

DURON™ HEAVY DUTY DIESEL ENGINE OILS

Introduction

Petro-Canada's DURON™ line of premium performance multigrade diesel engine oils deliver industry leading protection against increased wear which can lead to lower productivity and impaired fuel economy. They have been specifically designed to outperform various ACEA performance requirements, as well as various API service requirements, such as CK-4, CJ-4 and previous. These diesel engine oils exceed the highest standards of performance and provide extended drain capabilities and excellent all weather performance.

DURON heavy duty diesel engine oils deliver superior engine protection and operational efficiency. Made with high quality base oils and premium additive chemistries, DURON outperforms API and ACEA requirements, as well as demanding OEM specifications to provide tangible benefits such as longer engine life, extended oil drain intervals*, better all weather performance and better efficiency resulting in increased productivity.

Features and Benefits

- **Ultimate wear protection**
 - Superior engine protection
 - Maximises uptime and helps lower maintenance costs
 - Extends drain intervals
- **Advanced Engine Protection**
 - Ultra pure, consistent quality base oils help minimize engine sludge and piston top groove deposits, thereby maintaining 'like new' engine conditions
 - Protection and performance that exceed the expectations of leading OEMs
- **Reduced oxidative thickening**
 - Helps maintain peak fuel economy
 - Extends drain intervals
 - Ensures continued low temperature protection
- **Better Low Temperature Pumpability**
 - Exceptional cold start-up protection
- **Better Shear Stability**
 - High Viscosity Index (VI) base oils and shear stable viscosity modifiers help maintain stay in grade viscosity performance for reduced engine wear and improved engine protection over the life of the oil

- High oil film strength for high temperature protection
- Exceptional after shear viscosity retention helps protect your engine
- **Reduced oil consumption**
 - Low volatility base oils decrease vaporisation so less oil is lost, efficiency is improved, and the oil retains more of its fresh oil properties
 - Reduces oil top-up frequency
- **Greater Piston Cleanliness**
 - Significantly reduces deposit-causing sludge
 - Helps maintain engine integrity, performance and efficiency
- **Better Resistance to Corrosion**
 - Helps maintain engine performance and efficiency
- **Advanced soot control**
 - Effectively controls and disperses particulate matter and soot while controlling viscosity increase
 - Helps reduce wear and maintain fuel economy

Product Line

DURON heavy duty diesel engine oils listed here are formulated to exceed various ACEA, API, and OEM requirements. For a full list of Approvals and Recommendations, please see the following page.

DURON UHP E6 10W-40

DURON UHP E6 10W-40 is an Ultra High Performance synthetic diesel engine oil specifically designed to outperform ACEA E6 requirements and protect engines in severe conditions. With a full suite of approvals far exceeding major OEM requirements, DURON UHP E6 10W-40's performance is not just impressive – it's proven. DURON UHP E6 10W-40's unmatched quality provides exceptional engine protection, longer engine life, extended oil drain intervals, best-in-class all weather performance and better operating efficiency for many on-road and off-road applications.

DURON UHP E6 5W-30

DURON UHP E6 5W-30 is an Ultra High Performance low SAPS and low viscosity synthetic diesel engine oil specifically designed to outperform ACEA E6 requirements (as well as E4, E7, and E9). DURON UHP E6 5W-30 has a full complement of OEM approvals far exceeding

What is the HT difference?

Petro-Canada Lubricants starts with the HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.



*Extending drain intervals should always be undertaken in conjunction with an oil analysis program.

major OEM requirements and provides excellent engine protection in tough environments. DURON UHP E6 5W-30 also provides longer engine life, extended oil drain intervals†, excellent all weather performance and improved fuel economy in many applications. Assessed within a controlled environment designed to reflect real world use, DURON UHP E6 5W-30 delivered up to 2.34%* improvement in fuel efficiency and emissions.

DURON SHP E6 10W-40

DURON SHP E6 10W-40 is a Super High Performance Diesel engine oil specifically designed to meet ACEA E6 requirements and protect engines in severe conditions. With a suite of industry and OEM approvals, DURON SHP E6 10W-40 provides strong engine protection, long engine life, extended oil drain intervals, all weather performance and better operating efficiency for many on-road and off-road applications.

