Corona process

The new ZEISS spectrometer system
for the food industry

Interactive PDF
Version 1.0

Start

We make it visible.

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Trust needs reliability – quality needs ZEISS

The real challenge for the food industry is to offer a product with consistent quality using raw materials which are themselves subject to ongoing natural fluctuations.

Our challenge was to develop a measuring system that efficiently inspects all relevant quality parameters in-line and enables the optimal control of the production process. The new Corona process measures quality parameters with ZEISS precision while additionally setting standards for economic efficiency, reliability and handling. Having over twenty years of experience in the measuring and analysis of processes, ZEISS is one of the world's leading manufacturers for in-line measurement technology. Therefore, with the new Corona process we can provide our customers with a complete spectrometer system which fits the workflows of the food industry perfectly.

The new Corona process and the InProcess system software allows to control your process cost-efficiently and to the highest quality standards. To us, this is the meaning of ZEISS engineering.

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For the highest demands: **Corona process**

Consistent high quality is an absolute must in complex processes. However, the requirements in the production environments are extremely high.

In order to ensure profitable production, process inspections and optimization take on major importance. The new Corona process enables the perfect coordination of your process steps and allows to get the maximum benefit out of the raw materials used, with minimal consumption of resources – especially energy and water.

Therefore, your manufacturing processes – and costs – are under control at all times. The careful use of resources and the avoidance of waste are also important factors in terms of the environmental scorecard. The new Corona process allows to put your economic and environmental claims into practice.

Corona process provides a sustainable complete solution comprising a spectrometer system, calibration and intuitive software which is optimally tailored to your workflow. We guarantee precision, highly comfortable use and reliability.

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Where quality plays the leading role: **Corona process**

Meat products

Use	analysis on the mixer
Products	sausage meat for various types of sausage, minced meat
Parameters	fat, lean meat, water, salt
Result	compliance with formulas and legal limit values

Dairy products

Use	process and final inspection
Products	raw milk, whey, milk and whey powder, butter, etc.
Parameters	fat, protein, moisture, fat-free dry mass
Result	process optimization, consistent product quality, waste reduction

Vegetables

Use	analysis during blanching
Products	peas, beans, broccoli, etc.
Parameters	degree of doneness, color
Result	shortening of process time, waste reduction

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Potato products

Use	process control
Products	fries, potato chips, potato-based finished products
Parameters	color, moisture, fat, starch, salt
Result	process optimization, shortening of process time, reduction of energy consumption

Coffee

Use	analysis during roasting
Products	coffee beans
Parameters	degree of roasting and color
Result	optimization and control of roasting process and of the desired quality

Tobacco

Use	inspection of incoming goods, optimization and control of the manufacturing process
Products	raw tobacco, fine cut, raw tobacco powder
Parameters	moisture, nicotine, sugar
Result	quality of raw materials, adherence to formula, increased productivity, traceability

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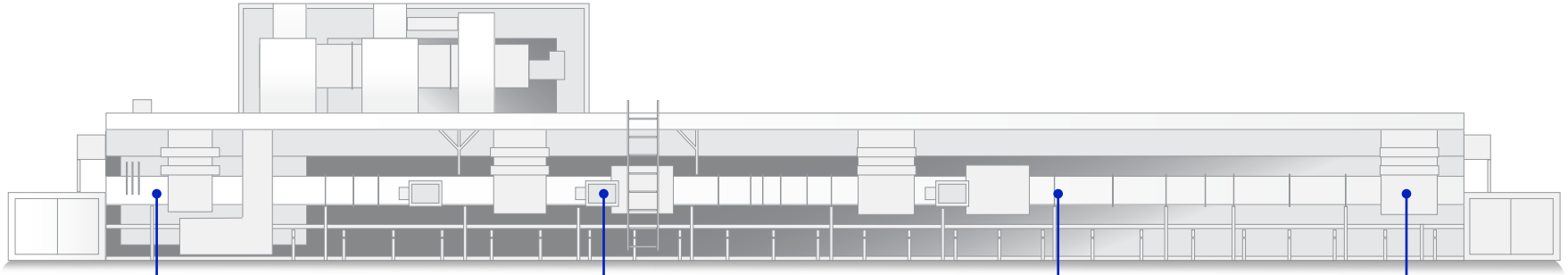
Reliable at every stage: **Corona process**

To ensure a consistent process flow, the entire process must be monitored at all stages. The new Corona process is designed in such a way that it can take on a very broad range of measurement tasks.

