



## **Biodiesel and E85 fuel ethanol fuel specification, dispensers, and dispenser labeling requirements**

This is a summary of Oregon's biofuel (biodiesel, biodiesel blends, and E85 fuel ethanol) regulations and dispenser labeling requirements. Please refer to OAR 603-027-0410 thru OAR 603-027-0490 for the complete regulation. In addition, we try to answer some common questions about dispensers permitted for use with biofuels. Due to the unique characteristics of these fuels, certain precautions must be taken. Some dispensers commonly used for gasoline and petroleum diesel are not to be used for biodiesel and E85.

### **Biodiesel**

Identification of product. Biodiesel and biodiesel blends shall be identified by the capital letter "B" followed by the numerical value representing the volume percentage of biodiesel fuel. For example, "B10," "B20," "B99," and "B100."

### **Biodiesel Fuel Specifications**

B100 biodiesel intended for blending with diesel fuel shall meet the 2006 Edition of ASTM D 6751, Standard Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels.

Blends of biodiesel and diesel fuels shall meet the following requirements:

- a) The base diesel fuel shall meet the 2006 Edition of ASTM D 975, Standard Specification for Diesel Fuel Oils;
- b) The biodiesel blend stock shall meet the 2006 Edition of ASTM D 6751, Standard Specification for Biodiesel (B100) Blend Stock for Distillate Fuels.

Biodiesel may be blended with diesel fuel whose sulfur or aromatic levels are outside specification ASTM D 975, Standard Specification for Diesel Fuel Oils, grades 1-D S15, 1-D S500, 2-D S15, or 2-D S500, provided the finished mixture meets pertinent national and local specifications and requirements for these properties.

### **Biodiesel Fuel Dispensers**

The biodiesel fuel dispenser itself is required to be a legal-for-trade, National Type Evaluation Program (NTEP) approved motor fuel dispenser designed for standard #2 diesel fuel that is subsequently and correctly calibrated with the blend of biodiesel fuel being dispensed.

**Important:** NTEP approved *blending* dispensers are only approved to a maximum of 20% biodiesel blend or B20. Consequently, they may be used to blend straight petroleum #2 diesel and B20 biodiesel blend to form, for example, B10. However, to our knowledge, there are no NTEP approved *blending* dispensers for B100 biodiesel or any biodiesel blend greater than B20. Therefore, a blending dispenser is not permitted, for example, to blend standard #2 diesel fuel and B100 biodiesel to form a B20 or some other ratio biodiesel blend. The NTEP Measuring Sector has discussed this and they do not

approve the use of blending dispensers for biodiesel products. In addition, information from some blending dispenser manufacturers have stated that they do not support the use of biodiesel products in their blending dispensers nor will they warrant their equipment if it is used for biodiesel blending. There are manufacturers currently developing dispensers specifically for biofuel use and they are working with UL and NTEP in the approval process.

### **Biodiesel Fuel Dispenser Labeling**

Briefly, the requirements for biodiesel fuel dispenser labeling is as follows.

Biodiesel blends of 5% or less by volume biodiesel are not required any special labeling beyond standard diesel fuel labeling requirements. These blends are treated the same as normal #2 diesel fuel.

Biodiesel blends of over 5% by volume biodiesel shall be labeled in type at least 1/2 inch in height and 1/16 inch width with the capital letter “B” followed by the volume percentage of biodiesel and ending with the words “Biodiesel” or “Biodiesel Blend,” whichever is appropriate. For example, “B10 Biodiesel Blend,” “B20 Biodiesel Blend,” or “B100 Biodiesel.”

### **Biodiesel Fuel Delivery Documentation**

The retailer shall be provided, at the time of delivery of the fuel, with a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or other document. This documentation is for dispenser labeling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel in the diesel fuel prior to blending.

### **E85 Fuel Ethanol**

E85 fuel ethanol is a blend of ethanol and gasoline in which the ethanol portion is nominally 75% to 85% denatured fuel ethanol (Reference ASTM D5798).

**IMPORTANT:** It is very important to point out that ONLY ethanol/gasoline blends of up to 10% by volume ethanol (which is still considered “gasoline” and has been very common in the marketplace for years) and E85 fuel ethanol are permitted by the U.S. Environmental Protection Agency (EPA). Any ethanol/gasoline blends between 10% ethanol/90% gasoline and E85 fuel ethanol are against Federal law and are not permitted. Thus, ethanol/gasoline blends such as “E20,” “E30,” “E40,” or some other ratio are not permitted. This is a Federal regulation and any questions regarding this must be addressed to the U.S. EPA.

### **E85 Fuel Specifications**

E85 fuel ethanol shall meet the 2006 Edition of ASTM D 5798, “Standard Specification for Fuel Ethanol (Ed75 – Ed85) for Automotive Spark-Ignition Engines.”