DURON HP 15W-40

In addition to exceeding ACEA E9 standards and approval for API CK-4, DURON HP 15W-40 demonstrates excellent all weather performance including dependable cold start-up performance and exceptional shear stability. This helps minimize engine wear and oil consumption for maximum efficiency. DURON HP 15W-40's 99.9% pure base oils contribute to its proven extended oil drain capabilities in severe service conditions and helps keep fleets in service for longer, while protecting critical engine parts.

DURON SHP 15W-40

DURON SHP 15W-40 is formulated with a synthetic base oil blend and high-performance additive package to exceed ACEA E7 and E9 standards, and is approved for API CK-4. It has been designed to deliver exceptional engine protection and all weather performance. Excellent shear stability and low temperature pumpability help deliver comprehensive protection to vital engine parts while promoting engine performance in a wide range of operating conditions.

DURON SHP 10W-30

DURON SHP 10W-30 is a Super High Performance synthetic blend heavy duty engine that delivers advanced engine protection and all-weather performance. It provides optimal engine durability and can deliver up to 1%** fuel economy performance. DURON SHP 10W-30 keeps its fresh oil properties longer allowing for extended drains (versus OEM standard intervals)† and reduced need for top-up oil.

DURON UHP 10W-40

As an Ultra High Performance synthetic all-weather heavy duty diesel engine oil, DURON UHP 10W-40 is designed to exceed ACEA E9 requirements and is approved to API CK-4 requirements, and provides excellent protection against engine wear while extending oil drain intervals†. Its superior pumpability, excellent shear stability, outstanding engine wear control and oil top-up performance increase operating efficiency without compromising engine protection. DURON UHP 10W-40's combination of 99.9% pure base oils and additives can help make fleets more efficient by decreasing engine downtime and enhancing reliability.

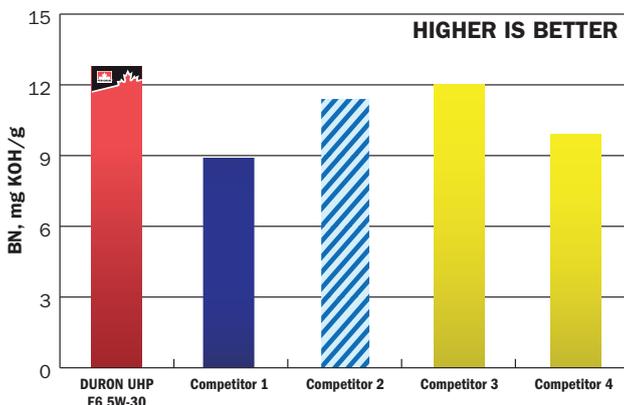
DURON UHP 0W-30 and 0W-40

DURON UHP 0W-30 and 0W-40 are formulated for extreme cold service operations where reduced wear through ease of start-up and is the ultimate priority. They are Ultra High Performance heavy duty engine oils with top performance additives and high quality synthetic base oils that can help users extend oil drain intervals†.

DURON UHP 5W-40

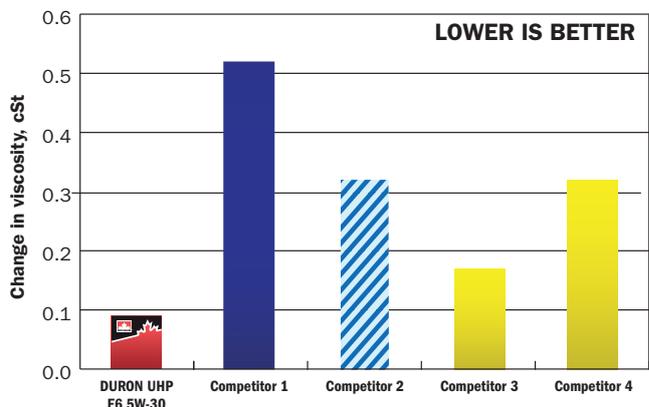
DURON UHP 5W-40 is an Ultra High Performance full synthetic heavy duty engine oil that provides excellent protection and performance, especially in low temperature environments. It helps conserve energy and reduces engine wear through ease of cold weather start-up and lower viscous drag while maintaining a strong oil film in service.

