



## State of Oregon Department of Environmental Quality

# Renewable Diesel 101

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## What is renewable diesel?

Renewable diesel is produced by running fats and oils from plants and animals instead of crude through a refinery, resulting in a biofuel that meets the ASTM D975 standard for diesel. Renewable diesel can be made from many waste or renewable materials including: rendered tallow, fish waste, used cooking oil, inedible corn oil, soybean oil, canola oil, and others. A typical facility can switch between or run multiple different materials.

Renewable diesel is a drop-in fuel which means it can be used as a one-for-one replacement for diesel or can be mixed with diesel at any rate to produce a blended product requiring no changes to the vehicles or fueling infrastructure.

## Is renewable diesel the same as biodiesel?

While they can be made from the same materials, biodiesel and renewable diesel have different manufacturing processes that result in products with different molecular structures - biodiesel is a methyl-ester and renewable diesel is a hydrocarbon. The difference in the chemical properties of biodiesel is what limits the amount that can be blended with petroleum diesel, which is also a hydrocarbon. There is no limit for the amount of renewable diesel that can be blended with petroleum diesel because they are chemically identical. Biodiesel, renewable diesel, and petroleum diesel can all be blended together for use in diesel vehicles.

## What are the emissions benefits from using renewable diesel?

Using renewable diesel can cut lifecycle greenhouse gas emissions up to 85% depending on what materials it is made from. Waste products such as tallow and used cooking oil have the greatest reductions while vegetable oils are slightly less. Renewable diesel lowers tailpipe emissions such as particulate matter, carbon monoxide, total hydrocarbons, and nitrogen oxide.

## What are the other benefits from using renewable diesel?

Renewable diesel has gained in popularity largely because its lower carbon footprint, but also because it:

- has a higher cetane value than biodiesel
- has the same fuel economy or power as petroleum diesel
- produces a much cleaner exhaust and dramatically reduces the need for regeneration in vehicles with particulate filters, which in turn reduces maintenance costs for fleet owners
- does not contain oxygen, which avoids problems that biodiesel has with freezing, storage, and algae growth
- is made from products that would otherwise be sent to a landfill

## **Is renewable diesel available in Oregon?**

The production of renewable diesel has grown significantly over the last several years and this trend will continue as billions of gallons of additional capacity have been recently announced. Tens of millions of gallons have already been delivered to Oregon because of the Clean Fuels Program, and that demand will remain strong as DEQ expands its targets beyond 2025. Contact your fuel supplier to find out current prices and availability of renewable diesel.

## **How is renewable diesel treated under the Oregon Renewable Fuel Standard?**

The Oregon Renewable Fuel Standard recognizes renewable diesel as a way to achieve the 5% biofuel blend requirement for diesel.

## **How is renewable diesel treated under the Portland Renewable Fuel Standard?**

The Portland Renewable Fuel Standard does not recognize renewable diesel as a way to achieve their renewable fuel standard.

## **Alternative formats**

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email [deqinfo@deq.state.or.us](mailto:deqinfo@deq.state.or.us).