

# Buchi applications Milk & Dairy



**Buchi offers a broad range of NIR applications dedicated to specific segments. The development of a calibration is a matter of experience that includes not only the spectroscopic model itself but the reference analytics in the laboratory. With more than 70 years of practical knowledge Buchi is a competent partner to support your daily business.**

## **NIR Measurements**

Measurements can be performed using the NIRFlex N-500 equipped with a Solids Measurement Cell or a Buchi NIRMasteR. Standard Petri Dishes are sufficient but a High Performance- or an Unbreakable- Sample Cup will be of advantage in several cases where a maximum of precision and accuracy is requested.

## **NIR Calibrations**

A reliable NIR calibration has to include all kind of variation that is necessarily incorporated into your samples. Our databases consist of thousands of spectra covering geographical and seasonal variation.

## **Reference Methods**

Buchi has many of the laboratory products necessary for an official and accredited analysis of the NIR reference parameters: e.g. heating oven for moisture determination in solids, Soxhlet and Extraction for fat and Kjeldahl for protein content.

## **Service and Support**

NIR spectroscopy is a lively and a living business. Calibration models have to be customized to give the best possible results. Our application specialists will give you the support that you request no matter if you want to use a "Plug and Play" solution with one of our Precalibrations or you want to develop your own chemometric models with our NIRCAl software.

<b>Product</b>	<b>Milk</b> <b>N555-509</b>	<b>Yoghurt and Creams</b> <b>N555-505</b>	<b>Hard-Semihard &amp; young Cheese</b> <b>N555-507</b>	<b>Processed Cheese</b> <b>N555-506</b>	<b>Chocolate</b> <b>N555-518</b>	<b>Ice Cream</b> <b>N555-508</b>	<b>Mayon- naise</b> <b>N555-504</b>
<b>Property</b>							
Moisture	84.5 - 92.2	14.6 - 93.5	26.8 - 77.0	Dry matter: 44.1 – 61.0		Dry matter: 30.4 – 49.7	
Protein	1.1- 6.5	0.4 - 19.1	4.5 - 51.1			2.3 – 4.5	
Fat	0.1- 9.3	0.04 - 45.5	0.1 - 50.1	41.2 - 48.9	25.6 – 43.6	0.8 – 18.2	30.1 - 85.0
Ash		0.2 - 2.0	0.8 - 18.1				
Salt			0.44 – 3.52	1.6 – 2.3			0.8 – 2.1
Saturated fatty acids	0.01 – 4.68						
Unsaturated fatty acids	0.01 – 2.34						
Lactose	in development	0.03 – 4.3					
Total Sugar		0.6 - 54.9	0.3 – 7.4				
pH		4.4 - 6.1	4.4 – 6.1	5.6 – 6.0			3.4 – 4.0
Acid							0.2 – 0.7

#### Parameters:

If not written differently all units are given as [%].

#### **Color Codes:**

**Blue:** Buchi Precalibrations

**Yellow:** Applications in a growing state. Full access to all spectral data with the possibility for further development

#### **Sample Preparation**

Processed Cheese (N555-506):

melted at 115°C about 15 Minutes

Hard, semihard and young cheese (N555-507):

grind and press before measuring in Petri dish

Ice Cream (N555-508):

measure at room temperature in Petri dish

Milk (N555-509):

measurement at room temperature in High Performance Sample Cup (Art. No.: 046259) with Transflectance Cover (Art. No.: 041636) without air bubble

Chocolate (N555-519):

melted at 45°C before measuring in Petri dish

Product	Milkpowder	Raw Milk (Flow Cell)	Hard - Semihard Italian Cow Cheeses	Ricotta Fresh Cheese	Butter	Remoulade Sauce
Property						
Moisture	1.6 – 7.9		44.3 – 81.3	69.2 – 81.8	11.3 – 20.8	23.9 – 26.1
Protein	1.7 – 91.2	2.9 – 3.5	7.2 – 42.5			
Fat	0.1 – 29.6	2.0 – 6.8	4.8 – 35.5	8.5 – 16.5	74.5 – 88.3	65.1 – 69.2
Ash	2.0 – 8.4		0.7 – 15.5			
Salt			0.01 – 5.9			
Saturated fatty acids			8.5 – 22.7			
Unsaturated fatty acids			0.8 – 14.7			
Lactose		4.2 – 4.9		0.05 – 3.9		
Dry Matter		11.5 – 13.8				
TCA			0.4 – 22.0			
Myristic Acid			1.4 – 3.9			
Linoleic Acid			0.6 – 2.1			
Oleic Acid			3.9 – 13.0			
Stearic Acid			1.2 – 4.1			
Palmitic Acid			3.4 – 10.2			

Parameters:

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