

●Advanced Critical Reading - Ethanol

Ethanol ($\text{CH}_3\text{CH}_2\text{OH}$; which is also called ethyl alcohol, grain alcohol, and EtOH) is a clear, colorless liquid. It is a renewable biofuel made from starch and sugar-based crops like corn grain and sugar cane or from cellulosic feedstocks like grass, wood, or recycled newspapers. Ethanol is a high-octane biofuel which performs so splendidly in internal combustion engines that early automakers presumed it would be the world's chief fuel.

American proponents of ethanol fuel highlight two principal advantages: its environmental impact and its energy security benefits.

The adoption of ethanol reduces noxious emissions such as carbon monoxide (CO) and pollutants from internal combustion engines; hence, it is appreciably less deleterious to the environment than gasoline. Ethanol made from corn has been shown to reduce harmful emissions by up to 13%, whereas ethanol made from cellulosic materials reduces dangerous emissions by as much as 88%.

Ethanol is a renewable biofuel; in only six months a new crop can be grown, harvested, and converted to fuel, so it is profitable for rural crop-producing economies. In addition, it keeps engines clean and can be used in gasoline engines with no modifications when combining gas with up to 10% ethanol. It can be used in specially modified vehicles called "flexible-fuel" or "flex-fuel" vehicles in concentrations of up to 85%. Gasoline combined with 85% ethanol is generally referred to as "E85." Higher ratios of ethanol in the fuel mixture result in less reliance on fossil fuels, so there is less dependence on imports.

American opponents of ethanol fuel point to three disadvantages: its price fluctuations, its energy level, and its availability.

The price of ethanol fluctuates on a different cycle than gasoline; therefore, at times ethanol is more expensive than gasoline, and at times it is cheaper. Another drawback of ethanol is that it contains less energy per gallon than gasoline; even when it is cheaper per gallon than conventional fuel, it does not take the vehicle as far as a gallon of gas. A car's fuel economy with ethanol can be expected to be 20–30% less than a vehicle which burns gasoline. So the occasional cheaper price is offset by the lower energy yields. In addition, ethanol is not as widely distributed as gasoline. It is readily available only in the Midwest; other areas have limited ethanol infrastructure.

The Obama administration is working on expanding the ethanol infrastructure. In a recent interview with 15 newspaper editors, President Obama characterized the U.S. position on biofuels in this way: "Our challenge, I think, is to see our current ethanol technology as a bridge to the biofuels technologies of the future. And that's what we want to invest in, and that's what I'll be directing my Department of Agriculture to focus on."

Questions

1. It can be inferred from the passage that which of these statements about ethanol is/are true?
 - I) Burning ethanol made from wood produces less CO than burning ethanol made from corn.
 - II) Burning ethanol made from grain produces less CO than burning gasoline.
 - III) Burning ethanol made from newspapers produces less CO than burning ethanol made from grass.
 - A) I only
 - B) II only
 - C) III only
 - D) I and II only
 - E) II and III only

2. The author's primary purpose is to
 - A) describe and define ethanol.
 - B) compare 2 types of ethanol.
 - C) support the adoption of ethanol.
 - D) explain advantages and disadvantages of gasoline.
 - E) explain advantages and disadvantages of ethanol.

3. In line 9, *deleterious* most closely means
 - A) dangerous, because it harms the environment less than gas.
 - B) beneficial, because it helps the environment less than gas.
 - C) splendid, because it performs less splendidly than gas.
 - D) unreliable, because it is less unreliable than gas.
 - E) expensive, because it is less expensive than gas.

