

PETRO-CANADA
ecoDiesel™



Petro-Canada EcoDiesel:
Frequently Asked Questions



EVERYTHING YOU WANT TO KNOW ABOUT

Petro-Canada EcoDiesel™

Q: Why Petro-Canada EcoDiesel?

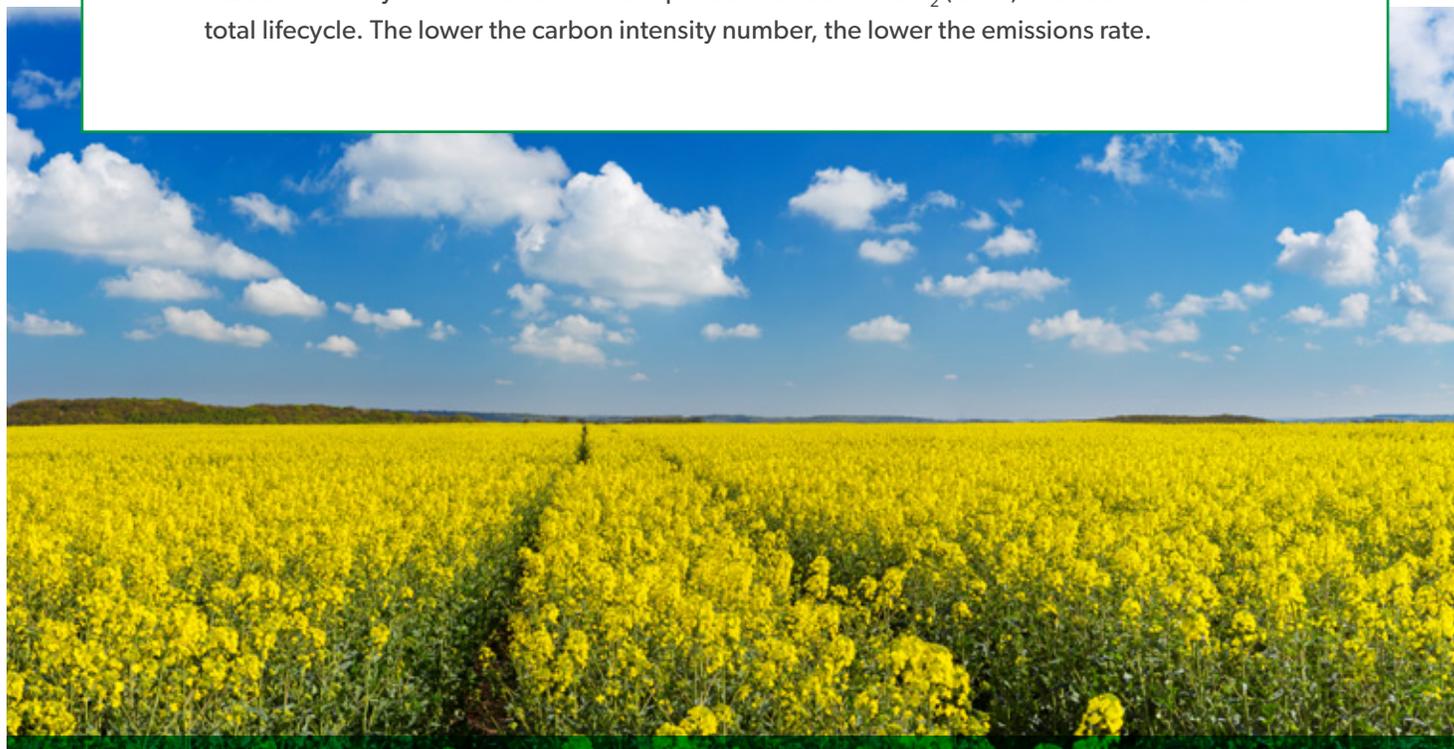
A: Petro-Canada EcoDiesel demonstrates our commitment to helping Canadian businesses reduce their carbon footprint immediately and meet their sustainability goals while keeping their businesses moving forward with one simple switch.

Q: What is Petro-Canada EcoDiesel?

