BUCHI NIR Applications
Feed Industry

You need fast and reliable information about your samples in order to make far-reaching decisions. We support you in overcoming your daily challenges, from incoming goods inspection to finished product release, with more than 15 years experience supplying laboratory and at-line NIR analytical solutions for the feed industry.

Your most important benefits

Time savings

· Shorter time to routine use. Measure parameters such as moisture, fat, protein, fiber and much more from day one
· Measure all parameters simultaneously
· Control the value chain at each critical point, from incoming goods to finished product release

Reliability

· Deliver the same accuracy in production as in the laboratory
· Get accurate results from a robust spectral database spanning geographical and seasonal variations

Precision and accuracy

· Our NIR technology provides unparalleled measurement reproducibility and spectrometer performance
· Intimate knowledge and experience with reference methods like Kjeldahl, Dumas and Extraction have been implemented into the applications development

Your «NIRSolutions Laboratory»   Your «NIRSolutions At-line»

Based on our NIRFlex® N-500 Spectrometer
· Flexible, with various measurement cells and add-ons to accommodate any sample matrix

Based on our NIRMaster™ Spectrometer
· Hygienic, representative sampling
· Practical, ingress-protected design
· Simple operator interface

"BUCHI NIRSolution convince us for quality of hardware and consistency of results reached as well as for the quality of the service support received and worldwide implementation."
Christèle Dioré, Analytical Testing Implementation – SPF Pet food

Mixed feed & Pet food

Product	Farm animals ruminants & others N555-503	Farm animals poultry N555-503	Wet pet food**
Moisture [%]	4.6 - 16.1*	4.6 - 15.5*	41.9 - 81.9
Total fat [%]	0.2 - 16.1*	0.4 - 12.7*	4.0 - 12.7
Protein [%]	1.4 - 68.6*	6.5 - 49.7*	8.3 - 14.2
Fiber [%]	0.5 - 32.3*	0.8 - 18.5*	
Ash [%]	1.2 - 36.7*	1.2 - 33.4*	1.2 - 5.1
Phosphorus [%]	0.2 - 1.6**	0.2 - 1.0**	
Starch [%]	3.9 - 66.9**	6.4 - 48.2**	
NDF (neutral det. fibre) [%]	10.2 - 39.2**	8.8 - 32.2**	
Acid insoluble ash [%]	1.7 - 6.5**		
Sample compatibility	Feed for cattle, pig, rabbit, goat, sheep and horse	Different poultry feed for young and older animals	Wet pet food for dogs, cats and rodents

Raw materials – cereals & oil-seeds

Product	Cereals**	Hulls & bran**	Oil seeds & meals**
Moisture [%]	1.5 - 17.5	7.4 - 16.0	1.4 - 17.7
Total fat [%]	0.7 - 11.8	0.6 - 19.1	12.4 - 59.9
Protein [%]	5.9 - 64.4	6.5 - 41.2	14.3 - 74.4
Fiber [%]	0.3 - 20.4	1.3 - 29.0	2.4 - 30.6
Ash [%]	1.0 - 3.6	0.7 - 11.6	0.1 - 8.5
Total carbohydrates [%]			0.1 - 9.2
Starch [%]	16.8 - 76.4	14.0 - 69.0	0.1 - 28.9
NDF (Neutral Det. Fiber) [%]			6.9 - 79.2
NCGD (Neutral Cellulase Gammanase Digestibility)			50 - 98
FFA (Free Fatty Acids) [%]			0.1 - 2.4
Sample compatibility	Ground cereals like: wheat, barley, maize, triticale, sorghum, dried distillers grains	Hulls and bran like: wheat, barley, maize, triticale, sorghum; sugar beet cake	Ground oil seeds like: soybean, rapeseed, sunflower and cotton

* BUCHI Pre-calibration; ** Pre-calibration in development
If not indicated otherwise, the pre-calibrations listed are compatible with both the NIRFlex® Solids and the NIRMaster™ spectrometers and the samples are measured with a sample cup in diffuse reflectance mode.
Pre-calibrations are also available to measure amino acid fractions in farm animals and oil seeds.

Raw materials - legumes

Product	Soybean N555-513	Soybean meal N555-514	Legumes**
Moisture [%]	5.8 - 15.8*	8.5 - 14.7*	6.5 - 14.6
Total fat [%]	13.1 - 21.5*	0.5 - 6.5*	0.4 - 12.7
Protein [%]	29.6 - 38.5*	33.1 - 51.3*	6.5 - 50.4
Fiber [%]		2.6 - 16.2*	0.8 - 32.3
Ash [%]		4.8 - 21.7 **	1.2 - 13.1
Soluble protein [%]		66.5 - 85.9**	
Sample compatibility	Whole soybeans	Soybean meal after pressing or extraction of the beans	Ground legumes like: alfalfa, bean, bean flakes, broad bean and broad bean flakes

Raw materials – animal by-products

Pre-calibrated application	Animal flour**	Fish meal N555-510	Milk powder**
Moisture [%]	2.4 - 9.2	1.7 - 16.2*	1.4 - 7.9
Total fat [%]	6.6 - 22.7	0.2 - 17.2*	0.1 - 33.0
Protein [%]	35.3 - 88.4	6.5 - 70.4*	1.7 - 91.2
Fiber [%]		0.4 - 32.3**	
Ash [%]	10.7 - 54.1	0.9 - 36.7**	2.0 - 8.5
Sample compatibility	Meat & bone meal, blood & plasma, feather meal, poultry by-products, bone meal, crab, shrimp, fish	Tuna, salmon, herring, sea bass	Whole and skimmed milk powder, whey powder

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Forage & silage

Product	Dry forage**	Dry silage**	Wet maize silage**
Moisture [%]	1.1 - 16.4	1.5 - 16.2	50.0 - 78.1
Total fat [%]	1.2 - 6.8	0.8 - 4.7	
Protein [%]	1.7 - 33.5	3.2 - 24.7	1.1 - 4.4
Fiber [%]	2.8 - 38.7	11.7 - 47.9	
Ash [%]	2.9 - 35.3	2.0 - 25.1	0.87 - 2.11
ADF (Acid Detergent Fiber) [%]	12.9 - 54.6	17.0 - 55.5	6.3 - 13.9
NDF (Neutral Det. Fiber) [%]	16.4 - 75.0	24.1 - 65.7	11.2 - 22.2
Starch [%]		0.3 - 49.3	2.6 - 18.7
Free Fat (FF) [%]			0.6 - 2.9
Ammonia [% of N]			0.2 - 6.0
Calcium [%]		0.1 - 1.8	
Phosphorus [%]		0.2 - 0.5	
pH		3.9 - 6.3	3.2 - 4.6
Digestibility [%]		59.4 - 79.3	
Sample compatibility	Ground dry forage	Ground dry maize and grass silage	

* BUCHI Pre-calibration; ** Pre-calibration in development
If not indicated otherwise, the pre-calibrations listed are compatible with both the NIRFlex® Solids and the NIRMaster™ spectrometers and the samples are measured with a sample cup in diffuse reflectance mode.

BUCHI NIRSolutions are compatible with the Aunir INGOT pre-calibrated applications like feed, feed raw materials and dry pet food.

For more information please contact your local BUCHI representative.

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N-500**
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with ingress protection

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