

Biodiesel and Underground Storage Tank Systems



State of Oregon
Department of
Environmental
Quality

Land Quality Underground Storage Tank Program

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Is Biodiesel Fuel Available in Oregon?

According to information from the National Biodiesel Board, a national trade association representing the biodiesel industry, two manufacturers, 25 distributors and 38 retailers produce or handle biodiesel or biodiesel blends in Oregon at this time.

Although no specific retail sales figures have been reported for Oregon, nationally it is reported that some 250 million gallons of biodiesel products were sold in 2006 either for motor fuel use or home heating oil use. As a result of state and national financial incentive programs, it is estimated that production capacity in 2007 is 1.39 billion gallons with an additional 1.89 billion gallons under construction.

What is Biodiesel?

In the United States, biodiesel is produced primarily from soybean oil through a refinery process called transesterification. Raw vegetable oil is **not** biodiesel. However, biodiesel can also be produced from most vegetable oils, recycled cooking greases and oils and animal fats. The biodiesel manufacturing process converts oils and fats into chemicals called long chain mono alkyl esters and glycerin. The glycerin is a sugary by-product that is removed during the manufacturing process and sold for secondary uses.

While neat (100% or B100) biodiesel can be used as a diesel replacement fuel, most commonly the neat biodiesel is blended with petroleum diesel at concentrations from 1 to 20%. At 1 to 2 %, the biodiesel serves primarily as a lubricating additive. The most common fuel blend is 20% biodiesel and 80% petroleum diesel. At 20% there are minimal changes in the performance characteristics of the motor vehicle fuel and the B20 biodiesel fuel is compatible with most existing petroleum storage systems and diesel engine fuel delivery systems.

Are Biodiesel and Biodiesel Blends Compatible with Current Underground Storage Tank Systems?

B100 biodiesel is probably not compatible with most existing underground systems. It is a fairly aggressive solvent and will dissolve any built up gums and sediments in existing tank systems or

engine fuel delivery systems. Further, with prolonged exposure B100 biodiesel will degrade nitrile rubber products, polypropylene, polyvinyl and Tygon materials. B100 biodiesel will also oxidize brass, bronze, copper, lead, tin and zinc leading to additional sediments, gels or salts that may lead to fouling of fuel delivery systems or leaks in storage systems.

Evidence to date suggests that biodiesel blends from 1 to 20% appear compatible with existing underground storage tank systems and fuel delivery systems designed for petroleum diesel fuels. The dilution that occurs as a result of the blending process minimizes the solvent characteristics of neat biodiesel and minimizes the oxidation potential of the blended fuel.

I'd like to Sell Biodiesel in Oregon, Where can I Get Help?

The US Department of Energy's Energy Efficiency and Renewal Energy Program has developed a handbook entitled "*BIODIESEL Handling and Use Guidelines*" that can be viewed or downloaded from the following Website:
<http://www.nrel.gov/vehiclesandfuels/npbf/pubs/biodiesel.html>. Additional fact sheets and other publications on biodiesel can be obtained by visiting the National Biodiesel Board's Website at <http://www.biodiesel.org>.

What DEQ Rules Apply to Installing a New "Biodiesel" or "Biodiesel Blend" Tank or Retrofitting an Existing Tank to Dispense "Biodiesel" or "Biodiesel Blend"?

If you plan to install an underground storage tank to store neat (100% or B100) biodiesel, no DEQ rules apply at this time. Because 100% biodiesel is produced from vegetable oils or animal fats, it is not considered a regulated substance. Any biodiesel blend, however, because of the petroleum diesel component, is a regulated substance and the following rules apply to the storage of any biodiesel blend.

New UST:

- Hire a licensed Service Provider.
- Make sure all system components, including the tank, piping, spill and

release detection equipment, dispenser, and dispenser nozzle are compatible with biodiesel or biodiesel blends (see OAR 340-150-0300 (3)).

- Submit a *General Permit Registration Form and 30-Day Notice to Install and Operate Underground Storage Tanks* 30 days before work starts.
- Pay the new tank installation fee of \$485 per tank.
- Call your Regional Office 3 days before work starts.
- Submit the *UST Installation Checklist* and associated documentation to your Regional Office after work is complete.

Changing Product in an Existing UST:

- Hire a licensed Service Provider.
- Make sure all system components, including the tank, piping, spill and release detection equipment, dispenser, and dispenser nozzle are compatible with biodiesel or biodiesel blends (see OAR 340-150-0300 (3)).
- There are different requirements depending on the type of product you are changing to. Please call DEQ's Headquarters Office for further instructions.

Contacting DEQ's Headquarters Office:

Copies of forms and information can be obtained by contacting Steve Paiko, DEQ, Portland, at 503-229-6652, or leaving a message on our Help Line recording toll-free in Oregon at 1-800-742-7878, or get the forms from DEQ's Web site at

<http://www.deq.state.or.us/lq/tanks/ust/index.htm>

Contacting DEQ Regional Tank Staff

Tank Staff are available at the following offices:

In Northwest Oregon (Clatsop, Clackamas, Columbia, Multnomah, Tillamook and Washington counties):

- Portland, 2020 SW Fourth Ave., Suite 400, 503-229-5263

In Western Oregon (Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk and Yamhill counties):

- Salem office: 750 Front St. NE, Suite 120, 503-378-8240
- Eugene office: 165 East 7th Avenue, Suite 100, 541-686-7838
- Coos Bay office: 381 N. Second Street., 541-269-2721 ext 31

In Eastern Oregon (Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco and Wheeler counties):

- The Dalles office: Columbia Gorge Community College, 400 E. Scenic Drive, Building 2, 541-298-7255

Do I Need to Contact any Other State Agencies?

Information on weights and measures, motor fuel quality and dispenser labeling are most appropriately directed to the:

Measurement Standards Division
Oregon Department of Agriculture
635 Capitol Street NE
Salem, OR 97301-2532
Telephone: 503-986-4670
Fax: 503-986-4784
Web site: <http://oregon.gov/ODA/MSD>

Do I Need to Contact any Local Agencies?

Biodiesel is a combustible liquid, therefore, it is important that a biodiesel or biodiesel blend storage system be installed consistent with the state or local fire code, whichever is applicable to your physical location. It is equally important that the state or local fire department know that biodiesel or a biodiesel blend is being stored at a particular location since the characteristics of a biodiesel fire are somewhat different than the characteristics of a petroleum-based fire involving petroleum diesel. In responding to a fire, different fire suppression techniques will be employed depending on the fuel type.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