Base Number (ASTM D2896)



BN is a measure of the oil's potential ability to neutralize harmful acids formed during the combustion process. Counteracting harmful acids helps to mitigate potential corrosion caused by the acids. New DURON UHP E6 has significantly improved BN value, and exceeds all competitive products tested.

Shear Stability - Change in KV100 after 90 cycles Kurt Orbahn (ASTM 7109)



Customers expect their heavy duty engine oils to demonstrate good shear stability and stay in grade for the duration of their service life. Shearing could result in increased engine wear. DURON UHP E6 is less likely to shear below grade than the competitors.

* Comparing 5W-30 with 10W-40. Fuel economy improvements for lower viscosity engine oils will vary and may be affected by numerous external factors including, but not limited to: condition of the vehicle, driver habits, driving terrain, weather conditions, tire pressure and severity of operating conditions.

** Comparing 15W-40 with 4.1cP HTHS vs 10W-30 with 3.5cP HTHS.

†Extending drain intervals should always be undertaken in conjunction with an oil analysis program.

Approvals and Recommendations

★ Approved ● Suitable For Use ✓ Meets Specifications

PRODUCTS	DURON UHP E6 10W-40	DURON UHP E6 5W-30	DURON SHP E6 10W-40	DURON HP 15W-40	DURON SHP 15W-40	DURON SHP 10W-30	DURON UHP 10W-40	DURON UHP 0W-40	DURON UHP 0W-30	DURON UHP 5W-40
 ACEA	✓ E4, E6, E7, E9	✓ E4, E6, E7, E9	✓ E6, E7, E9	✓ E7, E9	✓ E7, E9	✓ E7, E9	✓ E7, E9	✓ E7, E9		✓ E7, E9
 API AMERICAN PETROLEUM INSTITUTE	★ CJ-4 / SN	★ CJ-4 / SN	✓ CI-4	★ CK-4 / SN	★ CK-4 / SN	★ CK-4 / SN*	★ CK-4 / SN	★ CK-4 / SN	● CK-4 / SN	★ CK-4 / SN
 CAT	✓ ECF-3	✓ ECF-3		✓ ECF-3, TO-2	✓ ECF-3, TO-2	✓ ECF-3, TO-2	✓ ECF-3, TO-2	✓ ECF-3, TO-2	● ECF-3, TO-2	✓ ECF-3, TO-2
 Cummins	★ CES 20081	★ CES 20081	● CES 20077	★ CES 20086	★ CES 20086	★ CES 20086	★ CES 20086	★ CES 20086	● CES 20086	★ CES 20086
 DAF	✓ Standard and Extended Drain	✓ Standard and Extended Drain	✓ Standard and Extended Drain	✓ Standard Drain	✓ Standard Drain	● Standard Drain	✓ Standard Drain	✓ Standard Drain		● Standard Drain
 DETROIT DIESEL	★ DDC 93K218	★ DFS 93K218		★ DFS 93K222	★ DFS 93K222	★ DFS 93K222	★ DFS 93K222			★ DFS 93K222
 DEUTZ	★ DQC IV-10 LA	★ DQC IV-10 LA	★ DQC IV-10 LA	★ DQC III-10 LA	★ DQC III-10 LA		★ DQC III-10 LA			
 Ford				★ WSS-M2C171-F1	★ WSS-M2C171-F1	★ WSS-M2C171-F1	★ WSS-M2C171-F1			★ WSS-M2C171-F1
 GM				● 9985930	● 9985930	● 9985930	● 9985930			
 IVECO	✓ 18-1804	✓ 18-1804								
 JASO				● MA2, DH-1, DH-2	● MA2	● MA2	● MA2, DH-1, DH-2			
 MAACK	★ EO-0 PP '07	★ EO-0 PP '07	★ EO-N	★ EOS-4.5	★ EOS-4.5	★ EOS-4.5	★ EOS-4.5			★ EOS-4.5
 MAN	★ 3477, 3271-1	★ 3271-1, 3477, 3677, 3691	★ 3477/3271-1	● 3575, 3275-1	● 3575, 3275-1					
 Mercedes-Benz	★ 228.51	★ 228.51	★ 228.51	★ 228.31	★ 228.31	★ 228.31				
 MTU	★ Type 3.1	★ Type 3.1	★ Type 3.1	★ Type 2.1	★ Type 2.1		● Type 2.1			● Type 2.1
 PENTACORE	★ RLD-3	★ RLD-3	★ RLD-2	★ RLD-3	★ RLD-3	★ RLD-3				★ RLD-3
 SCANIA	★ LA**	★ LDF-4**								
 VOLVO	★ VDS-4	★ VDS-4	★ VDS-3	★ VDS-4.5	★ VDS-4.5	★ VDS-4.5	★ VDS-4.5			★ VDS-4.5

