Quality Control Solutions for Ethanol Production
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The production of ethanol is a complex biological process. Although fermentation is the oldest bio-technological process known, it is still sometimes seen more as an art than a science. Perten Instruments removes the mystery and helps you save time and money by providing you with unique tools that give you the information you need in just a few seconds. Price raw materials correctly, get more consistent fermentations and increase co-product income by optimizing moisture content – all with one analyzer. Perten Instruments is a leading supplier of analytical equipment to the ethanol industry, with a large number of installations globally.

Using rapid analysis to improve profits

Perten Instruments offers a range of products that help ethanol producers determine raw material quality, monitor production as well as verify co-product quality. In this brochure we will present the most versatile of our instruments, the DA 7200.

The DA 7200 is an NIR instrument designed for analysis of agricultural products of all kinds; grains, pellets, slurries, liquids and more. Its speed and easy handling make it unique. There is typically no need for sample grinding or filtration, you get the results in only 6 seconds, and no clean-up is necessary after the analysis.

1. Raw material quality control

The level of starch or sugar in the raw material is directly correlated to the ethanol yield. Using the DA 7200 you will be able to determine starch, as well as moisture, protein and more at the intake – in a few seconds.

2. Mix and saccharification tanks

By monitoring and controlling mash solids in the mix and saccharification tanks, you will be able to achieve a high consistency, with much less waste of other inputs, and very consistent fermentations. The DA 7200 lets you analyze samples as they are, and gives you the results in only 6 seconds.

3. Yeast propagation, fermentation and beer well

Using the DA 7200 you will be able to monitor key parameters with the same level of accuracy as when using HPLC. The advantage of the DA 7200 is that it is much faster - 6 seconds versus 20 minutes - and that there is no need for sample preparation such as filtration.

It is also very easy to use, you just pour the sample into a plastic cup, so operators can analyze samples themselves and have access to accurate process information at all times.

Determination of DP3, DP4 and DP4+ will enable you to optimize saccharification and increase yield.
Monitoring for lactic acid spikes will give you an early warning of infections. If you find out in time, you will be able to take action much sooner and realize true savings.

The ability to rapidly measure concentrations of ethanol, glucose, acetic acid and glycerol lets you track the fermentation in a way which is simply not possible using HPLC. Charts and trends with frequently updated information tell you whether the fermentation is performing like it should, or if action is necessary.

4 Co-product quality control
The profitability of an ethanol plant is highly impacted by how co-products are handled. The DA 7200 is a powerful tool which helps you increase the value of your syrup, DDG, molasses, bagasse etcetera.

Measure syrup solids content to determine its value as a fuel.

Analyzing the Wet Distiller's Grain for moisture lets you know how to best dry it to achieve optimal DDG moisture content. This saves energy, and makes sure you are not selling a product which contains less moisture than specified. Selling the DDG at 10% moisture instead of 8% increases DDG revenue by 2%.

Verify the content of protein, fiber, ash and other constituents. Especially the protein content will determine the price you can ask for your DDG.

What you can analyze
Using the DA 7200 a number of characteristics can be determined with great accuracy. No sample preparation is needed; all sample types are analyzed as they are. The most common analyses include:

**Raw material (grain, sugar cane etc)**
Moisture, Starch, Sugars, Protein

**Yeast propagation, Fermentation broth, Beer well**
Ethanol, Glucose, Maltose, Lactic acid, Acetic acid, Glycerol, Brix, Dextrins (DP4+), DP3

**Wet Distiller's Grain**
Moisture

**Syrup**
Solids

**Dried Distiller's Grain**
Moisture, Protein, Starch, Crude fiber, ADF, NDF, Ash

**Molasses**
Brix, Polarity

**Bagasse**
Brix, Polarity
Specialists in quality control of grain, flour, food and feed

Our goal, to be Specialists in quality control of grain, flour, food and feed, has been driving us since Harald Perten founded The company in 1962.

Mr. Perten’s vision, to help customers improve product quality by providing analytical methods that are affordable and easy to use, is still inspiring us to new innovations.

Today, Perten Instruments is present in just about every part of the world. In some countries we serve you through our own companies, whereas in others we serve you through local distributors. Wherever you are, we are close to you. And we are all “Specialists in quality control of grain, flour, feed and food”.

To find out more about Perten Instruments, our products or local support, please visit our web site at:

www.perten.com