

APPLICATION NOTE

Analysis of raw meat using Finder SD Rotator

Introduction

For meat producers fast and reliable analysis of key parameters like fat, moisture, protein and collagen is essential. While traditional analytical methods take several hours, Near Infrared Spectroscopy (NIRS) can provide these parameters within seconds.

Instrumental

The HiperScan Finder SD is a thermally stabilised, MEMS based Scanning Grating Spectrometer which acquires spectra within the range of 1000 - 1900 nm. The samples are measured in open glas petri dishes (Ø 94 mm) which are placed in the rotator unit. This allows an easy measurement, requires minimal cleaning and minimises the risk of cross-contamination.

Samples

The calibration can be used for the analysis of raw meat samples of:

- + pork
- + beef
- + poultry
- + lamb

For the measurement the raw meat was grinded to 3 mm and measured at a temperature between 3 and 15 °C.

The reference methods include classical reference analysis like Kjeldahl for proteins, hydroxyproline for collagen and BEFFE and Soxhlet for fat (LFGB §64-methods).

At the moment the calibration includes around 200 samples, but the database is continuously enhanced and extended.



Performance

The performance of the calibration is summarised in the following table.

Parameter	N _{cal}	Range	R _{cal}	RMSECV
Fat	203	1,6 – 85,5 %	0,99	1,84 %
Water	203	10,8 – 75,9 %	0,99	1,68 %
Protein	201	2,9 – 25,8 %	0,97	0,95 %
BEFFE	201	1,5 – 25,2 %	0,96	1,01 %
Ash	55	0,2 – 4,8 %	0,96	0,26 %
Salt	55	0,1 – 3,9 %	0,98	0,17 %

Calculation of further parameters is possible, for example:

- + collagen
- + hydroxyproline
- + BEFFE in FE
- + Federzahl