* Use of a diesel engine oil for gasoline applications may compromise the life of the emissions device. Please refer to the owner's manual to ensure proper oil is used.
 ** Technical confirmation of meeting performance requirements received from Scania.

Applications

Car and Light Duty Diesel Engines

DURON engine oils are also suitable for use in diesel powered engines in smaller vehicles, including passenger cars and light trucks where API CK-4, CJ-4, CI-4 Plus, CI-4, CH-4 or earlier specifications are required. Consult your owner's manual.

Gasoline and CNG Engines

Many of the DURON diesel engine oils exceed the latest API SN gasoline engine oil specification and are suitable for some gasoline and CNG applications where API SN or earlier specifications are required. Many are also suitable for use in wet clutch applications where JASO MA2 is recommended. Please reference the Approvals and Recommendations list on the previous page to ensure you are using the correct product for your application.

Stationary & Marine type Diesel Engines

DURON HP and SHP 15W-40's may be used in diesel-fuelled stationary and marine systems where an SAE 15W-40 diesel engine oil is specified and water separation is not required.

Typical Performance Data

PROPERTY	ASTM TEST METHOD	DURON UHP E6 10W-40	DURON UHP E6 5W-30	DURON SHP E6 10W-40	DURON HP 15W-40	DURON SHP 15W-40	DURON SHP 10W-30	DURON UHP 10W-40	DURON UHP 0W-40	DURON UHP 0W-30	DURON UHP 5W-40
Flash Point, COC, °C	D92	223	217	225	228	226	220	229	224	220	235
Kinematic Viscosity cSt @ 40°C	D445	95.8	69.4	95.1	118	114	80.1	107	82	65.2	95.1
cSt @ 100°C		14.4	11.8	14.2	15.6	15.4	12.0	15.5	14.5	11.5	14.3
Viscosity Index	D2270	156	167	153	139	142	145	157	180	173	169
High Temp/High Shear Viscosity cP @ 150°C	D4683	4.1	3.5	3.8	4.1	4.1	3.5	4.1	3.9	3.4	3.8
Cold Cranking Viscosity, cP @ °C	D5293	6400 (-25)	5930 (-30)	5550 (-25)	5540 (-20)	5000 (-20)	5570 (-25)	5930 (-25)	5900 (-35)	5400 (-35)	5900 (-30)
Pour Point, °C	D5950	-42	-45	-45	-36	-36	-42	-42	-45	-45	-45
Borderline Pumping Viscosity cP @ °C	D4684	18290 (-30)	18100 (-35)	25270 (-30)	21350 (-25)	18340 (-25)	18160 (-30)	24700 (-30)	28300 (-40)	19600 (-40)	30370 (-35)
Sulphated Ash, % wt	D874	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Base No. (BN), mg KOH/g	D2896	13.1	13.1	11.0	9.8	9.8	10.0	10.0	9.5	9.7	11

The values quoted above are typical of normal production. They do not constitute a specification.

To order product or to learn more about how Petro-Canada Lubricants can help your business visit: lubricants.petro-canada.com or contact us at: lubecsr@petrocanadalsp.com



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