

Ethanol

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What is Ethanol?

Ethanol is a colorless combustible liquid made by sugar fermentation, it is found in fuel, alcohol, and other products.

It is also referred to as ethyl alcohol, or grain alcohol.



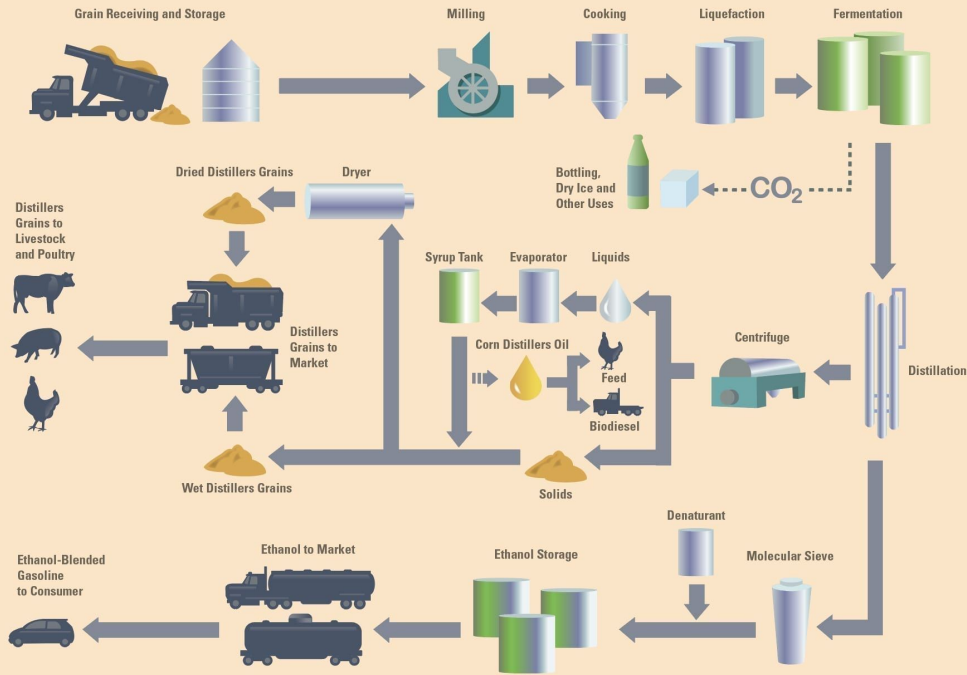
How is Ethanol Produced

Ethanol is produced by fermenting Sugar.

The type of fermentation used is called Microbial Fermentation which only works with Sugars.

Starch and Cellulose from plants are the two major sugar sources used in the fermentation process.

Dry Mill Ethanol Process



Production

90% of ethanol production comes from the Dry Mill Process.

The other 10% produced comes from the Wet Mill Process.

On average,
1 bushel of corn
(56 pounds)

processed by a dry mill ethanol biorefinery produces:

- 2.92 gallons of denatured fuel ethanol
- 15.86 pounds of distillers grains animal feed (10% moisture)
- 0.80 pounds of corn distillers oil
- 16.5 pounds of biogenic carbon dioxide

History of Ethanol

- Ethanol's first use was to power an engine in 1826
- Henry Ford and Alexander Graham Bell
 - Discovered Sugars from plants could be easily and inexpensively be converted into clean burning, renewable alcohol fuels.
- Modern Renewable Fuel Refineries
 - Convert grain, Beverage and Food Waste, Cellulosic Biomass and other feedstocks into high-efficiency ethanol fuel.
- Today's Ethanol Industry
 - Began in the 1970s when petroleum-based fuel became expensive and environmental concerns involving leaded gasoline created a need for an octane. Corn became the predominant feedstock for ethanol production because of its abundance and ease of transformation into alcohol.

What is it used for?

