

Straight Answers on Alternative Fuels

What Is Ethanol?



Ethanol, a clear, colorless liquid, is an alcohol-based alternative fuel produced by fermenting and distilling starch crops that have been converted into simple sugars. Ethanol can also be produced from "cellulosic biomass" such as trees and grasses and is called bioethanol. Ethanol is most commonly used as an additive to increase octane and improve the emissions quality of gasoline.

What Is Ethanol Made From?



Ethanol can be produced not only from corn, barley, and wheat, but also from cellulose feedstocks such as corn stalks, rice straw, sugar cane bagasse, pulpwood, switchgrass, and municipal solid waste. Because of the variety of feedstocks that can be used, ethanol offers tremendous opportunities for new jobs and economic growth outside the traditional "grain belt."

Ethanol can be produced from any biological feedstocks that contain appreciable amounts of sugar or materials that can be converted into sugar such as starch or cellulose. Sugar beets and sugar cane are examples of feedstocks that contain sugar. Corn contains starch that can relatively easily be converted into sugar. A significant percentage of trees and grasses are made up of cellulose, which can also be converted to sugar, although with more difficulty than required to convert starch.

What Vehicles Can Use It?



Most of today's commercially available vehicles can run on blends of E10, a blend of 10% ethanol and 90% gasoline, which is mandated in some areas of the country to act as a fuel oxygenate additive to improve air quality. In addition, many newer vehicles can use E85, which qualifies as an alternative fuel under the Energy Policy Act of 1992. Vehicles that can run on E85, gasoline, or any mixture of the two are called flexible fuel vehicles (FFVs). FFVs are widely available and include sedans, minivans, sport utility vehicles, and pickup trucks. More than 5 million FFVs have already been sold in the United States. Because of the abundance of ethanol-compatible vehicles, limited crude oil supplies and refining capacity, and rising concerns over air and water quality degradation, there is a good market outlook for ethanol as a fuel.



Why Should We Use It?

Ethanol is domestically produced and reduces the use of imported petroleum. Ethanol production also supports U.S. farmers and creates jobs. The use of ethanol as a transportation fuel also reduces carbon monoxide emissions relative to gasoline.

All auto manufacturers approve the use of low-level ethanol blends (10% or less) in all types of vehicles and engines that run on gasoline. From a consumer perspective, there is no noticeable difference in vehicle performance when low-level ethanol blends are used. Because there is a difference in the energy content of ethanol and gasoline, there may be a reduction in vehicle fuel economy when using higher levels of ethanol.

The Clean Air Act Amendments of 1990 mandated the sale of oxygenated fuels in areas with unhealthy levels of carbon monoxide. Since that time, there has been strong demand for ethanol as an oxygenate blended with gasoline. In the United States each year, approximately 2 billion gallons are added to gasoline to increase octane and improve the exhaust emissions quality of gasoline.

