

ROYAL PURPLE[®] MOTOR OIL

High Performance Engine Oil



Beyond Synthetic[™]

Beyond Synthetic[™]

Royal Purple Motor Oil is recommended for use in all four-cycle gasoline engines and both two-cycle and four-cycle diesel applications including automotive, commercial fleet and stationary industrial diesel engines.

Royal Purple Motor Oil is a tough, long life, high performance oil that delivers superior protection and enhanced performance to gasoline and diesel engines. It gains its performance advantages from a blend of synthetic base oils plus Royal Purple's advanced synthetic additive technologies.

Royal Purple's proprietary additive technologies greatly reduce engine wear, including ring, cylinder and bearing wear. It is extremely tenacious, adheres to engine surfaces and remains after shutdown, which provides protection upon initial startup.

Royal Purple gains its performance advantages from its proprietary additive technologies such as Synerlec[®]

Synthetic oils enable Royal Purple to make superior lubricants, but it is Royal Purple's advanced synthetic additive technologies that gives Royal Purple's lubricants their amazing performance advantages. Royal Purple's proprietary additive technologies such as Synerlec[®] truly are *beyond synthetic*.[™]

Royal Purple's advanced synthetic additive technologies such as Synerlec[®] form a tough, slippery, synthetic film on all metal surfaces. This proprietary film significantly improves lubrication: first, by increasing oil film thickness and second, by increasing oil film 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:

- **Greater Wear Protection**
Royal Purple's advanced additive technologies form a tough, tenacious film on all metal surfaces virtually eliminating engine wear.
- **Greatly Extends Oil Drain Intervals**
Royal Purple Motor Oil is extremely oxidation stable and stands up to the heat that causes oils to thicken, form lacquer and varnish deposits, lose its lubricity and shorten the life of both the oil and the engine.
- **Superior Corrosion Protection**
Royal Purple's advanced additive technologies protects during normal and severe operation and acts as a preservative oil during shut-down, which provides protection upon initial startup.
- **Saves Fuel**
Royal Purple Motor Oil's low coefficient of friction routinely produces meaningful improvements in fuel economy.
- **Reduces Exhaust Emissions**
Royal Purple Motor Oil provides a superior seal between the piston ring and cylinder wall, which reduces blow-by, improves combustion efficiency and measurably reduces harmful emissions.
- **Increases Horsepower**
Royal Purple Motor Oil increases horsepower and torque over conventional oils.
- **Keeps Engines Clean**
Royal Purple Motor Oil's natural solvency cleans deposits left by old oils and keeps engines clean.
- **Mates Engine Parts**
Royal Purple's advanced additive technologies allow engine parts to perfectly mate. Mated parts allow engines to run smoother with increased efficiency for maximum performance.
- **API Warranty Approved**
Royal Purple's SAE grade motor oils are API licensed. They are compatible with other mineral and synthetic motor oils. Switching is easy. Drain old oil. Change the filter. Add Royal Purple Motor Oil. Follow manufacturer's recommended drain intervals during warranty.
- **Will Not Harm Seals**
Royal Purple Motor Oil has the same excellent seal compatibility as mineral engine oils.
- **Environmentally Responsible**
Royal Purple Motor Oil components are TSCA listed and meet EPA, RCRA and OSHA requirements. Royal Purple Motor Oil extends oil drain intervals, eliminates premature oil changes, decreases the amount of oil purchased and disposed of and conserves energy.

