



Quality & Process Control in a Pet Food Mill

APPLICATION BRIEF

The pet food industry has several characteristics that make tight process control a requirement for profitable feed production. A key aspect to modern pet food production is the requirement to meet labeled specifications for each product. This is complicated by production of many different recipes and products per feed mill, with some mills producing over 150 distinct products. A fast and reliable means to analyze both the incoming ingredients and the finished product is required to ensure the efficient production of assorted products that meet the label requirements while minimizing re-work and out of specification production.

The second key aspect of modern pet food production is the variety and high cost of the incoming ingredients. These relatively expensive ingredients can show significant variations in nutritional quality batch to batch and across various ingredients. Least cost formulation in combination with accurate and timely compositional analysis can provide the inputs required to consistently formulate various recipes in the most cost effective manner.



PROCESS CONTROL ANALYSIS POINTS IN A PET FOOD MILL

There are multiple points in a pet food mill where accurate and timely analytical values can help control the process, saving money and improving yield, including:

- Raw material testing to verify supplier integrity
- Raw material testing to guide proper ration supplementation
- Raw material testing to control meal formulation
- Monitoring and controlling mixers and optimizing the addition of liquid fat
- Monitoring and controlling moisture levels in extruders and dryers
- Verifying production batch values and optimizing fat spraying on pellets
- Verifying and documenting finished pet food label claims



SpectraStar™ XT Series NIR Analyzers, shown above, offer outstanding accuracy and reliability for rapid compositional analysis of solid, slurry, or liquid samples.

WHAT IS NIR ANALYSIS?

NIR analysis is a proven technique that provides simultaneous results for moisture, protein, fat, fiber, ash, and other parameters in under a minute. Applications for pet food production can include the analysis of both the raw ingredients as well as the finished product which enables optimization of the process from start to finish.

The speed of analysis allows 100% measurement of incoming ingredients and finished pet food. Raw ingredients suppliers can be verified to ensure they are providing quality materials. The use of NIR ensures consistent quality in manufacturing and reduced re-work costs.

VALUE PROPOSITIONS FOR NIR IN PET FOOD MILLS

There are many areas in a pet food mill where rapid analytical results can lead to increased efficiency and large cost savings, but perhaps the easiest to quantify is the moisture levels in the finished product. Typical moisture calibrations have an error of less than 0.5%. These highly accurate results combined with increased testing and immediate results from NIR analysis often times allows operators to run 1% closer to the labeled moisture levels, increasing yield and reducing raw feed costs.

The example at right demonstrates the typical savings for a small– medium sized pet producing 200,000 pounds of pet food per day. At \$0.30 per pound (0.45 kg), producing feed 1% closer to the moisture target results in \$150,000 of additional revenue, paying for a typical NIR in less than 6 month and thereafter increasing running profit levels. If more constituents are controlled, the payback time is even shorter.

DAILY PRODUCTION = 200,000 lbs		
Annual production (lbs.)		50,000,000 lbs
Additional yield by running 1% closer to moisture target	X	0.01
Additional product		500,000 lbs
@ \$/lb.	X	0.30
Additional revenue		\$150,000

In addition to the moisture savings, pet food manufacturers can realize significant savings in production time, re-work costs, and product claims from the consistent formulation and product verification possible with rapid and accurate NIR analysis.

ABOUT THE SPECTRASTAR™ XT SERIES NIR ANALYZER

From analyzing moisture, protein, fat, sugar, and fibers, to more complex parameters such as ash, fatty acids, and lignin, the SpectraStar™ XT NIR Analyzer Series is trusted by thousands of quality laboratories and production facilities to enhance their processes and make data-driven decisions.

- Obtain vital quality parameter data in about 30 seconds, enabling quick response for quality control.
- Access an extensive library of robust calibrations developed from hundreds-to-thousands of samples. Calibration customization is also available.
- Minimal sample preparation, only minimal training required, and environmentally friendly.
- Available with KPMLink™, a cloud-based software suite to support the real-time remote configuration of product settings, calibrations, and more.



Ready-to-Use SpectraStar XT-R Calibrations for Pet Food Processors			
SUBSTANCE	CONSTITUENTS	SAMPLING ACCESSORIES	PART NUMBER
Pet Food Dry	Moisture, Protein, Fat, Fiber, Ash, Calories	US-LGOP-0001 Large Open Cup with plunger	APPS-CALB-139
Pet Food Semi-Moist	Moisture, Protein, Fat, Ash	US-LGOP-0001 Large Open Cup with plunger	APPS-CALB-133
Pet Food Wet	Moisture, Protein, Fat, Ash, Fiber	US-LGOP-0001 Large Open Cup with plunger	APPS-CALB-173

CONTACT US TODAY!

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