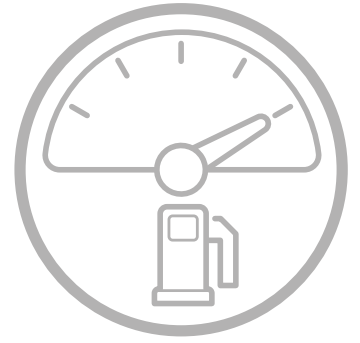


DRIVING YOUR **COSTS DOWN**



Our 10-step guide
to lower viscosity engine oils



PETRO-CANADA

LUBRICANTS

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SUMMARY

In recent times, awareness of our collective impact on the environment has increased demand for fuel saving initiatives. In fact, many countries have specific plans to reduce the rate of fossil fuel consumption in heavy duty vehicles. However, it's not just the environment that will benefit from these changes. Fuel is one of the leading operating costs for heavy duty trucking fleets – often accounting for 30-40% of your overall costs – and even small decreases can have a significant impact on your bottom line. Switching to low viscosity engine oil is just one of the ways you can reduce your overall fuel consumption.

HOW DO LOW VISCOSITY ENGINE OILS WORK?

Lower viscosity engine oils reduce viscous drag on moving parts and enable oil to flow more efficiently through the engine, which can improve fuel economy. The results are even more impressive in colder climates, where lower viscosity engine oils can reduce the time it takes for engines to warm up.

THE NEW STANDARD

PC-11, the next American Petroleum Institute (API) commercial engine oil performance category, which is now known as API CK-4 and FA-4 performance categories, has placed a heavy focus on improving fuel economy. Many Original Equipment Manufacturers (OEMs) are already benefitting from fuel economy focused products. In fact, in 2013, Kenworth announced it would use SAE 10W-30 oil as its standard factory fill for new Class 8 diesel trucks. Many other OEMs, such as Mercedes-Benz, Volvo, Detroit Diesel and Cummins now also recommend or have allowed lower viscosity grade oils, such as SAE 10W-30 and 5W-30.

BEFORE YOU SWITCH

If you're planning to make the transition to lower viscosity engine oils, careful consideration is critical. After all, improving fuel economy while compromising the protection of your engines is not a good trade off. With proper planning and a high performance engine oil that doesn't compromise on engine protection, switching to lower viscosity engine oil has the potential to yield excellent returns for fleets and drivers alike. Before you switch to lower viscosity oil, make sure you read our 10-step guide...

AVAILABLE TODAY

SAE 10W-30 and SAE 5W-30 engine oils have demonstrated fuel economy savings and are available today without significant capital expense.



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MAKING THE SWITCH TO LOWER VISCOSITY ENGINE OILS

1. CONSULT WITH YOUR OEM

When considering any engine oil viscosity grade change, you should consult with your equipment OEM who will be able to confirm if your warranty will be affected. Even if you are not under warranty, your OEM will have extensive and valuable experience and will have tested its models in various environments and with various engine oils.

2. SEEK LUBRICANT EXPERTISE

Beyond your OEM, seek the insight of your lubricant supplier. Lubricants are one of the most cost-effective and immediate ways to reduce fuel consumption, yet they make up approximately 1% of the total budget for most fleets. Lubricant Marketers spend millions of dollars testing their lubricants under various conditions, and in multiple engine types, so they can offer oil recommendations and advice on overall lubrication programs and efficiencies.

3. UNDERSTAND THE POTENTIAL PITFALLS

In some cases, a change in viscosity grade has been known to cause an issue with the oil pressure indicator. At low RPM, it is possible to trigger a low-pressure warning, which could power-down an engine. OEMs will know which engines are likely to experience these issues and can help you to find a solution.

4. MAKE A TRANSITION PLAN

This is particularly important if you manage a fleet. After obtaining advice from OEMs and lubricant providers, target a representative group of trucks in your fleet and run a test trial with candidate lower viscosity oils. Find a group of trucks that represent the varying range of operating conditions you experience to see where the greatest benefits will be. Identify engines that may not be good candidates for lower viscosity oils, e.g. older engine designs, which may experience increased oil consumption or the potential for increased bearing wear.

5. ASSESS THE IMPACT WITH USED OIL ANALYSIS

When making a change of this nature, it is important to have all the facts. A structured used oil analysis program should be used to assess the impact of new oil on engine durability and oil performance. It is important to be able to track wear metals and ensure that the new oil has the performance traits required to protect the engine throughout the drain interval. In addition to flagging critical issues like radiator fluid contamination of the engine oil, the oil analysis data may also reveal whether you can safely extend your drain intervals, leading to further cost savings.

6. LOOK FOR THE CORRECT SPECIFICATION

Make sure any new engine oils not only meet the key industry credentials (i.e. API, ACEA) required by your OEM, but also any other OEM-specific requirements. This will ensure you adhere to any warranty requirements from the OEM and contribute to the proper operation of the engine.

7. CHOOSE SUPERIOR PROTECTION

Today's powertrains run hotter and for longer, so it's important to ensure that your engine is protected at all times. Saving fuel at the expense of protecting your engine is not a compromise worth taking. Look for oil that provides superior protection under all operating conditions.



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8. FIND THE RIGHT OIL

When switching to low viscosity engine oils, there are a few things you should look out for:

- **High shear stability**

A highly shear stable formulation will ensure minimal change to viscosity over time. This results in better stay-in-grade capabilities and protection for your engine.

- **Low temperature performance**

Look for industry-standard tests such as 'Cold Crank Viscosity' (CCS) and 'Low Temperature Pumpability' (MRV); these will ensure that your critical components get optimal lubrication, even in the coldest of operating conditions. With better fluid properties at lower temperatures, these oils do a better and more efficient job of lubricating critical engine parts. They can also increase the life of starters and batteries to combat the additional strain that can occur as a result of anti-idling strategies.

- **Superior engine test results**

Your engine oil should demonstrate superior engine protection performance against industry recognized tests, e.g. The Daimler OM 646 LA Engine Performance Test. Engine oil that surpasses these standards provides better engine protection and can even offer extended drain capability.

- **Field proven engine protection**

Field tests provide a better understanding of how new engine oil will perform in the real world. Engine oil demonstrating low iron wear levels when compared with a higher viscosity oil (i.e. 15W-40), will offer superior engine protection properties.

- **Field proven fuel economy**

Many factors can affect fuel economy, including:

- **Driving terrain**
- **Weather conditions**
- **Severity of operating conditions**

Fuel economy field tests provide a controlled environment in which real world fuel economy benefits can be assessed. Industry recognized tests, such as the SAE J1321 Type II Fuel Consumption Test, can support fuel economy claims and have strict and rigorous testing guidelines to ensure accuracy in the results.

9. LOOK FOR THE HTHS VALUE

The HTHS (High Temperature High Shear) value signifies the oil's viscosity in the bearings and highly loaded parts at operating temperature. Lower HTHS = greater fuel economy.

10. DON'T FORGET OTHER POWERTRAIN LUBRICANTS

Lower viscosity transmission and axle oils can contribute equal or greater fuel savings than the heavy duty diesel engine oil, with no reduction in durability. Many of the above tips also apply when considering new driveline oils.



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