Ethanol has a variety of applications, varying from varnishes to a fuel additive. Below are common applications:

- Cadaver preservation
- Spice preparation
- Medicines
- Disinfectants
- Alcoholic drinks
- Fuel additives

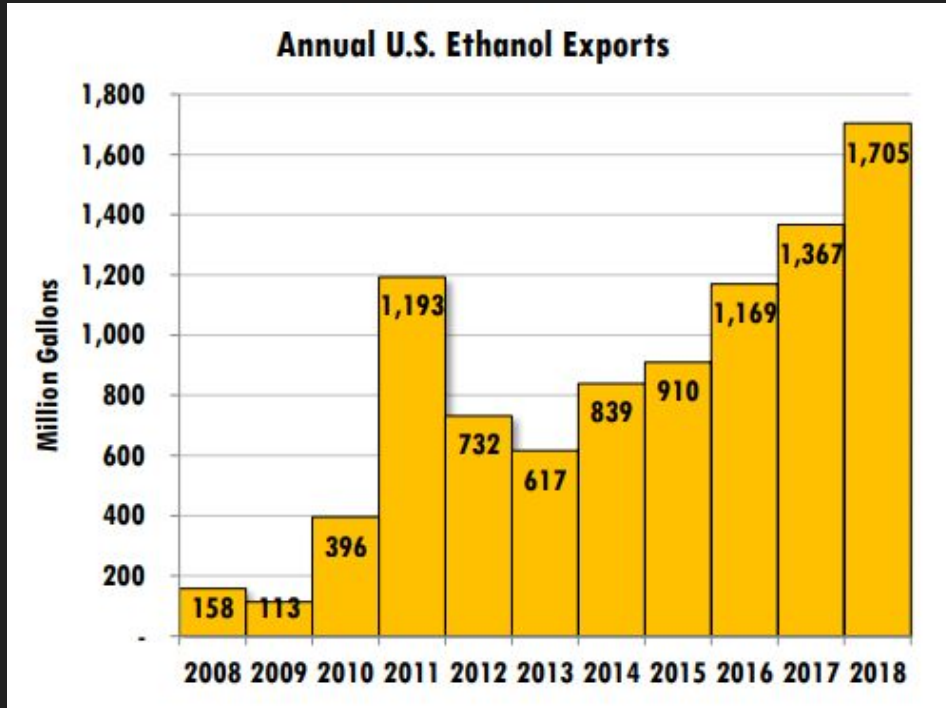


Exporters

The United States is the top exporter of Ethanol in the world.

Being the top exporter, they are also the largest producer of ethanol in the world, producing 16.9 billion barrels of ethanol in 2019.

This equates to 1.1 million barrels a day.

