Immediate measurement of raw-milk quality parameters

NIRFlex N-500 with Solids Cell, Flow Cell Add-on
Dry-matter, Fat, Protein, Lactose and Criscopic Index measured by means of Near Infrared Spectroscopy

1. Introduction

The fast determination of moisture, fat and protein of intake raw milk samples optimize the production operations.

By using a FT-NIR spectrometer it is possible to determine such parameters in few seconds, just measuring the sample as it is, with accuracy comparable to the laboratory reference methods.

2. Samples

The pre-calibrated application is suitable to analyse cow raw-milk.

The pre-calibration has been created with samples collected from Italy and other EU customers.

3. Instrumentation/ Experimental

3.1 Spectrometer configuration NIRSolutions Laboratory:

- *NIRFlex N-500 Solids*
- *Flow Cell add-on (measurement)*
- *XL add-on (external reference measurement)*
- *Laboratory peristaltic pump (6 – 135 mL/minute)*

3.2 Measurement principle: transflectance

Inject the sample into the flow cell using a peristaltic pump. Slow flow rate for a single continuous measurement sequence of 190 scans.

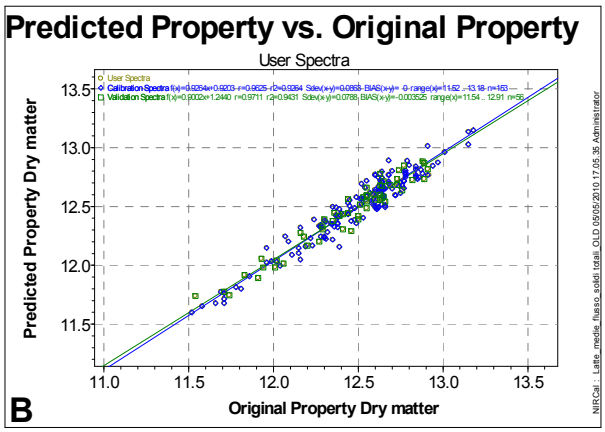
3.3 Sample preparation: stabilize the milk samples at 40°C prior to measurement. Amount of sample: 50mL (15 mL to prime the cell prior to the mesurment; 35 mL for the measurement).

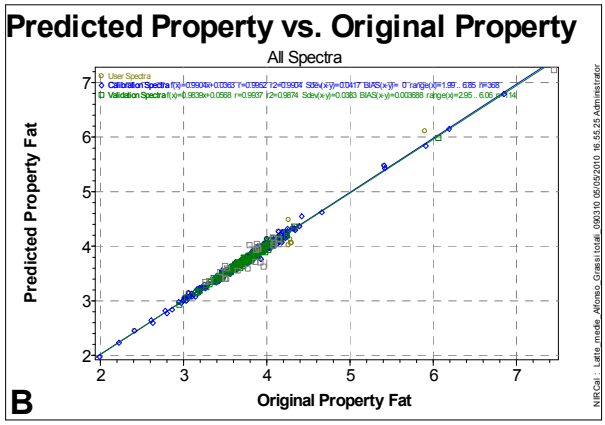
4. Performances

The predictions guaranteed by BUCHI pre-calibrations are explained by the following tables and plots.

Table 1: Summary of parmeters available in the pre-calibrated application

Parameter	Range
Dry matter [%]	11.52 – 13.18
Fat [%]	1.99 – 6.85
Protein [%]	2.94 – 3.56
Lactose	4.22 – 4.98
Crisocopic index	0.538 – 0.495





5. Contacts

For more detailed information please contact your local BUCHI representative or visit the section "Application Support" at www.buchi.com.