Therefore, it can be used at every stage in the production facility and plant control where quality is relevant – without the need for a laborious integration process. Rather than using different systems and technologies, you can now monitor and control your process flow very simply using one complete system. The new Corona process works at every stage with the highest precision and ensures your process quality.



Incoming goods
Quality analysis of the raw materials

e.g.: moisture, nicotine and sugar content of raw tobacco

Process
Formula monitoring, process monitoring, final destination during product preparation

e.g.: degree of doneness of vegetables; dry matter, protein and fat content of milk products; composition of mixtures (e.g. sausage, sausage meat, dough)

Final inspection
Monitoring and inspection of the finished product

e.g.: color of baked goods, moisture content and color of flour and other dry products

Waste disposal
Evaluation of waste/ residual materials

e.g.: dry matter and residual fat content in oil cakes

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Fully equipped to provide top performance: **Corona process**

ZEISS ProcessAssist®
More in-process reliability

- ✓ Automatic internal referencing depending on environmental conditions
- ✓ Automatic monitoring of bulb function and automatic switching to the second full-power bulb
- ✓ Automatic compensation of sample distance influence even when sample heights vary dramatically
- ✓ Automatic warning when limit values are exceeded

Start/repeat animation

Developed with the competence and years of experience of ZEISS in process technology, Corona process is the most intelligent complete spectrometer system for the food industry. It meets all necessary requirements at the highest level.

Perfectly coordinated components combined with new ZEISS ProcessAssist® systems make Corona process one of the safest complete spectrometer systems. The quality parameters which are relevant for your process can be measured even more comfortably using the ZEISS ProcessAssist®.

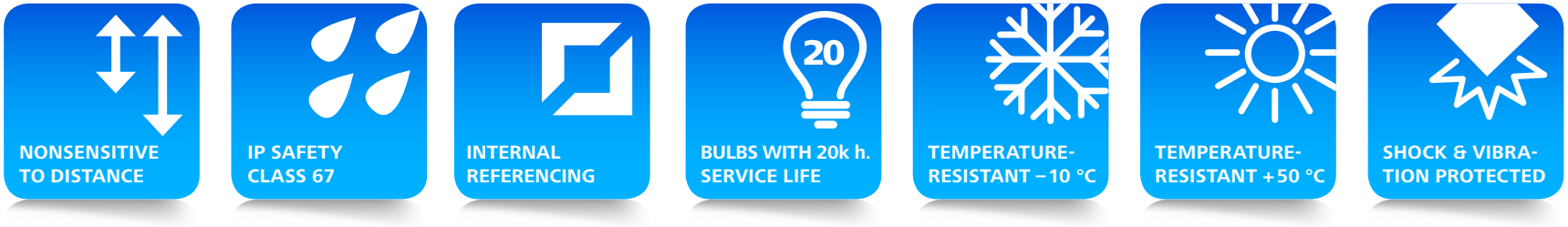
Corona process warns you if critical limit values are being exceeded and a reaction is required immediately. The automatic logging of the environmental conditions always ensures reliable measuring results regardless of the sample height, temperature, air humidity or vibrations. If necessary, it also controls internal referencing. To avoid down time, bulb functioning is also monitored automatically. If a bulb fails, the second full-power bulb is deployed immediately and the Corona process can continue its tasks uninterrupted.