A: Petro-Canada EcoDiesel is made with hydrotreated renewable diesel (HRD). HRD is an alternative fuel produced from 100% renewable materials¹ that can include non-consumable food waste like animal fats and vegetable oils. It's produced through a refining process called hydrotreating. This process involves treating the renewable feedstock with hydrogen under high temperatures and pressures to upgrade renewable feedstock to diesel-fuel quality. The hydrotreated renewable diesel has fuel properties similar to conventional diesel and does not vary based on the feedstock used.

The final product is a high-quality, low-carbon-intensity renewable diesel, which has a comparable chemical composition to conventional diesel.

Carbon intensity is the measure of the equivalent amount of CO₂ (GHG) emitted in the fuel's total lifecycle. The lower the carbon intensity number, the lower the emissions rate.



Q: What are the key product features and benefits of Petro-Canada EcoDiesel compared to petroleum diesel?

- A:**
- Lowers overall exhaust emissions and reduces Greenhouse Gas (GHG) emissions by up to 80%² compared to conventional diesel
 - Is a drop-in fuel that can be seamlessly integrated into your current diesel engines without the associated costs of retrofitting or major equipment overhauls
 - Works with your existing storage and distribution infrastructure without any changes to equipment or facilities³
 - Offers the same high performance as conventional diesel, but with a higher cetane number. A high cetane value allows for a smoother combustion and overall strong performance
 - Primarily sourced from waste feedstocks like used cooking oil or waste animal fats, helping to reduce landfill waste
 - Better cold-weather performance compared to high-biodiesel fuel blends (i.e. B6+) and is suitable for use in temperatures as low as -20°C in the winter and -6°C during the summer⁴. Can be used year round in certain geographical regions within Canada⁵
 - Meets the industry standard diesel specifications including American Society for Testing and Materials (ASTM) D975⁶ and Canadian General Standards Board (CAN/CGSB) 3.517
 - Contains negligible sulphur and aromatic compounds
 - Backed by Petro-Canada™ and offers the same quality, reliability, service and ongoing support you'd expect from us
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Q: Is there a difference in performance when using Petro-Canada EcoDiesel?

A: Petro-Canada EcoDiesel is proven to offer the same high performance as conventional diesel, but with a higher cetane number. Cetane measures the combustion quality of diesel fuel – the higher the number, the smoother and cleaner the combustion. While conventional diesel has a minimum cetane of 40, Petro-Canada EcoDiesel has a minimum cetane of 70, which allows for a cleaner, smoother combustion and overall strong performance to meet the demands for today's fleets and equipment.

Q: Can Petro-Canada EcoDiesel be used in cold temperatures?

A: All diesel products, including HRD, have specific cold-temperature requirements. It's important to meet these specifications to ensure that your equipment and vehicles are performing at their best during colder weather. Petro-Canada EcoDiesel can be used year round in certain geographical regions⁵ within Canada as it is suitable for use in temperatures as low as -20°C⁴.

Q: Can you use petroleum diesel and Petro-Canada EcoDiesel interchangeably? Can you mix them both in the same tank?

A: Yes. Petro-Canada EcoDiesel is a drop-in fuel. That means that you can switch between conventional petroleum diesel and Petro-Canada EcoDiesel within the same fleet or equipment without the extra maintenance. It can also be mixed with petroleum diesel to create a blended product or added to the same tank at any time, without mixing. Please consult your Petro-Canada sales representative to discuss the use and maintenance practices for your region.

Q: What type of feedstocks are used for Petro-Canada EcoDiesel?

A: Petro-Canada EcoDiesel is primarily sourced from low-carbon-intensity (CI) feedstocks like used cooking oil or waste animal fats.

Q: Is Petro-Canada EcoDiesel different from biodiesel (FAME)?

A: Yes. While the two products can be produced from the same feedstocks, the production process differs greatly.

Biodiesel is produced through a chemical process called transesterification, in which raw oils or fat feedstocks are separated and converted to what is known as fatty acid methyl esters (FAME), which contain oxygenated molecules, resulting in a final product with different properties compared to conventional diesel.

Petro-Canada EcoDiesel, however, is produced through a refining process called hydrotreating. This process involves treating the raw oils or fat feedstocks with hydrogen under elevated temperatures and pressures. This process is similar to how conventional fuels are produced and results in a pure hydrocarbon composition so the chemical properties of the finished renewable product are similar to conventional petroleum diesel.