ROYAL PURPLE MOTOR OIL

High Performance Engine Oil



Beyond Synthetic™

GASOLINE ENGINES — Typical Properties*

ASTM TESTS		SAE GRADE / API SERVICE							
		0W40**** SM/CF	5W20** SL	5W30** SL	5W40**** SM/CF	10W30** SL	10W40 CG-4, CH-4 CI-4/SL	15W40**** CG-4, CH-4 CI-4/SL	20W50 CF/SJ
D-445	Viscosity								
	cSt @ 40°C	79.9	49.5	65.3	93.7	70.3	94.0	110.1	170.0
	cSt @ 100°C	14.3	8.7	11.0	15.7	10.8	14.0	15.3	20.2
	SSU @100°F	395	253	332	476	360	482	567	880
	SSU @ 210°F	74	56	64	82	63	75	79	102
D-2270	Viscosity Index	182	156	157	179	140	148	140	138
D-4684	Pumping Viscosities								
	cP @ -40°C	20,000	—	—	—	—	—	—	—
	cP @ -35°C	—	22,200	34,800	21,500	—	—	—	—
	cP @ -30°C	—	—	—	—	18,200	14,900	—	—
	cP @ -25°C	—	—	—	—	—	—	15,200	—
	cP @ -20°C	—	—	—	—	—	—	—	18,800
D-92	Flash Point °F	465	455	440	425	430	400	450	435
D-92	Fire Point °F	495	480	480	470	480	435	470	470
D-2896	Total Base No.	11	12	12	11	12	12.0	10.5	10.5

*Properties are typical and may vary. **API energy conserving.
 ***For use in both gasoline and diesel engines. Meets DDC Powerguard 93K214, Cummins 20078 requirements and Caterpillar ECF-1 & ECF-2.
 **** 0W40 Meets and or exceeds European specs ACEA A3/B3-04 warranty requirements.
 ***** 5W40 Meets and or exceeds European specs ACEA A2-96 and A3-02 warranty requirements.
 ***For use in both gasoline and diesel engines.

GASOLINE ENGINES — Typical Properties*

ASTM TESTS		SAE GRADE / API SERVICE		
		30 CF,CF-2/SJ	40 CF,CF-2/SJ	50 CF,CF-2/SJ
D-445	Viscosity			
	cSt @ 40°C	79.0	121.0	182.0
	cSt @ 100°C	10.6	14.2	18.6
	SSU @100°F	408	631	955
	SSU @ 210°F	63	74	92
D-2270	Viscosity Index	119	113	113
D-92	Flash Point °F	460	460	460
D-92	Fire Point °F	515	515	515
D-2896	Total Base No.	10.5	10.5	10.5

Royal Purple 40 DD is recommended for operation with Detroit Diesel Series 149 Two-Stroke Cycle Engines running with the percentage of fuel sulfur less than 0.5 percent mass. If higher sulfur fuels are used in normal climactic conditions, then Royal Purple's SAE 40 or 50 CF,CF-2/SJ engine oils with total base numbers of 12 are recommended. In extremely cold climactic conditions (-18°C to -32°C), Royal Purple's 10W40 grade CF,CF-2/SJ with HTHS Vis cP of 4.05 may be used in all of the above engines except the Series 149 engines. Consult your Detroit Diesel manual for recommendations on monitoring drain intervals under these conditions.

Royal Purple Motor Oil meets or exceeds car manufacturers oil specifications and will not void warranty. Follow manufacturer's recommended drain intervals during warranty.

Note: Engine oil's solvency 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.

DIESEL ENGINES — Typical Properties*

ASTM TESTS		SAE GRADE / API SERVICE		
		40 DD CF-2	10W30D CH-4/SJ CI-4/SL	15W40** CH-4/SJ CI-4/SL
D-445	Viscosity			
	cSt @ 40°C	138.9	67.3	110.1
	cSt @ 100°C	15.0	10.9	14.9
	SSU @100°F	725	344	567
	SSU @ 210°F	100	62	79
D-2270	Viscosity Index	108	144	140
D-92	Flash Point °F	460	400	435
D-92	Fire Point °F	510	450	470
D-97	Pour Point °F	-40	-56	-44
D-2896	Total Base No.	7.5	10.0	10.5
D-874	Sulfate Ash %	0.72	—	—
D-4951	Zinc, ppm	812	—	—

*Properties are typical and may vary
 **Royal Purple has Volvo VDS-3 approval on 15W40. RP approval # VDS3-03-075