Guaranteed process reliability: **Corona process**

Every process is different and has its own very unique conditions – some of which may be extreme. However, for the new Corona process this is not a problem. The large spectral range which covers the visible and the near infrared range enables a broad spectrum of applications.

With its compact build, Corona process may be easily integrated into any technological process. The optics, spectrometer, electronics and referencing are all located in the same housing together with the measurement head, so that only one installation site is required. Since there is no need to use light guides, influencing and losses do not occur. Thanks to its stainless steel housing, Corona process not only looks good, it also meets all hygiene requirements. This measuring system boasts excellent longterm stability and does not require frequent external calibration.

At a distance of 80 to 600 mm from the sample, it measures with the same accuracy all the time. This is unaffected by temperature fluctuations from –10 to +50 °C. Corona process is protected against shock and vibrations and delivers analysis data reliably in all process environments. The bulbs have a total service life of 20,000 hours – making them fit for continuous operation for two years. In addition, the new Corona process requires remarkably little maintenance.



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Perfectly configured: **Corona process**

Spectrometer
- plane grating spectrometer (PGS)
- monolithic miniature spectrometer (MMS)
- internal referencing

Probe
- non-sensitive to distance variation
- redundant halogen lamp

Housing
- stainless steel housing according to hygiene standards
- IP67, ATEX zone 21/22
- simple and customized assembly

Interfaces
- innovative plug design
- ethernet, digital ins and outs, 24 V power supply

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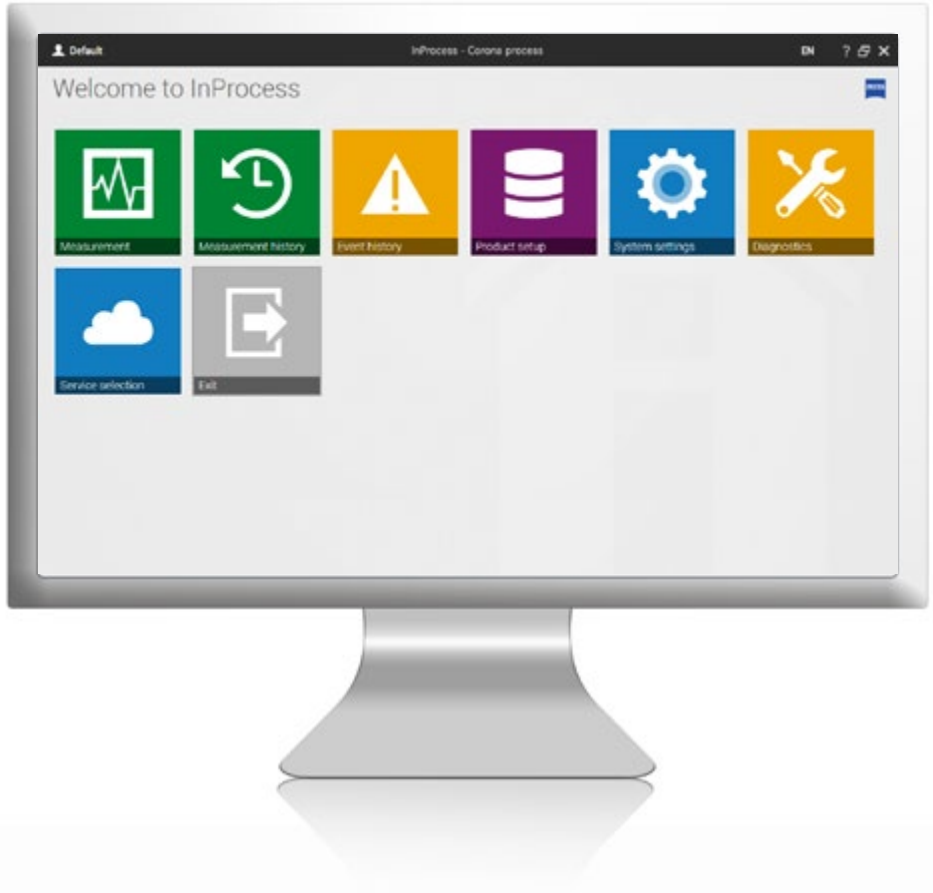
The name says it all: **InProcess**



The user interface is based on touchscreen-optimized icon menus and seems familiar to users even at first sight. It features intuitive, effective software design with clear structures and differentiated user management.

