

Ethanol Fuel

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Outline

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Did you know ethanol gasoline uses less water to make than regular gasoline (“Ethanol,” n.d.)? While ethanol fuel uses less water to make, which is good for the environment, since ethanol is made from corn, the production of ethanol fuel forces the cost of foods to rise and rise rapidly. There are some pros to switching to ethanol gas; however, there should be a different source for fuel because the price of ethanol production is too high and leads to rising food costs. Ethanol should not be the main source of gasoline.

Ethanol, also known as ethyl alcohol, has a lengthy process in production. “Bioethanol is ethanol produced from crops, and is the principal fuel used as a petrol substitute for road transport vehicles” (Porteous, 2008). There are three different ways to produce ethanol into gasoline. One way of ethanol production is called cellulosic biomass. Cellulosic biomass can be more difficult than the other ways of ethanol production. The first two steps in cellulosic biomass are biomass handling and biomass pretreatment. There are three different steps that can be taken for biomass pretreatment: enzyme production, pentose fermentation, or cellulose hydrolysis. The next step in cellulosic biomass production is glucose fermentation. The last step is ethanol recovery, which leads to ethanol. Cellulosic biomass is unique because most of the steps are interchangeable, and most manufacturers use two or more steps at one time.

Another way of ethanol production is known as wet milling. In wet milling, the corn is saturated in water and watered down with sulfurous acid from anywhere between twenty-four and forty-eight hours. This process is known as steeping. Steeping assists in the separation of the grain into its multiple parts. Once the steeping process is through, the corn mixture known as corn

slurry, is pushed through grinders to remove the corn germ. After the corn germ is removed, the starch and leftover water are used in fermentation to create ethanol. The last method for ethanol production is dry milling. Dry milling is similar to wet milling, but with a few differences. The main difference in dry milling production is the whole corn kernels are mashed down into a flour, also known as meal. Dry milling is the most popular way of producing ethanol (“How Ethanol Is Made,” 2015).

A major reason why ethanol has brought costs of food up is due to the Renewable Fuel Standard (“Renewable Fuel Standard Program,” n.d.). “Congress in 2005 mandated that oil refiners blend ethanol into gasoline” (Davenport, 2016). The federal government put a law in place that makes the manufacturers of fuel to mix in ethanol fuel. When the federal government put the standard into place, at first it did not seem like such a big deal. After the Renewable Fuel Standard became official and ethanol production was greatly increased, it became known that ethanol production is not as great as some people think. Ethanol production is more expensive and greatly raises food costs. “The ethanol mandate has driven up food costs while failing to deliver its promised environmental benefits” (Davenport, 2016). The mandatory mandate did not just raise food costs, but the mandate also raised the costs for farmers with cornfields as well. Due to the rise in costs of food and taxes on farmers, the majority of people with a general knowledge of ethanol fuel do not approve of it as an alternative gasoline. One presidential candidate has said he will end the use of ethanol fuel. “Ted Cruz has called for an end to subsidies for all forms of energy, as well as a five-year phasing out of the renewable fuel mandate that created the ethanol economy here”

(Davenport, 2016). Ethanol fuel has a mostly negative view in the United States or no view at all.

While there are many negatives to ethanol fuel, there are some positives. A few positives would include that the creation of ethanol fuel creates more jobs in the United States. While this may not seem like a big deal to some individuals, it actually is an important point because the more jobs there are in the United States, the less poverty there will be, which will decrease poverty rates, and increase working Americans. Another positive property of ethanol fuel is the fact that corn is renewable. Unlike fossil fuels, which gasoline is made out of, corn will never completely disappear. Corn is a vegetable and only takes roughly six months to grow, which then can be harvested and created into ethanol. These are big examples of why ethanol fuel should be considered and used.

The negatives to ethanol fuel are abundant. The first negative to ethanol fuel is the hefty rise of food costs. This is such a con to ethanol fuel because the minimum wage has not been risen very much, but the cost of food has. The rise in costs upsets the whole economy. Another con to ethanol fuel is ethanol fuel is not meant for the standard engine. The standard engine in a standard car is meant for gasoline made from fossil fuels. Ethanol is a type of alcohol; alcohol retains water, which an engine is not supposed to have inside of it, thus causing the engine to become clogged. The last major con of ethanol fuel use is one gallon of ethanol fuel does not equal one gallon of gasoline driving efficiency. Ethanol cuts mileage down by four percent ("Pros and Cons of Corn Ethanol," n.d.). The price of ethanol-rich fuel might be cheaper, but it could cost more in the end.

There are studies that have been done on the benefits of ethanol fuel; mostly negatives have been found. “A number of scientific studies have shown that the environmental benefits of corn ethanol are limited, reducing carbon dioxide only slightly compared with conventional gasoline, partly because a large amount of fuel goes into growing corn, including in fertilizers and farm equipment” (Davenport, 2016). Ethanol has more cons than pros. Ethanol at first may seem like a good exchange for fossil fuels, but ethanol really is worse than most people seem to think; there are too many cons to make the switch to ethanol fuel completely.

The use of ethanol fuel is growing rapidly even though the negatives outweigh the positives. Some things to keep in mind are that ethanol is not cheap to make. The cost of food will continue to rise to great heights if we switch ethanol for standard gasoline. Most car engines will have to be replaced due to being stopped up from the ethanol fuel. While all these cons are huge, the pros are more jobs for the United States economy and renewable energy from a vegetable that will never completely run out. There are some pros to switching to ethanol gas; however, there should be a different source for fuel because the price of ethanol production is too high and leads to rising food costs. Ethanol should not be the main source of gasoline.

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