engines run smoother, quieter, cooler, longer and more efficiently. Synerlec® additive technology prevents piston ring / cylinder scuffing and seizing in many large engines where this is a problem.
- **Reduces Vibrations**
  Aegis® micro-polishes contacting metal surfaces allowing them to properly mate for smoother running engines, compressors, turbochargers, bearings, etc.
- **Greater Wetting Ability**
  Aegis® tenaciously coats cylinder walls, improving ring / liner seal and often allowing feed rates to be reduced, which reduces oil consumption.
- **Super Detergency**
  Aegis® keeps ports, rings and cylinders extremely clean for maximum combustion efficiency. It keeps filters virtually free from varnish, lacquer and sludge deposits.
- **Ashless**
  Aegis® is preferred for two-cycle gas engines and is acceptable for most four-cycle gas engines.
- **Environmentally Responsible**
  The components of Aegis® are TSCA listed and meet EPA, RCRA and OSHA requirements. It extends oil drain intervals, eliminates premature oil changes, decreases the amount of oil purchased and disposed of and conserves energy.
- **Super Solvency (on request)**
  Royal Purple recommends Aegis® with super solvency in all engines; however, oil and filter life may be shortened as it cleans up deposits left by previous oils. For fast clean up of dirty engines, Royal Purple recommends adding our synthetic solvent Max-Solv™ to the existing oil five days prior to changing to Aegis®. Once the engine is clean, use Aegis® with super solvency as the standard engine lubricant. (See reverse side for filter recommendations.)
- **Superior Lubrication**
  Synerlec® additive technology vastly improves turbocharger performance. Turbochargers turn freely as evidenced by their greatly increased coast-down time.

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Typical Properties*	SAE Grade 30	40
Viscosity		
cSt @ 40˚C	95.0	125.4
cSt @ 100˚C	11.8	14.4
SSU @100˚F	492	652
SSU @ 210˚F	67	77
Viscosity Index	115	115
Flash ˚F	440	425
Fire ˚F	505	490
Pour Point	-15	-10
Super Detergency	Yes	Yes
Synthetic Solvency**	On Request	On Request
Corrosion Test		
Copper	Pass	Pass
Bronze	Pass	Pass
Rust Test		
Fresh Water	Pass	Pass
Salt Water	Pass	Pass
Timken OK Load, Lbs.	60	60
Four Ball EP Test		
Weld Load, kgf	315	315
Four Ball Wear Test		
20 kg	.43	.42
40 kg	.52	.51
Foam Tendency	Nil	Nil
Sulfated Ash, %	Nil	Nil

*Properties are typical and may vary.

**Synthetic Solvency is available to operators who wish to clean engine and cooler deposits left by previous oils. Its use may shorten the first oil and / or filter change interval, depending on the amount of engine deposits, which should be determined with oil analysis. Full flow filters are desirable if super solvency is used. By-pass filters can be used with close supervision and frequent oil analysis. Once the engine is clean either filter may be used. (Detergency keeps new deposits from forming. Only solvency can clean oil engine deposits.)

Note: The solvency of Aegis® cleans wear metals and deposits left by previous oils. These wear metals and deposits can cause abnormally high values on used oil analysis until the engine is clean.

Lubricant Selection Chart

Two-Cycle Engines

Manufacturer	Lubricant
Cooper (Cooper-Bessemer)	
BMEP <85 PSI	Aegis® SAE 40
BMEP >85 PSI	Aegis® SAE 40
Clark (Dresser Rand)	Aegis® SAE 40
Worthington (Dresser-Rand)	Aegis® SAE 40
Fairbanks Morse (MEP)	
Oil Temp. <185˚F	Quadrex® SAE 40
Oil Temp. >185˚F	Quadrex® SAE 40
Ajax (Cooper Energy Service)	Aegis® SAE 40

Note: Royal Purple offers two premium, energy saving, gas engine oils. 1)Aegis® “ashless” and 2)Quadrex® “low ash”. Aegis® is preferred for 2-cyle engines and Quadrex® is preferred for 4-cycle engines, although both are acceptable in either case.

Four-Cycle Engines

Manufacturer	Lubricant
Cooper-Bessemer	
BMEP <175 PSI	Quadrex® SAE 40
BMEP >175 PSI	Quadrex® SAE 40
Ingersol (Dresser Rand)	
Category I, II, III	Quadrex® SAE 30
Superior	
Natural Aspirated	Quadrex® SAE 40
Waukesha	
All Gas Engine Models	
Oil Temp. 160-195˚F	Quadrex® SAE 30
Oil Temp. 195-230˚F	Quadrex® SAE 40
Caterpillar	
All Models	Quadrex® SAE 30, 40

Note: models 3300, 3400, 3500, & 3600 — low ash oil is preferred.

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