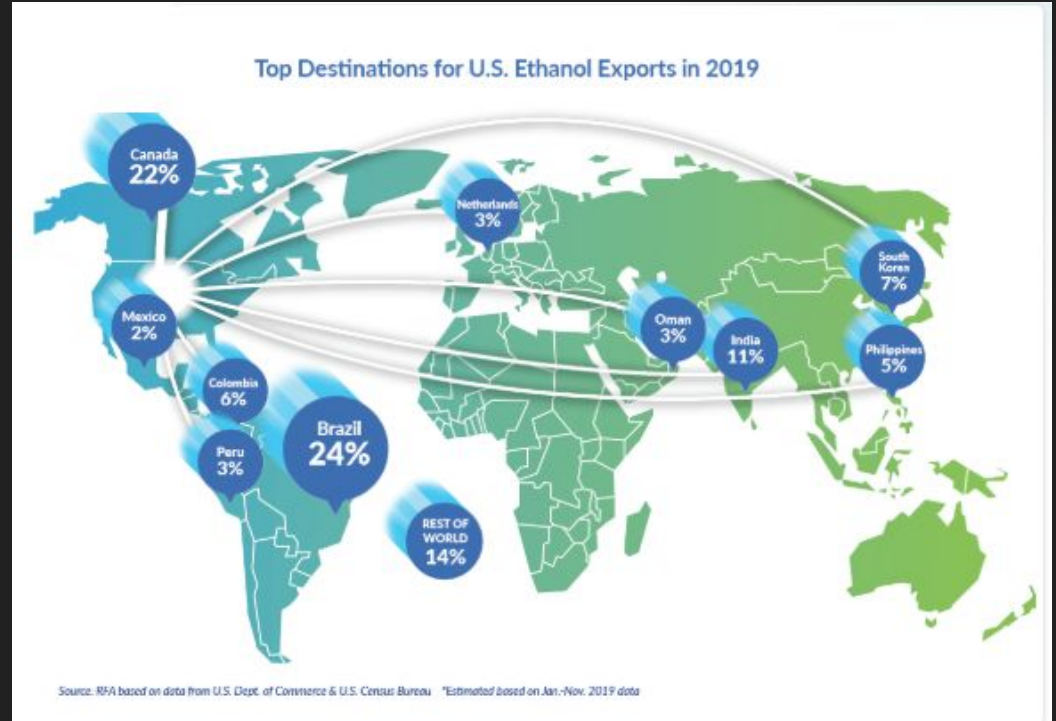


Importers

As of 2019, Brazil and Canada are globally the top ethanol importers in the world, chiefly importing American produced ethanol.

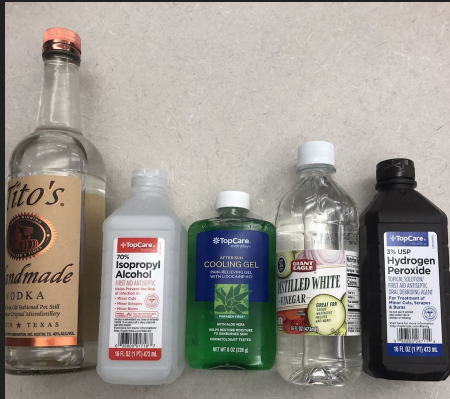
Because of Brazil's use of biofuel vehicles across the country, they are the largest importer; importing roughly 24% of US ethanol.

Canada comes as a close second to 22% of US ethanol, the ethanol has more broadspread uses, ranging from alcohol to medicine.



Current Events

- In response to the Coronavirus the country of Brazil, a country that primarily fuels its vehicles with Ethanol, has seen it's Sugar cane mills switch from making Ethanol to refined sugar due to lack of demand for fuel.
 - WSJ March 11, 2020
- Makers of disinfectants and sanitizers are turning to Ethanol as an alternative to isopropyl alcohol, a product experiencing a shortage. Ethanol has cheapened due to the recent fall in oil prices and vehicle usage in the U.S. and other countries.
 - WSJ April 3, 2020



- Brooklyn Air Co., a vodka distillery that recently discovered a new technology that turns CO2 into Ethanol has switched from making Vodka to producing hand sanitizer for first responders using this new process.
 - WSJ March 31, 2020

YTD Ethanol Price: NASDAQ

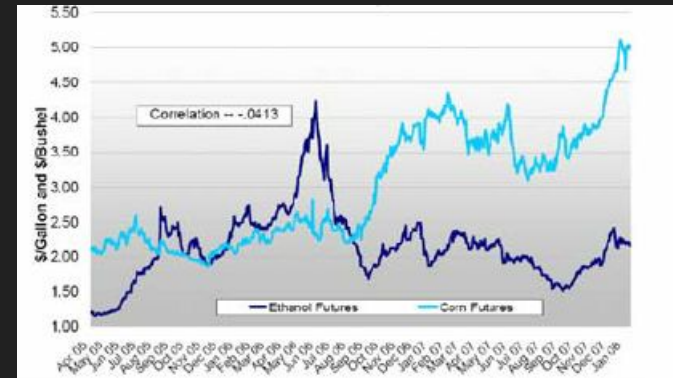


Futures

The price of Ethanol is expected to stay between .93 - .97 until December. At that point the price is expected to exceed 1.0 and stay above that mark. The reason the price will jump back over 1.0 is due to optimism that the Covid-19 crisis will subside by then.

Currently, Ethanol is predicted to stay “\$0.001 per gallon (\$1.827 to \$1.828 = \$29.00 per contract)”.

<https://www.cmegroup.com/trading/energy/ethanol/cbot-ethanol.html>



Fun Facts

- E85 Fuel is 85% ethanol, 15% gasoline.
- Rubbing alcohol (pure ethanol) has added flavoring to keep people from consuming it.
- Ethanol produces more energy under combustion than gasoline, however production leads to higher costs.
- Death occurs when the blood stream contains roughly 5% ethanol within it.
- Ethanol in fuel systems can build up and cause blockage in fuel lines when not in use, leading to corroded piping. This is why boats primarily use Ethanol free fuel.

Questions?

Sources

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