

HUMAN HEALTH

ENVIRONMENTAL HEALTH

# GUARDING AGAINST THE NEXT MELAMINE



DairyGuard™ Milk Powder Analyzer





AND ALL THE  
MELAMINES  
TO COME

The image shows a worker in a white cleanroom suit, cap, and gloves, operating a large industrial machine. The machine is producing a continuous stream of small, yellow, square-shaped pellets, which are identified as melamine resin. The pellets are arranged in neat rows on a conveyor belt. The background is a green floor, and there are other industrial components visible, including a yellow tray and a metal stand with a basket.



## Your most important ingredient...

The cost of most raw ingredients is rising all the time. And as a food producer, you're continually looking for the most cost-effective solution for getting your product to market.

Problem is, there's always the chance that those low-cost ingredients are less expensive for the simple reason that they've been economically adulterated.

This adulteration could be due to "bulking" with low-cost ingredients – a method that's easily discovered by measuring protein content through common tests such as Kjeldahl or Dumas. But more sophisticated forms of adulteration are evolving all the time. And these types of adulterants – everything from melamine to urea to plant proteins to the *next*, as-yet-undiscovered contaminant – can not only destroy your brand's reputation, they can have disastrous consequences for public health as well.

That's why we developed our DairyGuard Milk Powder Analyzer. DairyGuard applies advanced algorithms to screen for known and unknown economic adulterants in milk powder, as well as performing the same fast measurements routinely used for protein, moisture, and fat monitoring today. This nontargeted screening decreases the risk to your brand. And it helps you deliver your most important ingredient by far: peace of mind.



# ENSURING SAFETY AND AUTHENTICITY WITH EVERY SAMPLE

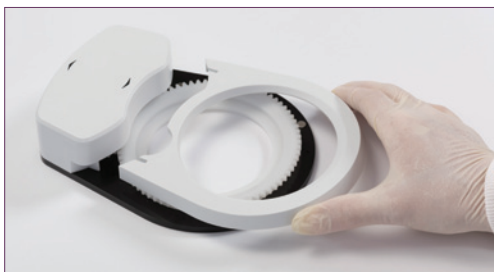


## Do you know what you're looking for?

For more than 100 years, dairy producers have paid ingredient suppliers based on nutritional parameters, with protein content being particularly important for milk. Standard assays for food ingredients involve measuring the total nitrogen concentration and then relying on a constant calibration factor to obtain the protein content. So by adding high-nitrogen compounds to protein-rich foods, some suppliers could generate a higher protein content reading. And a higher price.

In this way, urea, cyanuric acid, and, yes, melamine have found their way into our milk products – and our news stories. Are there even more melamines out there? You can bet on it.

So what's needed is nontargeted safety testing that's quick and simple, so anyone can perform on-the-spot screening.



## The system of choice for milk powder analysis

When considering the optimal choice for protecting milk powder, it's best to start with a technique familiar to the industry. Near-infrared (NIR) has been the go-to platform for confirming certificates of analysis (COAs) for protein, moisture, and fat. But it can also be used to screen for economic adulterants – quickly, efficiently, and reliably.

Built on our industry-leading Frontier™ NIR platform, the DairyGuard system delivers fast, simple measurement that's ideal for detecting adulterants in foods. The NIRA II diffuse reflectance accessory – designed specifically for the DairyGuard solution – features an easily cleanable surface and rotating sample holder.

The system is more flexible, too: It can accommodate various size petri dishes for easy measurement in any lab environment. In addition, the dual-range option can carry out mid-infrared (MIR) and NIR analysis on the same system. Which makes it easy to switch effortlessly among transmission, reflectance, and transmittance modes, allowing you to measure other ingredients, all on one instrument.

We've also designed the DairyGuard system with full self-checking and diagnostics to ensure it's always performing at highest capacity and optimized for the most dependable results.



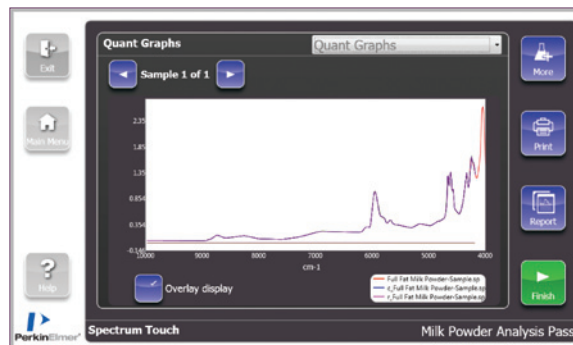
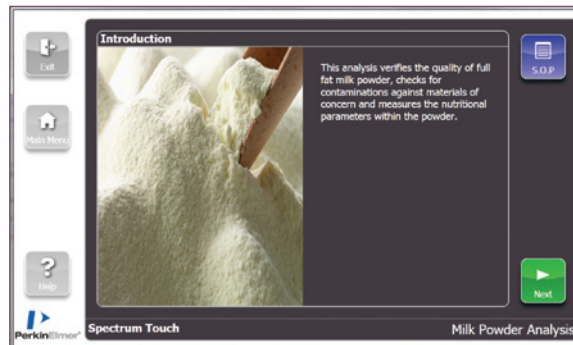
### Guiding you through the process

With hardware this simple to use and maintain, your software should be simple, too. Spectrum™ Touch software allows anybody in your lab to analyze your raw ingredients – not just analytical chemists.

