

# NIRFlex N-500 Calibration for Soy products



**Calibration is a question of experience. The Büchi pre-calibrated applications relieve you completely from that task. On the other hand you are not limited. The major Büchi advantage: you can use our pre-calibrations or you can calculate your own with NIRCal 5.0.**

## Uses

Fast and accurate simultaneous analysis of several parameters on soy products using Büchi NIR-Technology. Rapid availability of defined quality criteria is vital for efficient production and quality control. Loss of production is avoided and high reproducibility from charge to charge guaranteed.

## Reference methods

All the reference chemistry is performed with official methods; e.g. heating oven for solids, Soxhlet for fat, Kjeldahl for Protein...

Requirements for this application are:

- the Büchi NIRFlex N-500
- the Measurement Cell Solids with Petri Dish add-on and Transflectance cover
- the appropriate computer hardware and Büchi NIRWare

## Parameters

A «robust» calibration is guaranteed because more than 900 different samples were analyzed. The following parameters are measured:

*for soy sauce:*

- Protein	0.10 – 13.0 %
- Moisture	5.5 – 82.72 %
- NaCl	2.5 – 24.8 %

*for soy bean:*

- Fat	13.1 – 21.5 %
- Moisture	5.7 – 12.7 %
- Protein	29.6 – 38.5 %

*for soy bean meal:*

- Ash	5.4 – 9.6 %
- Fat	0.5 – 6.5 %
- Fiber	2.7 – 16.2 %
- Moisture	9 – 14.7 %
- Protein	33.1 – 51.3 %

## Basis of calculation

The Büchi Chemometric software NIRCal® is used in the NIRFlex N-500 parameter predictions. NIRCal® is a proven and tested software tool with comprehensive calculating possibilities.

## Calibration of properties in soy products by NIRFlex N-500

for soy sauce:

Parameter	No. of samples for calibrations	Calibration range [%]	SEP	R-Coefficient
Protein	139	0.10 – 13.0	0.26	0.995
Moisture	139	5.5 – 82.72	1.41	0.995
NaCl	70	2.5 – 24.8	0.62	0.99

for soy bean:

Parameter	No. of samples for calibrations	Calibration range [%]	SEP	R-Coefficient
Fat	210	13.1 – 21.5	0.48	0.958
Moisture	210	5.7 – 12.7	0.30	0.965
Protein	210	29.6 – 38.5	0.52	0.951

for soy bean meal:

Parameter	No. of samples for calibrations	Calibration range [%]	SEP	R-Coefficient
Ash	328	5.4 – 9.6	0.18	0.894
Fat	287	0.5 – 6.5	0.19	0.971
Fiber	834	2.7 – 16.2	0.31	0.973
Moisture	491	9 – 14.7	0.42	0.929
Protein	921	33.1 – 51.3	0.65	0.973

### Reliable

An accurate robust calibration has been established over a wide and comprehensive calibration range using samples from many different sources.

### Precise

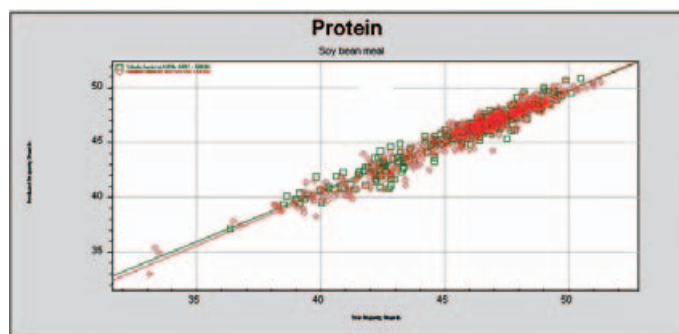
The precision of a calibration is judged by the standard error of the prediction (SEP) and the regression coefficient of the calibration fit. A regression coefficient close to 1 is optimal for the precise prediction of new samples.

### Flexible

The soy products application for the NIRFlex N-500 is ready-to-use. It allows results to be generated from Day One. With the necessary experience in Chemometrics, the user can adjust the calibration to a different sample matrix – alone or with our support.

### Required hardware:

- Büchi NIRFlex N-500
- Measurement Cell Solids with Petri Dish add-on
- PC-installed Büchi software NIRWare



Order No. N555-512

Pre-calibrated application for soy sauce

Order No. N555-513

Pre-calibrated application for soy bean

Order No. N555-514

Pre-calibrated application for soy bean meal

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