Ethanol

Ethanol is the base of many products you use everyday. Simply put, it is pure alcohol that makes up for anything from spirits to fuel. Ethanol is produced when a starch, most commonly corn, is fermented.

How is Ethanol made?

The fermentation process requires the starch to be ground into a mealy mash. From there, this mash is cooked at high temperatures to reduce bacteria levels. Next, the mash is cooled and yeast is added. This is where the sugar transforms into ethanol and CO2.

After around 40 to 50 hours, the fermentation process is complete. The distillation process then separates the ethanol from the residual “stillage”. At this point, the ethanol is 190 proof, but through dehydration it reaches 200 proof. Now, it is the proper form to be made into gasoline.

But the uses do not end there. The “stillage” created in earlier steps can also be used. Using a centrifuge, the “stillage” is separated into coarse grain and solubles. The solubles are concentrated to around 30% solids, creating Condensed Distillers Solubles (CDS) or “syrup”. The syrup is dried and made into a high quality livestock feed.

The CO2 released during the fermentation process can be captured and sold for use in carbonated soft drinks and the manufacturing of dry ice.

Benefits of Ethanol

Ethanol used in any of its many forms utilizes American labor and American product. Instead of relying on foreign oil sources, ethanol offers a product farmed and made here in the United States.

Ethanol not only has positive effects on the economy, but it also helps the environment. The base ingredient in ethanol, namely a starch like corn, can be produced over and over again. This means ethanol is renewable. Ethanol-fueled vehicles also have been shown to produce lower carbon monoxide and carbon dioxide emissions. Whether your car can use E85 fuel or just a mix of 90 percent gasoline and 10 percent ethanol, the presence of ethanol reduces emissions.

Ethanol Products

The Beginning

One of ethanol’s first uses was as rocket fuel. Space exploration after World War II is directly related to the power of ethanol fuel as it was used to send the first satellite’s into space.

Fuel Ethanol

Ethanol is a beneficial additive in most forms of automobile fuel. Gasoline retailers purchase fuel ethanol and mix it with unleaded gasoline, which creates a blend of 90 percent gasoline and 10 percent ethanol. Ethanol-blended fuels are already decreasing emissions, such as carbon monoxide.

E85

In recent years, advancements in ethanol technology have allowed scientists to make a blend with even more ethanol. Today there is an ethanol-blended fuel of 85 percent ethanol and 15 percent gasoline, also known as E85. E85 can be used in flex fuel vehicles (FFV), which have been created since the 1980s. There are more than a dozen FFV available on the market. These vehicles can run on blended-fuel up to the 85 percent ethanol mixture.

Spirits

Ethanol is the base of most alcoholic beverages. The type of beverage is determined by what natural product is distilled, the process used, and the amount of ethanol in it.

Cosmetics and Health

Because it is pure alcohol, ethanol can be used in health products and cosmetics. You can find ethanol in sanitizers and other cleansing beauty products. It can be made into both mild and strong cleanser with every level in between.

By-Products

When corn is converted into ethanol and carbon dioxide, there is a co-product of nutritional components. In fact, the extra components are three times as potent as normal proteins, fats, fiber, vitamins, and minerals. These co-products can be processed to create high quality animal feed. The co-product can be separated into liquid and grain solids. The liquids are made into syrup, also known as Condensed Distillers Solubles. The grain solids mixed with the syrup can be used as is to farms near the facilities.

Because of their nutritional make-up, these products are an excellent source of protein, energy and B-vitamins for a variety of animals. The animals able to use the feed are beef cattle, dairy cows, sheep dogs, horses, pigs, turkeys, chickens, and even catfish.

CVEC markets these by-products, please contact Renewable Products Marketing Group in Shakopee, Minnesota at 952-465-3220. Also CVEC invested in the latest dryer technology that enables lower drying temperatures, which then increases the presence of important amino acids. A Quality Control Program has been in place since our first day of operation. At minimum, we collect a representative sample from our product and have an accredited third party laboratory perform proximate nutritional analysis. Periodically, a complete nutritional profile is performed. If you have any questions feel free to contact Brody Padgett: 320-843-1231, bpadgett@cvec.com