

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Alternative Motor Vehicle Fuel Storage

Learning objective: The student will be able to identify requirements for storage tanks that may contain modified petroleum products.

With the price of gasoline breaking the \$3 per gallon mark, many people are looking for low-cost or renewable fuel sources.

One product making its mark in the industry is “E85 fuel,” a liquid blend composed of 85 percent ethanol and 15 percent gasoline. The ethanol often is made from corn or other biomass.

While the fire behavior characteristics of E85 fuel are a concern to first responders (see the International Association of Fire Chiefs warning posted at www.iafc.org), the chemical interaction between the product and storage tanks should be a concern for code enforcement and environmental personnel.

While it may be possible to store ethanol (alcohol)-based products in recently manufactured metal tanks, there is a potential problem with the first generation of fiberglass-reinforced plastic (FRP) underground tanks that were installed before 1992. The ethanol may soften the plastic components in tanks and pipe, resulting in leaks.



Tanks that may have held only petroleum-based fuels should be cleaned and inspected prior to reuse. This work should be carried out by persons who are qualified to perform it. Regardless of the type of fuel that will be stored in the tank after cleaning, the tank must be compatible with the product it will hold.

If E85 is used in conjunction with fuel-dispensing equipment, the “fueling stream” from tanks all the way to dispensing nozzles should be checked for compatibility with alcohol fuels. Dispensing nozzles, for example, should not be made from aluminum or some aluminum alloys.

Tanks containing E85 must have a special warning sign applied to the tank, fill pipe opening, and fill box rim. The Federal Department of Transportation and each State have developed sign requirements. You should contact your State Department of Transportation for its requirements.

For additional information, visit <http://www.ethanol.org/e85storage.html> and http://www.ethanol.org/pdfs/e85_technical_booklet.pdf