Individual sequences, calculations and representation forms can be configured based on personal requirements. An OPC interface is available for each InProcess installation. This enables easy integration into your process and/or overarching software. InProcess additionally provides an open software interface and supports calibrations created using standard chemometric software, e.g. Grams, Unscrambler or Ucal.

Simple, intuitive, efficient: **InProcess**

General
- available in various languages (English, French, German, Italian, Portuguese, Spanish), other languages to follow
- more than one spectrometer can be controlled simultaneously
- support of calibrations (chemometric models) created using standard chemometric software such as GRAMS, Unscrambler or UCAL
- filter function for the elimination of implausible spectra

User management
- setup of individual user groups with different access levels

Measurement
- the measurement can be displayed as spectrum, value or trend
- automatic warning when limit values are exceeded (definition of limit values and warning levels)
- measurement can be started automatically
- use of pre-defined products or creation of user's own products as desired
- creation of user's own measuring runs, calculations and views

Integration
- communication via OPC for integration into production line control
- control of events via digital ins/outs

Measuring history
- access to all historic measuring and referencing results
- data export of spectra, measurement values and sample information

Diagnostics
- completion of a self-test for inspection of spectrometer's functionality
- simple provision of all important information regarding servicing at the touch of a button

Technical specifications

	Corona process
Usable spectral range	380 nm – 1650 nm
Spectral resolution (half width at tenth maximum)	≤ 10 nm
Wavelength accuracy	≤ 1.0 nm
Measuring distance	80 mm – 600 mm
Large measuring spot	> 30 mm
Light source, service life of bulb	2 halogen bulbs (1 redundant), each 10,000 h
Housing size W x H x D	360 x 160 x 220 mm^3
Weight	15 kg
Protection class	IP67, ATEX zone 21/ 22
Operating temperature	–10 °C to +50 °C
Warm-up time	< 30 min

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Support for your customized solution as well: **ZEISS service**

Our dedicated team of sales and service employees who are at your disposal in our subsidiaries and our well-structured global dealer network enables fast and expert support and assistance. Global ZEISS service offers flexible on-site support via telephone or Internet.

What we offer:

- solutions that are tailored to your needs
- customized optimization and extension of your systems through personal consultation
- expert on-site support
- remote support via telephone, email and Internet
- promptness ensured through the optimal deployment planning of our experienced employees
- customized maintenance and service agreements

Protect your investment and ask for a service agreement that is tailored to your needs.
This allows to ensure optimal performance and lengthens your ZEISS product's service life.
Thus, your ZEISS product will guarantee reliable and precise results year after year, day in, day out.

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Superior in process: **ZEISS spectrometer systems**

Corona extreme

- compact NIR in-line spectrometer to measure ingredients
- measurement directly in material flow (contact probe)
- high measuring frequency due to optimized optical design
- simple system integration through intuitive software design
- also available with embedded-PC
- dust- and water-proof and protected against powerful jets of water
- IP67 and ATEX Zone 21/22 protection class
- stainless steel housing optional

Further information

Corona Plus Remote

- wide range of spectrometer modules from 380 nm to 2150 nm
- highly sensitive
- excellent linearity, low noise
- probes with light guides for difficult to access installation sites
- can be used flexibly
- robust housing
- 100 % process-suited

Further information

MCS 600

- rack system for maximum demands
- process suited with protective housing
- maximum flexibility
- wide wave length range of bulb and spectrometer modules (from 195 nm to 2150 nm)
- compatible with all fibre-coupled probes (transmission, reflection, ATR, etc.)
- compatible with InProcess software
- high-end electronics

Further information

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We make it visible.

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