Most OEMs only approve up to a maximum 20% biodiesel blend with conventional diesel, while renewable diesel has been approved for use at up to 100%.

B6-B20 FAME/biodiesel blends are suitable for use down to -15°C, while Petro-Canada EcoDiesel can be used down to -20°C⁴.

Q: What specifications does Petro-Canada EcoDiesel meet?

A: It meets the industry-standard specifications for diesel fuel including the American Society for Testing and Materials (ASTM) D975 and Canadian General Standards Board (CAN/CGSB) 3.517.

Q: If I am running older equipment, can I still use Petro-Canada EcoDiesel?

A: Petro-Canada EcoDiesel is a drop-in fuel that can be used as a direct replacement to traditional diesel in most applications. In older equipment, some seals and gaskets may be incompatible with a renewable diesel, so it is best to check with your Original Equipment Manufacturer (OEM) to better understand compatibility.

Q: Can I expect changes to fuel economy while using Petro-Canada EcoDiesel? Will Petro-Canada EcoDiesel affect my fuel economy?

A: Despite the differences in density when compared to conventional diesel, the higher cetane and smoother combustion properties of Petro-Canada EcoDiesel allow for minimal reductions to fuel economy. The cleaner combustion of Petro-Canada EcoDiesel could also result in cleaner fuel injectors, which may maintain or improve fuel efficiency over time if used in optimal conditions.

Q: Is HRD approved by my engine manufacturer?

A: HRD is approved by most OEMs for both on- and off-road use. North American diesel specifications do not limit the amount of renewable diesel content.

This table contains examples of OEM approval on the use of HRD and is not intended to be an exhaustive list. Please consult with your sales representative prior to use of any Petro-Canada EcoDiesel product.

| BRAND | OEM APPROVALS |
|-----------------------------------|--|
| Cummins | Renewable diesel can be used as drop-in replacements. Approved the use of hydrotreated renewable diesel (HRD) in their entire line of diesel generator sets. |
| Caterpillar | Renewable diesel can be used as a drop-in replacement for diesel fuel if it meets the specification for diesel fuel. For example, if it meets the American Society for Testing and Materials (ASTM) D975, which is the specification for diesel fuel in the United States. |
| Detroit Diesel Corporation | Compatible with the following engine types: DD5, DD8, DD13, DD15, DD16. Renewable diesel blends up to 100% must be produced to meet the specifications of EN15940 prior to blending with petroleum or biodiesel. EN 15940 fuel must meet American Society for Testing and Materials (ASTM) D975 standards. |
| Ford Motor Company | Approved the use of HRD in its Transit vans (2.0 Litre EcoBlue engine). |
| Mack Trucks | Signed off on the use of renewable diesel fuel in all Mack engines. |
| Volvo Trucks North America | Approved the use of renewable diesel fuel for all its proprietary Volvo engines. |
| Paccar | PACCAR Inc. approves the use of paraffinic diesel at any blend level or as a stand-alone fuel, provided that the following conditions are met: <ul style="list-style-type: none"> • The Paraffinic (Renewable) Diesel in the fuel meets EN 15940 specifications • The finished fuel meets the properties of ASTM Standard D975 |

Note: Approval can vary. It is recommended that you check with your OEM and/or refer to your owner's manual.

¹ Petro-Canada EcoDiesel may contain up to 1% of conventional diesel.