Spectrum Touch software can be set up to tell you, with just a few clicks, whether your milk powder's protein, moisture, and fat are at acceptable levels. But more than that, you get a red light/green light (pass/fail) answer as to your sample's integrity. Through nontargeted testing, the system alerts you to any known – or unknown – adulterants in your milk powder, right away. Plus, Spectrum Touch software can be optimized for use with PCs, touchscreen devices, and remote control environments.

Behind all this simplicity are innovative quantitative and qualitative algorithms that ensure fast, accurate results, which can be manipulated by the intuitive Spectrum Touch Workflow Developer, if necessary.

Spectrum Touch ensures consistency of process across your organization. And when combined with the powerful informatics of the TIBCO Spotfire® solution, the DairyGuard system enables you to trend supplier quality performance against cost for an ingredient across your entire organization.



Summary	
Sample Name	Full Fat Milk Powder-Sample
Sample Description	Sample 015 By Administrator
Spectral Quality	Pass
Sample Integrity	Pass Identified as Full Fat Milk Powder
Protein Concentration	26.4% In-specification
Moisture Concentration	2.7% In-specification
Fat Concentration	24.8% In-specification
Contamination Search	No Contamination Identified

Summary	
Sample Name	Full Fat Milk Powder-Sample
Sample Description	Sample 015 By Administrator
Spectral Quality	Pass
Sample Integrity	Fail
Protein Concentration	26.4% In-specification
Moisture Concentration	2.7% In-specification
Fat Concentration	24.8% In-specification
Contamination Search	Possible Contamination
Contaminant / Concentration	Melamine 0.3%

Red light, green light: With Spectrum Touch software, you'll be able to detect the presence of economic adulterants, plus determine protein, fat, and moisture content, right on the spot.





# YOUR SAMPLES YOUR METHODS YOUR PEACE OF MIND

## **The best method is what works for you**

Milk powder screening requirements are as individual as the milk powder providers themselves. For that reason, we ensure that your DairyGuard methods are tailored and tuned to your specific detection requirements.

Whatever type of dairy powder you produce, we provide quantitative methods that detect for protein, moisture, and fat. But what sets DairyGuard apart is its qualitative, nontargeted screening method for known and unknown adulterants.

The key is its simplicity: a pass/fail test that alerts you to the presence of a wide range of foreign substances – right on the spot. No more sending samples to busy third-party laboratories. No more waiting long periods of time for results.

### Your requirements, your methods

Your milk products are affected by local geography, climate conditions, and a host of other factors specific to your business. So you need methods that take your requirements into consideration – no cookie cutter solution will do.

At PerkinElmer, we've gained more than two decades' experience in analytical method development, and you can see that experience reflected in our state-of-the-art dairy method development processes. So you can count on our method development experts to help you develop a screening regimen that's specifically tailored to your samples, ensuring tighter tolerances on the nutritional and adulteration parameters you're measuring.

These methods are developed using your samples on your instruments. The result is simplicity itself – there's no need for previous NIR experience to start getting the results you need right away. And we offer tutorials that enable you to realize the full value of your DairyGuard solution. So you know your methods can keep pace with changing suppliers – and a changing adulterant landscape.

### Count on our support

Today's laboratories are scientific and commercial enterprises – and to compete and win in both endeavors, you need service and support that takes your whole lab into consideration. PerkinElmer OneSource® Laboratory Services brings the most advanced solutions to bear on the asset management and operational challenges you face every day. In fact, we're redefining and revolutionizing the role of the laboratory service provider, delivering:

- Strategic Laboratory Services
- Multivendor Instrument Service and Repair Services
- Qualification and Validation Services
- Laboratory Relocation Services
- Asset Procurement and Disposition Services
- Business Intelligence Services
- Scientific IT Services
- And much more

What's more, our comprehensive informatics solutions can help you manage your global supply more efficiently and effectively than ever before – for example, linking the cost of milk powder to quality data to make more informed business decisions.

Talk with our experts to learn about how our services can help you optimize your methods for your products.

### Food Safety Is in Our Nature

The DairyGuard Milk Powder Analyzer is one of a complete line of products designed to protect the public – and protect your *brand* – from a wide range of economic adulterants, either known or unknown. Oils, spices, dairy, nutraceuticals, and more: whatever foods you provide to an eager and hungry world, we have a solution for making them safer and ensuring their authenticity.



**PerkinElmer, Inc.**  
940 Winter Street  
Waltham, MA 02451 USA  
P: (800) 762-4000 or  
(+1) 203-925-4602  
[www.perkinelmer.com](http://www.perkinelmer.com)



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