

E85 Ethanol Q&A

Do you drive a “Flex Fuel” vehicle? If so, you could be filling your gas tank with E85 ethanol, a blend of gasoline and alcohol that gives your engine more power while reducing your tailpipe emissions and helping reduce our country’s dependence on imported oil. Here’s what you should know before making the switch:

1. What is E85?

E85 is a blend of 85 percent ethanol and 15 percent regular unleaded gasoline. E85 can only be used in vehicles designated as Flex Fuel Vehicles (FFV). Flex Fuel Vehicles are standard gasoline-powered vehicles that have been modified to run on any combination of ethanol and gasoline, as well as straight gasoline. FFVs truly are flexible, in that they can switch back and forth between gasoline and various blends of ethanol without any conversion or modification.

Because of its alcohol content, ethanol can be harmful to the fuel system of any vehicle that has not been engineered as a “Flex Fuel” vehicle. For the same reason, E85 must be stored, transported and dispensed in special equipment as well. E85 can not be used in diesel engines.

In colder months, retailers may reduce the percentage to 70 percent ethanol, to avoid engine starting problems; fuel sold as E85 can legally go as low as 70 percent ethanol, but no lower.

2. How can I tell if I’m driving a Flex Fuel Vehicle?

Federal law requires that all new flex fuel vehicles have a badge or tag somewhere on the rear identifying them as FFVs. Certain FFVs also have yellow or blue gas caps as an indication that they can be fueled with E85 pumps, which often have yellow or blue pump handles.

FFVs also have a unique number or letter in the vehicle identification number (VIN) on display on the stamped metal tag on the dashboard. This unique number or letter is, with very few exceptions, in the 8th place of the VIN. Each automaker uses its own special 8th character. Consult this guide to see if your vehicle is an FFV:

<http://www.e85fuel.com/information/vin.php>

3. *How can I tell if a pump dispenses E85?*

E85 pumps are commonly located right alongside regular gasoline pumps, but they are often identified with yellow or blue pump handles. Even if an E85 pump has a black handle, it will still be clearly labeled with E85 logos and identification stickers warning you to only use the pump if you are driving an FFV.

Because E85 commonly costs less per gallon than regular unleaded gasoline, the price at the pump is usually a good indicator as well; if the price of the fuel seems too good to be true, there's a good chance that it's E85!

4. *Is it hard to find E85 pumps?*

Because Wisconsin is a corn-producing state, we have plentiful supplies of E85, as do our neighboring states of Illinois, Indiana, Iowa, Michigan, Ohio and Minnesota. The vast majority of E85 retailers can be found in these seven Midwestern states, but it can still be a challenge to find an E85 retailer in your area.

Several tools are available for finding E85 stations, including the following:

- For a free text message service for finding E85 stations with your cell phone, go to www.neare85.com
- For an interactive trip planning tool, go to <http://www.afdc.energy.gov/afdc/locator/stations/route/>
- For a county-by-county guide to Wisconsin E85 pump locations, go to <http://energyindependence.wi.gov/e85stations.asp>

5. *What is ethanol made of?*

Ethanol is fermented from the sugars in plant matter. Typically, the ethanol that is found in E85 fuel sold in the United States is made from the starch in corn, as corn is a plentiful crop here and local farmers benefit. The starch must be broken down into simple sugars, however, before it can be fermented into ethanol. In Brazil, a country that is heavily invested in ethanol use, sugar cane is the feedstock of choice, because it is plentiful and because there is no conversion necessary before fermentation can occur.

Cellulosic ethanol is fermented from sugars found in the stalks and other waste material from harvested plants and trees, commonly called 'biomass.' The advantages here are that biomass is plentiful, it's a waste product and it is not part of our food supply. But, because this plant matter is even harder to break down into simple sugars than starch is, cellulosic ethanol is still not ready to take the place of corn-based ethanol in the United States. This could change, however, as researchers are developing new ways to accelerate the conversion of biomass to simple sugars.

6. *Why does most gasoline already have ethanol in it?*

For the past several years, as much as 70 percent of the unleaded gasoline sold in Wisconsin and throughout the U.S. has had up to 10 percent ethanol added to it. Why is it there? In 1990, the Clean Air Act Amendment required that gasoline sold in certain areas of the country contain additional “oxygenated fuel” to reduce tailpipe emissions. The only two fuels that met the requirements were ethanol and methyl tertiary butyl ether (MTBE). Because of concerns that MTBE could cause groundwater pollution, ethanol won the day by default.

