

# ARMOR

Spectroscopy from a distance



Measurement of diffuse reflection  
in food industry



# Inline/online quality control in food production

In recent years, the food industry has also seen an increased concentration of production capacities accompanied by every increasing production output.

These processes go hand in hand with the new demands being placed on product quality and the requirement for 100% traceability of all raw materials and other ingredients. Standard laboratory routines are no longer able to monitor these processes in their entirety. New measurement and analytical methods are needed which guarantee uninterrupted product analysis in the manufacturing process.

The results obtained must be immediately available as the control parameters for process optimization. The aim is to achieve consistent product quality while ensuring the whole manufacturing process is fully documented.

The ARMOR measurement probe in combination with the spectrometer system MCS 600 can be used in incoming goods inspections, production preparation, product manufacture (mixing processes etc.) and final product inspection. The aim is to control the quality during those production stages where it is still possible to exert a direct influence on the final quality. This must be time-optimized while subjecting the product to as little stress as possible. The high degree of automation of the production process means it is preferable to undertake the process analysis at the beginning of the production chain or during the pre-production stage.

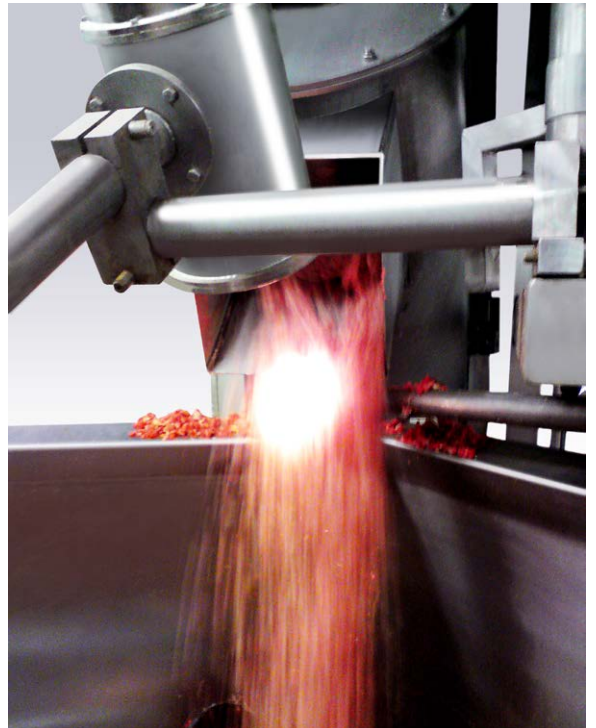
This system with NIR- technology enables to measure the quality of ingredients.

Parameter like:

- Fat
- Protein
- Water, moisture
- Sugar
- Acid

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can be monitored in real-time.



# Spectroscopy from a distance

The ARMOR-probe is designed for the measurement of diffuse reflection in the food industry.

Hygiene standards and the international protection classification of IP 65 are fulfilled by the stainless steel housing. The optical 0°/10° geometry guarantees precise and reliable ingredient information of samples presented in a distance between 100–240 mm. This flexibility makes ARMOR the number one choice for the measurement of goods on conveyors, blenders and open transport systems. Disturbing influences of ambient light present in these production environments are excluded by the intense 50 Watt light source.

Long-term maintenance-free calibration is ensured by the automatic internal black and white reference. The broad wavelength range of 450–2150 nm is perfectly suited for the quality control at various processing steps.

- ✓ Flexible sample presentation at distances between 100 and 240 mm
- ✓ Results unaffected by sample height variations
- ✓ Serial internal referencing for reliable, precise and reproducible results
- ✓ Suitable for hot and dusty environments (purging of window; optionally)
- ✓ Versatile applications due to wide wavelength range from 450 to 2150 nm
- ✓ Valuable accessory for MCS 600
- ✓ Stainless steel design for the food processing industry
- ✓ Splash water and dust proof for online applications
- ✓ Carefree long-term operation in various production environments such as blenders or conveyors
- ✓ Simple and convenient lamp replacement without adjustment

## Technical Specifications

<b>Spectral range</b>	450–2150 nm
<b>Sample distance</b>	100–240 mm
<b>Measuring geometry</b>	0° illumination 10° viewing
<b>Integration time</b>	20–50 ms
<b>Measuring spot</b>	30 mm
<b>Power supply for internal lamp</b>	50 W, stabilised
<b>Lifetime of halogen lamp</b>	3000 h
<b>Fibre connections</b>	SMA
<b>Diameter/height/weight</b>	235 mm/490 mm/17 kg
<b>Internal protection standard</b>	IP 65
<b>Range of operating temperature</b>	5–65° C

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