

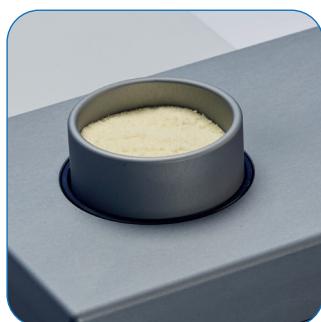


Application Note AN N212

FT-NIR Analysis of Milk Powder

FT-NIR is a well-established method for the analysis of milk powder, both online as well as with a benchtop instrument at-line or in the laboratory. Essential parameters such as moisture, fat, protein, and even lactose or ash can all be easily and precisely determined in seconds with a single measurement.

On a benchtop instrument such as Bruker's TANGO or MPAll, near-infrared measurements are carried out in easy-to-fill sample cups equipped with a quartz glass bottom. The sample can be simply poured into the cup, with no further sample preparation required. Samples are measured in reflection with a sample rotator to scan a larger sample area which enhances the reproducibility of the measurements.



Standard Measurement Parameters:

- Moisture
- Fat
- Protein
- Lactose
- Ash

For online process analysis, a MATRIX-F process spectrometer can be used in combination with a fiber optic reflectance probe or a sensor head to obtain measurements directly in the production line. This allows analysis of all essential product parameters during production and in real time.

In either case, sample analysis is possible for a wide variety of powdered milk products including infant formula powder, milk replacer, buttermilk, cream, whole and skim milks, whey, and whey protein concentrate powder as well.

It is important to monitor moisture, fat and protein to:

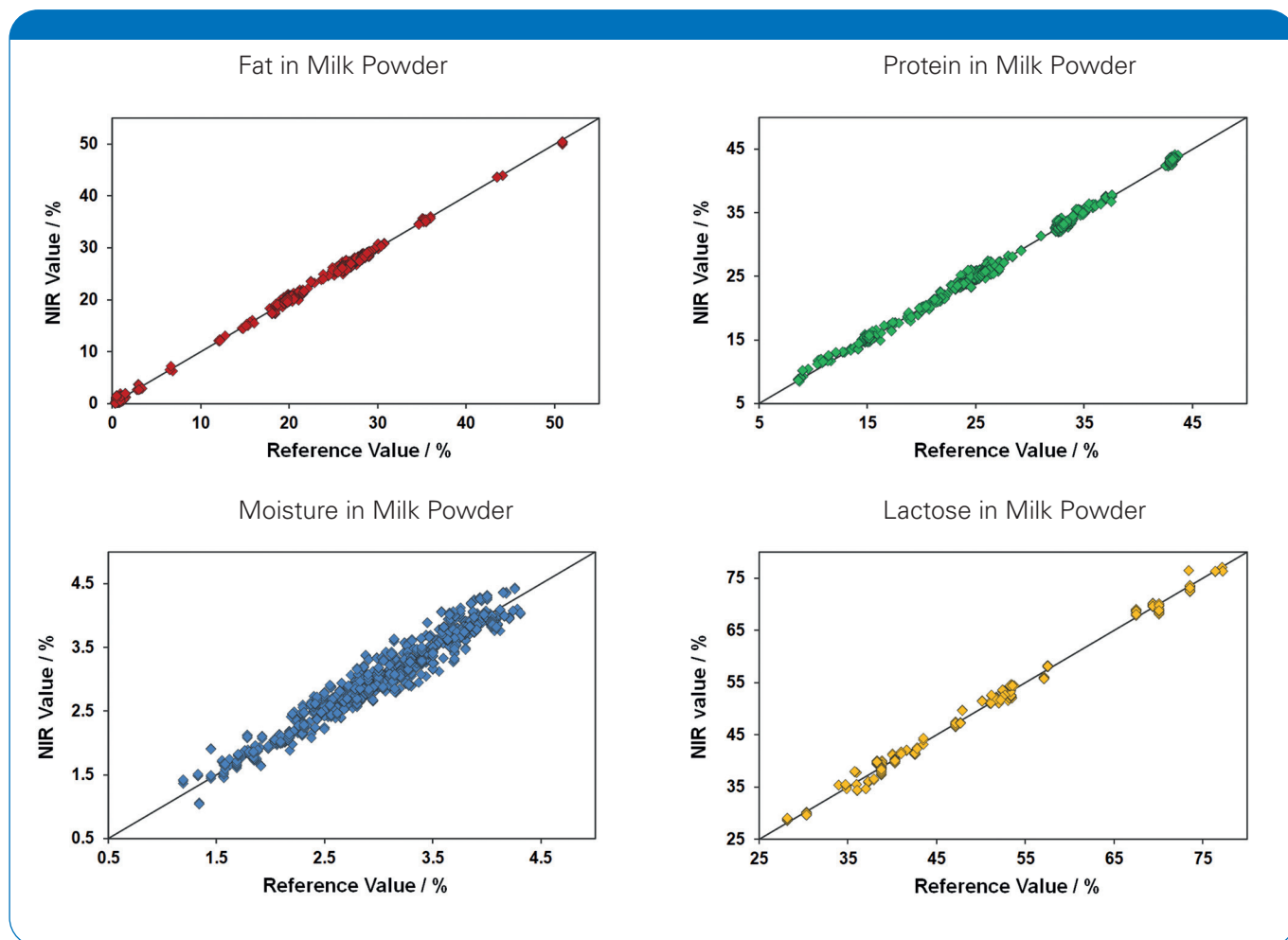
- Maximize the moisture content
- Increase product consistency
- More efficiently utilize energy (e.g. drier optimisation)
- Reduce final product testing costs

Expect high standards:

Comprehensive calibration packages are available from Bruker Optics. The method development and validation procedures are carried out according to ISO 21543 | IDF 201 guidelines.



Calibrations: With years of experience and data, Bruker Optics offers a range of robust calibrations for all essential parameters.



FT-NIR Spectrometers: Bruker Optics offers various FT-NIR spectrometer models for lab, at-line and on-line applications:

TANGO



Touch-screen operated FT-NIR analyzer for routine use in the lab and atline.

MPA II



Multi Purpose Analyzer for maximum flexibility with ease-of-use.

MATRIX-F



Process monitoring with probes and contact-less sensor heads.

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