



## **The essence of your success**

ZEISS Spectroscopy for Ethanol Producers



# Getting the most out of every drop

## Corona extreme – quality control at each step of the process

Better control means better quality – ZEISS Corona extreme provides corn-based ethanol producers the information they need to optimize processes and increase efficiency and profitability.

Producing ethanol is a complex process. And we know very well that to ensure the highest quality end product, every stage of the process needs to run smoothly and efficiently. In order for this to happen, you need to be able to measure and verify the quality of inbound corn.

ZEISS Corona extreme is ideal for application in the corn-based ethanol industry. Robust, accurate and dependable, Corona extreme is an in-line near-infrared (NIR) measurement system that incorporates chemometric calibrations to determine

constituent percentages of agricultural products. This allows you to optimize your process by testing corn in-line for moisture and starch content and adding exactly the right amount of fermentation enzymes.

Constantly monitoring moisture, protein, oil and fiber levels in distiller's dried grains with solubles (DDGS) can lead to a higher quality by-product and greater client satisfaction.

ZEISS Corona extreme is your dependable solution to optimize the efficiency of your production process and provide the highest possible quality.



### Corn

Measuring point	Measurement parameters
Unloading	moisture, starch, protein, oil, density



### Ground corn

Measuring point	Measurement parameters
After milling	moisture, starch, protein, oil



### DDGS

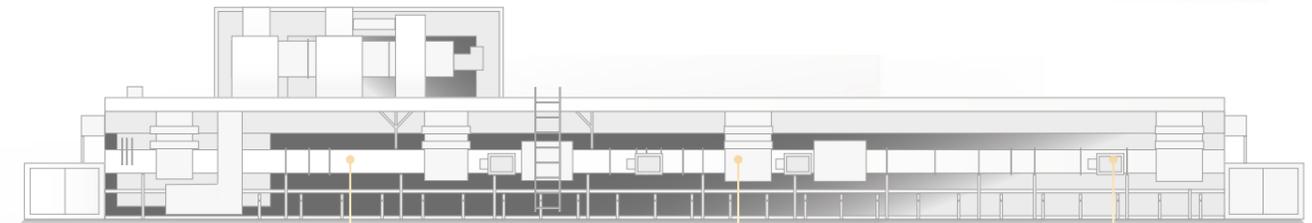
Measuring point	Measurement parameters
After distillation and drying	moisture, protein, oil, fiber

# Extremely good results – in any conditions

## ZEISS Corona extreme

### Your Benefits

- Fast in-line measurement of starch content
- Complete raw material analysis, allowing you to rate suppliers based on factors such as moisture and starch content.
- In-line measurement of corn both as whole grains and ground.
- Optimization of additives, allowing for reductions in production costs.
- Measurement and quality management of DDGS, allowing for a specified by-product.



**Unloading**  
Raw material analysis of corn

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**Moisture, starch, protein, oil, density**

**After milling**  
Analysis of ground corn

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**Moisture, starch, protein, oil**

**After distillation**  
Analysis of DDGS, dried distillers grain with solubles

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**Moisture, protein, oil, fiber**

### Spectrometer

- Spectral range: 950 – 1,650 nm
- Internal referencing

### Housing

- IP 66, ATEX Zone 22
- Resistant against vibrations and shocks (up to 50 g)
- working temperature from -15 to 50 °C

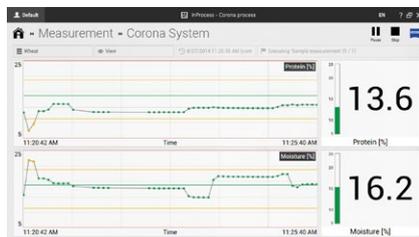
### Integration

- EtherNet/IP
- Profibus
- Modbus
- Digital and analog in/out
- OPC
- SQL database



# Innovative, invaluable, intuitive: **InProcess**

ZEISS InProcess software is used to control one or more devices. It works perfectly with our spectrometer systems and allows you to set up and execute measurements as well as to visualize or archive your data. It is easy to integrate into your IT systems with OPC, CenSocket and SQL data and comes with a touchscreen optimized GUI.



## General information

- Available in Chinese, German, English, French, Italian, Polish, Portuguese, Russian and Spanish
- Simultaneous activation of more than one spectrometer
- Support for calibrations (chemometric models) created using standard chemometric software such as GRAMS, Unscrambler or UCAL
- Filter function for the elimination of implausible spectra

## Measurement

- Display of measurement as a spectrum, value or trend
- Automatic warning when limit values are exceeded (definition of limit values and warning levels)
- Automatic measurement

## Integration

- Communication with customized field bus systems and industry standards
- Customizable measurement result display

## Measurement history

- Access to all historic measurement and referencing results
- Data export of spectra, measured values and sample information

## Diagnosis

- Implementation of a self-test for spectrometer functionality inspection
- Simple provision of relevant servicing information at the touch of a button

## User management

- Setup of dedicated user groups with different access levels

## Technical data for the Corona extreme spectrometer

Spectrometer	diode array spectrometer
Polychromator	PGS
Measurement range	950 – 1,650 nm
Mean spectral pixel pitch	3 nm
Spectral resolution (half width at 1/10 max)	≤ 10 nm
Wavelength accuracy	≤ 1 nm
Wavelength reproducibility	≤ 0.1 nm
Light source	halogen
Protection standard	IP 66
Dimensions W x H x D in mm	256 x 190.5 x 253
Weight	10 kg
Range of operating temperatures	-15 °C to +50 °C
Power supply voltage	9–36 V --- SELV

If you still haven't found what you are looking for, then feel free to get in touch with us.

## Carl Zeiss Spectroscopy GmbH

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