

# Ethanol

Ethanol is a renewable fuel made from corn, sugar, grain or straw that can be blended with gasoline and used in virtually any gasoline-powered vehicle manufactured after 1980. Most gasoline-powered engines can run on a gasoline blend of up to 10 percent ethanol. This is known as "E-10." There are some vehicles, known as FFV's (Flexible Fuel Vehicles) that are specially manufactured to operate on an ethanol blend that contains up to 85 per cent ethanol.

In Canada, ethanol is usually made from corn (Ontario) or wheat (prairies).

## Environmental Benefits

Ethanol reduces greenhouse gas (GHG) emissions because the grain or other biomass used to make the ethanol absorbs carbon dioxide as it grows, a key GHG. The CANMET Energy Technology Centre estimates that a litre of biomass ethanol used to replace a litre of gasoline reduces the accumulation of carbon dioxide by about half. (Source: NRCan/GHGenius)

## Ethanol in Fleet Operations

An E-10 blend can be used in any vehicle manufactured in 1980 or later, and requires no modifications to the vehicle's engine or fuel system. E-10 has a minimal impact on a vehicle's fuel economy or horsepower. Overall, the use of E-10 increases fuel consumption by an average of two per cent when compared with pure gasoline. E-10 is currently available at Husky stations in British Columbia.

Many automakers (pdf) make a variety of flexible-fuel vehicles that can run on blends of up to 85 per cent ethanol and 15 per cent gasoline. E-85 vehicles use an on-board sensor to detect and automatically adjust for the fuel mixture being used at any given time. FlexFuel vehicles are distinguished by a yellow gas cap and branding on each vehicle.

Eighty-five per cent ethanol-blended gasoline (E-85) is not yet commercially available in British Columbia.

## Future Sources of Ethanol

Extensive research is focusing on reducing the costs of ethanol production and using non-food feedstock materials such as straw, wood and switchgrass. Technology to produce ethanol from these sources, known as Cellulosic Ethanol, is advancing rapidly and is close to commercialization. A Canadian company, IOGEN, is a world leader in this field.

## Government Regulations

The BC Government has announced that it will mandating an E5 blend in all gasoline sold in the province by 2010. As well, the Federal Government has introduced a Renewable Fuel Standard for Canada which will require an E5 blend for all gasoline sold in all provinces in Canada by 2010.