

# Buchi applications Milling & Bakery



**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.

Product	Wheat Flour N555-515	Whole Rice N555-519	Semolina N555-5120	Wheat flour- Bakery Special	Sunflower Flour	Corn/ Maize grinded
Property						
Moisture	8.9 – 16.1	9.0-15.8	8.5-16	8.9 -16.1	7- 13	3.3 – 15.4
Protein	7.3 – 18.8	5.0- 11.0	8-28	7.3 -18.8	26.5 - 39	5.9 – 22.2
Fat		0.1- 3.0			0.5 – 5.5	
Ash	0.3 -1.3	0.3- 1.6	0.6 – 11.6	0.3- 1.3	6 – 8.3	0.8 – 7.8
Fibre					15 - 26	
Starch						17.4 – 76.4
Acid						0.2 – 0.3
Particle Size	in development			20 - 58		
Gluten			7-16.4			
Dough development				1 -11		
Starch Damage				16 - 30		
Baking Absorption				50 - 72		
Falling Number				240 - 400		
L				75 - 160		
P				30 - 90		
W				150 - 450		
Degree of softening				5 - 120		
Stability				5 - 32		

#### Parameters:

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

The parameters L, P and W are rheological quantities derived from a **Chopin Alveograph**

It measures the flexibility of the dough produced from the flour, by inflating a bubble in a thin sheet of the dough until it bursts. The resulting values show the strength of the flour, and thus its suitability for different uses.

For the baking Absorption, Stability and degree of softening a so called **Brabender Farinograph** is used.

#### Color Codes:

**Blue:** Buchi Precalibrations.

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

<b>Product</b>	<b>Maize Germe flour</b>	<b>Dried Pasta</b>
<b>Property</b>		
Moisture	10.5 – 14.4	10.1 – 14.3
Fat	16.4 – 23.7	

### **Sample Preparation**

Dried pasta sample is grinded before filled into a Petri dish for the measurement

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