

Wheels: A question from Kay L. says, “I have a 2004 Ford Focus, 2.3L PZEV engine, and it is not listed as a flex-fuel vehicle. Is there a logical, effective, and not too expensive way to retrofit such an engine to run on E85?”

Halderman: The short answer is no. There is not a cost effective way to convert your vehicle to use E85. First check to see if your vehicle is already a flex fuel vehicle by looking under the hood and check the Vehicle Emission Control Information (VECI) sticker. It may state that it is able to use E0 to E85. If that statement is not present, then the vehicle is not designed to operate on E85 (85% ethanol; 15% gasoline).

There are some "kits" on the market that are designed to allow the use of E85 but they do not include things that the vehicle manufacturer changes to allow the use of E85. These changes include:

1. A fuel pump that does not use a copper commutator and instead uses a graphite composition commutator as ethanol can cause copper to corrode.
2. Fuel lines are upgraded to stainless steel and all rubber is changed to more alcohol resistant elastomers.
3. The fuel rail and fuel injectors are also stainless steel instead of plastic.

Also keep in mind that using E85 will decrease the fuel economy about 30%. For example, a Chevrolet pickup on gasoline has an EPA rating of 15 mpg in the city and 20 mpg on the highway. The same vehicle operating on E85 has an EPA rating of 11 mpg city and 15 mpg highway. While the cost of E85 is lower, it does not pay to convert it from a fuel cost basis.

Wheels: What about vehicles designed to use E85? Is it worth it to use E85 instead of gasoline?

Halderman: That is a good question. E85 is made from 85% ethanol, which is made from corn or other renewable resources. This means that less imported oil is needed. Many people who use E85 are not concerned that their fuel economy will drop and instead feel that they are doing something to reduce our dependence on oil. Keep in mind that E85 has about 83,000 British Thermal Units (BTUs) compared with about 114,000 per gallon for gasoline. The engine requires heat energy to move the vehicle, therefore, this means that a full tank of E85 will result in a shorter amount of travel. If a driver has a long commute to work everyday, using E85 could be a nuisance due to having to fill up more often.

