Ethanol

Ethanol is a renewable fuel made from various plant materials, which collectively are called "biomass." Ethanol contains the same chemical compound (C2H5OH) found in alcoholic beverages. Nearly half of U.S. gasoline contains ethanol in a low-level blend to oxygenate the fuel and reduce air pollution. Ethanol is also increasingly available in E85 (a fuel blend of 85% ethanol, 15% gasoline), an alternative fuel that can be used in flexible fuel vehicles (FFVs). Studies have estimated that ethanol and other biofuels could replace 30% or more of U.S. gasoline demand by 2030. Regionally, E85 flex fuel vehicles comprise over 60% of the alternative fuel vehicles on our roads. For more information on flex fuel vehicles that can use E85 visit our Flex Fuel Vehicles page. What is Ethanol?

Ethanol (CH3CH2OH) is a clear, colorless liquid. It is also known as ethyl alcohol, grain alcohol, and EtOH, but its most common fuel form is called E85. Ethanol molecules contain a hydroxyl group (-OH) bonded to a carbon atom.

It is made of the same chemical compound and is the same renewable biofuel whether it is produced from starch- and sugar-based feedstocks—such as corn grain and sugar cane—or from cellulosic feedstocks—such as grass, wood, crop residues, or old newspapers.

Making ethanol from cellulosic feedstocks is more challenging than using starch or sugars, but either way several steps are required to make ethanol available as a vehicle fuel. Biomass feedstocks are grown, and then various logistical systems are used to collect and transport them to ethanol production facilities. After ethanol is produced at the facilities, a distribution network supplies ethanol-gasoline blends to fueling stations for use by drivers.

Benefits of Ethanol:

Ethanol works well in internal combustion engines. In fact, Henry Ford and other early automakers thought ethanol would be the world's primary fuel before gasoline became so readily available. Ethanol is a renewable, largely domestic transportation fuel. Whether used in low-level blends, such as E10 (10% ethanol, 90% gasoline), or in E85 (85% ethanol, 15% gasoline), ethanol helps reduce imported oil and greenhouse gas emissions. Its use also supports the U.S. agricultural sector.

Incentives:

Many federal and state incentives encourage ethanol production and use and E85 station development. For more, see our Incentives page.

Additional Information:

For further reading on E85, Feedstocks, Benefits, Production, and Distribution of Ethanol visit http://www.eere.energy.gov/afdc/ethanol/.

For further reading on Ethanol, or Flex-Fuel, Vehicles visit http://www.eere.energy.gov/afdc/vehicles/ flexible_fuel.html.

Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, Alternative Fuels & Advanced Vehicles Data Center (http://www.eere.energy.gov/afdc/)