
ALTERNATIVE FUEL STORAGE GUIDELINES FOR UST SYSTEMS



N.C. Department of Environmental Quality
Division of Waste Management
Underground Storage Tank (UST) Section

There are two main alternative fuels.	
E-blend	A fuel with greater than 10 percent ethanol
Biodiesel	A diesel fuel made from vegetable oil. It can be 100 percent biodiesel or a blended version. The most common blend is B20 or 80 percent petroleum diesel and 20 percent biodiesel.

Alternative Fuels and UST System Compatibility

Owners and operators of regulated Underground Storage Tank (UST) systems must comply with requirements including financial responsibility, corrosion protection, leak detection, and spill and overfill prevention. A UST system that stores a mixture of biodiesel blended with petroleum diesel, another petroleum product or a hazardous substance is regulated pursuant to the state's UST rules (15A NCAC 2N).

North Carolina Administrative Code, 15A NCAC 2N .0403, requires a UST system to be compatible with the substance stored. Both E-blends with greater than 10 percent ethanol and biodiesel blends greater than 20 percent have similar equipment compatibility concerns:

- Degrades non-metallic components such as: natural rubber, polyurethane, older adhesives, certain elastomers and polymers used in flex piping, bushings, gaskets, meters, filters, and materials made of cork, or
- Degrades soft metals such as: zinc, brass and aluminum.

Steps for Storing an Alternative Fuel

Prior to installing or converting an UST system to storing an alternative fuel, you must first check if your equipment is compatible to store an alternative fuel. A UST-20 form, *Alternative Fuel/Hazardous Substance Compatibility Checklist*, must be submitted at least 30 days before storing an alternative fuel. A UST-20 will document the following:



- The UST system and its components are Underwriters Laboratory (UL) listed or certified by the manufacturer for use with E-Blend fuels.
- The following equipment/components are checked for compatibility:
 - ✓ Overfill: automatic shutoff or ball-float valves.
 - ✓ Tank material
 - ✓ Spill containment and sumps
 - ✓ Submersible pumps, O-rings and gaskets
 - ✓ Line leak detectors
 - ✓ Leak detection equipment (ATG probes, floats, interstitial and sump sensors)
 - ✓ Piping material
 - ✓ Pipe sealant and adhesives
 - ✓ Flex connectors, grommets
 - ✓ Filters
 - ✓ Suction pumps
 - ✓ Check valves
 - ✓ Dispenser and hanging hardware

Note: The Fire Marshal must also be notified prior to dispensing E-Blend fuels.

The UST-20 form is available on online at: <https://deq.nc.gov/about/divisions/waste-management/ust/forms>.

Other Steps For E-Blend and/or Biodiesel Fuels	
Tank Cleaning	Prior to storing an alternative fuel, the tank should be thoroughly cleaned. Particles in gasoline accumulate at the bottom of a tank over time and form a sludge. When the alternative fuel is introduced into a tank, these particles will suspend in the new fuel blend and cause problems with filters and fuel lines.
Water Check	Ethanol blends better with water than with gasoline. Water in a tank could result in the ethanol separating from the gasoline into a bottom ethanol layer and a top gasoline layer. No water is acceptable in an E-Blend tank. Check water levels regularly, and fix any water infiltration problems.
Insurance	Inform the facility’s UST insurance carrier of plans to convert to an alternative fuel. The UST insurance carrier may have additional requirements other than those required by DEQ. Obtain an amended certificate of insurance indicating UST coverage for the alternative fuel stored.
Equipment	Ensure the following are tight: <ul style="list-style-type: none"> • Visible fittings and connections at the top of the tank, and • Sump and spill containment covers.
Labeling	<ul style="list-style-type: none"> • Label dispensers with alternative fuel labels. • Calibrate all dispensers. • Paint fill ports according to <i>American Petroleum Institute (API) RP 1637, Using the API Color-Symbol system to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals</i>.
First Delivery	<ol style="list-style-type: none"> 1. Fill tank to 80 percent capacity and keep as full as possible for 7 to 10 days 2. Test for water at the beginning of each shift 48 hours after delivery. If there is water, investigate how the water got in the tank, and fix it. Remove the water.

100% Biodiesel Fuels

100% biodiesel contains no petroleum-based products or regulated hazardous substances. North Carolina's UST operation and maintenance regulations do not apply to these UST systems unless a release is discovered. All requirements for a release under the state groundwater rules must be met (15A NCAC 2L).

Spills or releases of 100% biodiesel must be reported to the UST Section within 24-hours of discovery by submitting a *24-Hour Release and UST Leak Reporting Form* (UST-61) to one of the UST Section Regional Offices listed at <https://deq.nc.gov/contact/regional-offices>

The 24-Hour Release and UST Leak Reporting Form can be downloaded from the UST Section's web site (<https://deq.nc.gov/about/divisions/waste-management/ust/forms>) or by calling a UST Section regional office.

To request a change in the status of a regulated UST system to a non-regulated 100% biodiesel UST system, owners or operators must complete the following steps:

1. Submit a UST-3 form, *Notice of Intent: UST Permanent Closure or Change-in Service*
2. Conduct a site assessment in accordance with requirements established in 15A NCAC 2N .0802 and .0803 and the *UST Section's Guidelines for Site Checks, Tank Closure and Initial Response*
3. Submit a UST-2 form, *Site Investigation Report for Permanent Closure or Change-in Service of UST* along with a tank closure report

Additional Information

You can find additional information concerning ethanol and UST systems in *Frequently Asked Questions about Ethanol Blend Fuels in Underground Storage Tanks* located on our website at <https://deq.nc.gov/about/divisions/waste-management/ust/faq>.

You can also find additional information at the following websites:

- American Coalition for Ethanol (ACE) - <http://www.ethanol.org>
- Growth Energy: <http://www.ethanolretailer.com/>
- New England Interstate Water Pollution Control Commission (NEIWPCC) - <http://www.neiwpcc.org>
- Renewable Fuels Association - <http://www.ethanolrfa.org/>
- U.S. Department of Energy, Alternative Fuels Data Center <http://www.afdc.energy.gov/>
- EPA: <https://www.epa.gov/ust/emerging-fuels-and-underground-storage-tanks-usts#tab-2>