

Make Ethanol in Your Own Backyard



E-Fuel says the MicroFueller could produce ethanol for less than a dollar per gallon.

A Silicon Valley start-up called E-Fuel is showing exactly how ethanol can live up to its name as "the people's fuel." The company recently announced that it will soon start selling a home ethanol system, the E-Fuel 100 MicoFueller, which will allow anyone to make ethanol from sugar, water, yeast, and electricity in their own backyard.

The MicroFueller, which is about the size of a gas station pump, will sell for \$9,995 and start shipping late in 2008. E-Fuel's founders Floyd Butterfield and Thomas Quinn expect that government incentives for alternative fuels will reduce the initial investment by up to \$5,000.

The MicroFueller uses sugar as the main fuel source, which is mixed with a time-release yeast the company has developed. E-Fuel explains that it takes about 10-14 pounds of sugar to make one gallon of ethanol. When using store-bought sugar, which costs about 20 cents per pound in the US, plus the cost of electricity, the cost to produce a gallon of ethanol would be roughly equivalent to today's gas prices in the US.

However, Butterfield and Quinn note that inedible sugar can be bought from Mexico for about 2.5 cents per pound under the North American Free Trade Agreement effective this past January. Then it could cost as little as a dollar a gallon to produce ethanol with the MicroFueller. Quinn also noted that he's used leftover alcohol as an alternative feedstock to sugar, and the only cost is for the electricity.

"It's going to cause havoc in the market and cause great financial stress in the oil industry," Quinn told *The New York Times*.

Previously, distilling ethanol has required large pieces of equipment and questionable efficiency. But E-Fuel says that it has developed technology such as a new membrane distiller that can separate water from alcohol at lower temperatures than in conventional ethanol refining, reducing cost and complexity. The machine can fill its 35-gallon tank through fermentation in about a week, it doesn't produce odors, and the water byproduct is potable. Further, the company estimates that burning a gallon of ethanol made by the MicroFueller will let off just 12% of the carbon that a gallon of gasoline emits.

To brew ethanol at home, property owners in the US must obtain permits from the Alcohol and Tobacco Tax and Trade Bureau. Currently, however, it's illegal in the US to run a conventional vehicle on 100% ethanol - but E-Fuel is hoping that regulators will certify all-ethanol cars if their system becomes popular.

E-Fuel plans to release the machine internationally, with production in China and the UK, in addition to the US. The company is also working on a commercial version and variations that will use different feedstocks besides sugar.

via: [The New York Times](#) and [Popular Mechanics](#)

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