APPLICATION NOTE - NIR ANALYSIS of
SUNFLOWER MEAL *with ZEISS Corona extreme*

Target Industry:
Feed Industry

INTRODUCTION:

NIR-Analysis can deliver results **very quickly and cost efficient** for parameters e.g. **moisture, protein, oil** and many more.

Wet chemistry analysis is time and cost intensive when it comes to large numbers of samples.

The non-destructive NIR measurement takes **less than one minute** to complete and to determine multiple components at the same time. The outstanding performance and quality of the **Carl ZEISS Spectroscopy** analyzer and the application expertise of **Noack & Co GmbH**, guarantee our customers the most reliable results.

THE ANALYZER:

Few other spectrometer systems from ZEISS incorporate as much application-related experience as the new **Corona extreme**.
The spectrometer features fiber free,
high energy illumination with
outstanding optical properties
and internal referencing.
The Spectra Range is 950-1650nm.

THE MEASUREMENT:

Laboratory mode is used to obtain a continuous quality control of the incoming material.

The **Duroplan-Petri-dish** of the **ZEISS Turnstep** module is filled with sample material and then put onto the Corona Extreme. The measurement takes few seconds and the results are stored in the internal software database. The results and spectra can be easily extracted for further use or analysis.

YOUR ADVANTAGES:

- **24h real time online process control (15ms integration time)**
- **No sample preparation and results <1 m in lab mode**
- **Fully transferable calibrations from lab to online mode**
- **Re-usable petri-dishes in different sizes**
- **User friendly software**
- **Very low cost of ownership**
- **Cost saving and increase of profit due to 100% process control**

Figure 1: Laboratory configuration with Turnstep Module

ONLINE SETUP:

Corona extreme and InProcess® software is the spectrometer system designed to increase productivity in your production process.

The system is able to operate under extreme conditions.

Software settings make it very easy to directly go from the laboratory into production.

You may calibrate your ZEISS Corona extreme sensor in the laboratory and then mount in directly in-line at your process.

Figure2: On-Line configuration

CALIBRATION PERFORMANCE:

The table shows the available parameters and their number of samples included in the calibration files. The minimum and maximum values indicate the prediction range for the parameters available.
SECV (Standard Error of Cross Validation) indicates the prediction performance.

Parameter	Unit	Calibration Range		SECV
		MIN	MAX	
Moisture	%	8,06	14,2	0,6
Protein	%	32,63	42,72	1,10
Oil	%	1,43	4,95	0,4

Figure 3: Calibration file details

SOFTWARE:

ZEISS InProcess Software is designed to meet the customers need in every possible application.
Its modular design is perfect for the creation of customized views and procedures.
You can smoothly change the setup from Laboratory Mode to Online Mode without great adjustments.

The graphic user interface is comprised of icon menus giving it a familiar feel of operation at first sight. In addition, users may configure sequences, calculations and display formats based on their individual requirements.
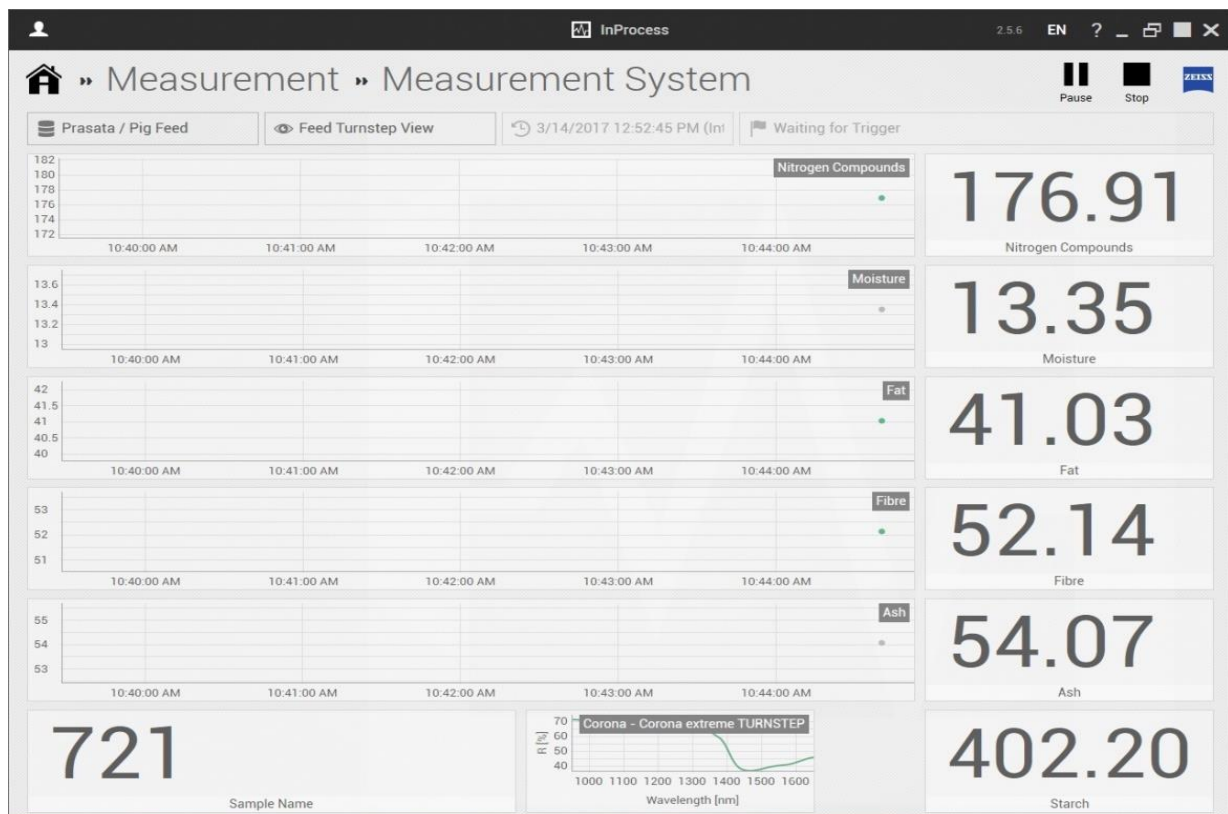

Figure 4: ZEISS InProcess Software shows results after measurement