The 10 percent of ethanol in unleaded gasoline is not enough to harm a regular gasoline engine. In fact, according to the government “E10” doesn’t qualify as an alternative fuel.

7. *Will I get less power from using E85 in my car or truck?*

E85 has higher octane than unleaded gasoline, which results in a power increase of approximately five horsepower, so performance could actually improve.

Want proof? The Indy Racing League (IRL) has been using 100 percent ethanol in its racing cars for the past several seasons—that’s right, the legendary Indianapolis 500 has been 100 percent ethanol-fueled since 2007, with no power loss issues being reported by any of the teams or drivers.

And E85 was in the tank of a modified Ford Mustang that recently broke a world land speed record at the Bonneville Salt Flats in Utah. A specially formulated E85 blend with 112 Octane powered the Mustang to 252.780 miles per hour, a new record in its vehicle class.

None of this is new; ethanol has been recognized as a high-octane fuel for over 100 years, and in the 1920s and 1930s it was commonplace to find “corn alcohol” fuel pumps alongside gasoline pumps, to fuel Detroit’s new high-compression engines.

8. *Will using E85 affect my fuel economy?*

E85 does affect fuel economy, with some users seeing up to 20 percent reductions in their miles-per-gallon. But, because E85 can cost 15 to 25 percent less than regular unleaded gasoline it is cost-competitive with gasoline, while polluting far less and reducing our dependence on foreign oil. (As of this writing, the national average price of E85 is \$2.32 a gallon, approximately 10 percent less than the national average price of unleaded gasoline),

9. *Does the use of corn to make ethanol make food more expensive?*

Yes, but the use of corn to make ethanol is only one of many factors that have contributed to higher food costs. According to a report issued in April, 2009, by the Congressional Budget Office (CBO), approximately 25 percent of the corn grown in the U.S. is used to make ethanol. The report goes on to say, however, that “CBO estimates that from April 2007 to April 2008, the rise in the price of corn resulting from expanded production of ethanol contributed between 0.5 and 0.8 percentage points of the 5.1 percent increase in food prices measured by the consumer price index (CPI).” The report also says that “Over the same period, certain other factors—for example, higher energy costs—had a greater effect on food prices than did the use of ethanol as a motor fuel.”

That’s because it takes energy—primarily diesel fuel—to grow and harvest corn, and to transport it to market. The rising cost of that energy has been a bigger factor in rising food costs than has the production of ethanol. Another factor is the increased use of corn as feed in the beef industry, as the market for American beef expands rapidly in Asia.

It is also important to consider the benefits of using ethanol. The CBO report found that, “Last year, the use of ethanol reduced gasoline consumption in the United States by about 4 percent and greenhouse-gas emissions from the transportation sector by less than 1 percent.”

10. Is ethanol available in different blends?

Yes, in some areas. The Wisconsin-based Renew chain of ethanol fueling stations, in particular, offers three blends to consumers. Renew customers can choose E85, E20, or E10.

The E10 blend is exactly the same as the regular unleaded gas consumers buy at most Wisconsin gas stations, and can be used in any gasoline-powered car or truck. The E20 and E85 blends can only be used in Flex Fuel vehicles. E85 is the lowest-cost-per-gallon option, but E20 is an attractive choice for people with Flex Fuel vehicles who would like to reduce their vehicle emissions and reduce America’s dependence on foreign oil, but are concerned about the loss of mileage with E85.

Because the U.S. Energy Independence and Security Act of 2007 has mandated the use of 36 billion gallons of renewable fuels annually by 2022, some ethanol producers are calling for an increase in the use of ethanol in all unleaded gasoline. An increase in the base blend from 10 percent to 15 percent would go a long way towards meeting the Federal mandate, and supporters say the new fuel blend could be safely used in any gasoline-powered car or truck. Although Underwriters Laboratories supports the use of E15 in existing gas pumps, the U.S. Environmental Protection Agency (EPA) has yet to rule on the question.

At their recent convention in Milwaukee, the American Coalition for Ethanol announced a joint effort with the Renewable Fuels Association to promote the installation

of 5,000 new ethanol “blender pumps” across the country in the next three years. These blender pumps would increase consumer choice by allowing customers to select E20, E30 or E40 in addition to E85. The Coalition claims that this will be the most economical and efficient way to increase the use of alternative fuels among American drivers.