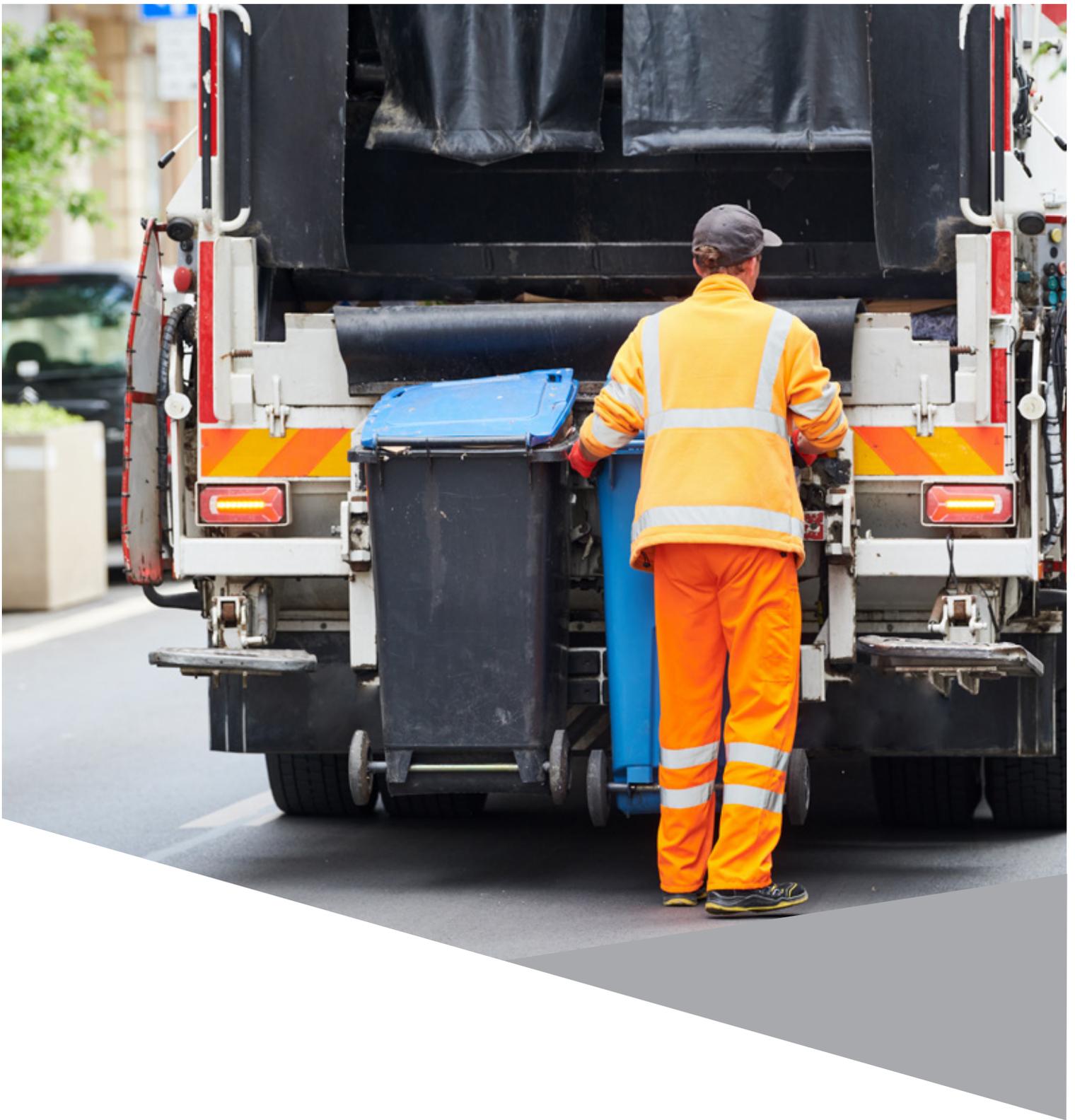
² Lifecycle greenhouse gas emission reductions are compared to fossil diesel with the BC LCFS default value for carbon intensity. The carbon intensity for the Petro-Canada EcoDiesel is based on a fluctuating feedstock blend of renewable materials and calculated with GHGenius. Please consult your sales representative to review the needs of your organization and discuss GHG emissions reduction implications.

³ Seasonal change-out is required. Please consult your Petro-Canada account manager to discuss the use and maintenance practices for your region.

⁴ We procure different temperature specifications to accommodate different seasons. Please consult with your Petro-Canada account manager to determine when the fuel is suitable for use within your geography. The above information is provided without warranty or representation of any kind. All product provided is warranted only to meet specifications in sales documentation provided by Petro-Canada, which includes meeting national fuel specifications and regulatory specifications. All other warranties are expressly disclaimed, including, without limitation, fitness for any particular purpose.

⁵ Currently available in the greater Vancouver area, interior British Columbia, Ottawa and the greater Toronto area. Contact your sales representative prior to use to discuss best use and maintenance practices in your area.

⁶ Petro-Canada EcoDiesel meets ASTM D975.



Interested in learning more about Petro-Canada EcoDiesel?
Please reach out to your Petro-Canada representative.

You can also visit petro-canada.ca/EcoDiesel or email ssrinqs@suncor.com