### **E85 Fuel Ethanol Dispensers**

E85 fuel ethanol has different properties than standard gasoline and can have substantial impact on certain metals, rubber, PVC, etc. Thus, the equipment used with E85 fuel ethanol must be compatible with this product. Oregon currently requires that commercially used weighing and

measuring devices have a National Type Evaluation Program (NTEP) Certificate of Conformance (CC) for the particular use of the device. This includes E85 fuel ethanol. However, there are relatively few NTEP approved E85 fuel ethanol dispensers in the marketplace and many weights and measures jurisdictions across the United States are permitting dispensers that are NTEP approved for gasoline to be used to dispense E85 fuel ethanol. The fuel dispensers and other components of the fueling system need to be properly prepared and retrofitted to dispense E85 fuel ethanol to provide some level of assurance against fuel contamination and component breakdowns. The U.S. Department of Energy (U.S. DOE) and the National Ethanol Vehicle Coalition (NEVC) have some very good information on preparation and retrofitting fueling systems for dispensing E85 fuel ethanol on their web sites. These web sites are:

U.S. DOE: <http://www.eere.energy.gov/afdc/e85toolkit/cost.html>

NEVC: <http://nevc@e85fuel.com/index.php>

(Note: Neither the State of Oregon nor the agency endorse or sponsor the products, services or information provided by this link; this information is provided for reference only.)

These preparations and retrofitting include, but are not limited to, replacing piping, seals, delivery hose, and nozzle with ethanol compatible components, and installing an effective 1-micron ethanol fuel filter. The 1-micron ethanol filter is especially important and MSD requires that this filter be mounted downstream of the dispenser's meter and just prior to the delivery hose. According to the U.S. DOE, these 1-micron ethanol filters cost two to four times more than the standard gasoline filter, but that they are well worth the investment.

In light of these facts, Oregon MSD will permit E85 fuel ethanol to be dispensed from NTEP approved gasoline dispensers PROVIDED the fueling system has been prepared and retrofitted as stated in the U.S. Department of Energy web site and an effective 1-micron ethanol filter is installed at the base of the delivery hose.

Jurisdictions that have permitted non-ethanol approved fuel dispensers to be used for E85 fuel ethanol have experienced a variety of compliance with meter performance tolerances. Evidently, some dispensers have held their tolerances well with E85, while others have had large errors occurring in a short time of operation, even after repeated calibrations. As a result, MSD will conduct re-examinations every six months of non-ethanol approved dispensers used for E85 fuel ethanol until either the dispensers have proved their reliability holding prescribed tolerances or they have been removed from service.

NTEP Approved gasoline dispensers are only approved to a maximum of 15% ethanol by volume or E15 (which is not approved by U.S. EPA as motor fuel). To our knowledge, there are no NTEP approved *blending* dispensers for blending non-ethanol blended and ethanol blended gasoline. Therefore, a blending dispenser is not permitted for use, for example, to blend non-ethanol gasoline and E85 fuel ethanol to form a 10% ethanol or some other ratio of ethanol-blended gasoline. Similar to the biodiesel blender situation, the NTEP Measuring Sector has discussed this and they do not approve the use of blending dispensers for blending ethanol gasoline. In addition, some blending dispenser manufacturers have stated that they do not support the use of E85 products in their blending dispensers nor will they warrant their equipment if it is used for E85 or ethanol blending. There are manufacturers currently

developing dispensers specifically for biofuel use and they are working with UL and NTEP in the approval process.

As with any fuel dispensing system, it is important that the E85 fuel dispenser is issued an active Underwriters Laboratories (UL) approval. It is the responsibility of the E85 device owner to assure it complies with UL standards and is UL approved for dispensing E85 fuel ethanol.

It must be emphasized that utilization of an E85 fuel ethanol approved NTEP dispenser system with UL approval is far preferred and will likely provide better service over time than a dispenser that was not designed nor NTEP or UL approved for E85 fuel ethanol.

### **E85 Fuel Ethanol Dispenser Labeling**

Oregon's E85 fuel ethanol dispenser labeling requirements are as follows.

E85 fuel ethanol dispensers are required to be labeled in type at least 1/2 inch in height and 1/16 inch width with the capital letter "E" followed by the numerical value volume percent denatured ethanol and ending with the word, "Ethanol." For example, "E85 Ethanol."

In addition, E85 fuel ethanol dispensers are required to be labeled with its automotive fuel rating, in accordance with the Federal Trade Commission (FTC) requirements in 16 CFR Part 306.

### **In Summary**

The State of Oregon has adopted motor fuel quality standards for biodiesel, biodiesel blends, and E85 fuel ethanol along with specific labeling requirements for the fuel dispensers. To accommodate industry and consumer desires, MSD will allow NTEP approved diesel dispensers to deliver biodiesel and biodiesel blends and NTEP approved gasoline dispensers to deliver E85 fuel ethanol provided certain conditions specified above are met. By doing so, this will allow these biofuel products to be sold and utilized immediately in the Oregon marketplace. However, due to the characteristics of biodiesel and E85 fuel ethanol, *blending* dispensers would not be allowed using B100 biodiesel or E85 fuel ethanol. For dispensers used for E85 fuel ethanol, it is very important that the dispenser has an active UL approval for this product. We hope that this information is helpful. If you have questions about this please feel free to contact us.

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