

TESTING SOLUTIONS FOR DAIRY PROCESSORS

Instrumentation, Consumables,
Software, and Service


PerkinElmer[®]
For the Better



COMPLETE ANALYSIS SOLUTIONS FOR DAIRY PROCESSORS

Dairy processors operate in a world of constantly changing raw material suppliers, thinning profit margins, plus increasing safety regulations for the detection of antibiotics, hormones, natural toxins, and a variety of microbial and industrial contaminants.

Compounding these external factors, internally, processors are challenged with quickly and accurately verifying the quality of inbound raw materials and their own outbound finished products – while continually optimizing their processes to improve productivity and reduce costs.

Improving Efficiency, Enhancing Quality

Through reliable analytical solutions with global support and services, PerkinElmer has become a renowned and respected partner for dairy processors:

- Monitoring incoming ingredients
- Optimizing production processes
- Verifying finished product quality
- Improving formulations
- Development of new products
- Regulatory adherence: IDF, ISO, ICAR, and AOAC

MILK ANALYSIS

Efficient production of quality dairy products requires full control of incoming milk quality. This puts high demands on milk analyzers to meet multiple, seemingly conflicting, criteria. Accuracy, rapid analysis, ease of use, and robustness are all critically important. The PerkinElmer portfolio of analyzers is the result of more than 30 years of experience in milk testing technology.



Analysis for payment and acceptance

Our LactoScope™ Milk Analyzer is widely used by dairy companies to determine the quality of incoming milk for pricing purposes. Accuracy is essential to building trust between buyer and seller, and the LactoScope system uses patented mid-IR technology and follows AOAC- and IDF-approved methods for the analysis of butterfat and protein in milk. The system also determines a range of other parameters, including lactose, total solids, solids nonfat (SNF), and added water.

Milk standardization

Standardization helps you increase your profits. For example, add cream back into skim milk at a specific ratio. Monitoring seasonal variation in composition and between suppliers allows you to adjust composition. Rapidly analyzing fat content in skim milk and cream after the separator allows you to achieve exact targets by adjusting the cream blending. The LactoScope system makes it easy to test fat content in milk and cream samples for accurate results and optimal standardization.

For cheese producers, the ratio between fat and casein in the milk can be adjusted to increase cheese yield. Our LactoScope system accurately determines casein, enabling you to optimize the milk composition for the specific cheese type to be produced.

Milk powder producers can also tailor the ratio between fat and protein in the end product by standardizing the milk. The LactoScope system supports this standardization process by delivering rapid and accurate analysis of milk composition.

Testing for antibiotic residues in milk

Our AuroFlow lateral flow test strips rapidly screen for a broad range of antibiotics in raw, commingled cow's milk at or below EU and CODEX maximum residue limits (MRL). The combo kits allow simultaneous detection of different classes of antibiotic residues. Compared to other kits, the AuroFlow BTS Combo Kit can detect more antibiotics at or below the MRL. These state-of-the-art tests also use novel binding proteins that eliminate the need for a heating block. Validation reports are available showing the efficacy of the tests in room-temperature and cold milk.

Pathogen testing

The Solus Pathogen Detection System can be utilized to test for Salmonella, Listeria, and E. coli O157 in a variety of dairy products and environmental testing. The ISO16140 and AOAC certified immunoassays provide rapid results with a high level of sensitivity and selectivity.

Uses and Benefits

- Highly sensitive and selective tests
- Screen multiple matrix types with the same assay
- Simple protocols
- Reduce hands-on technician time using automation

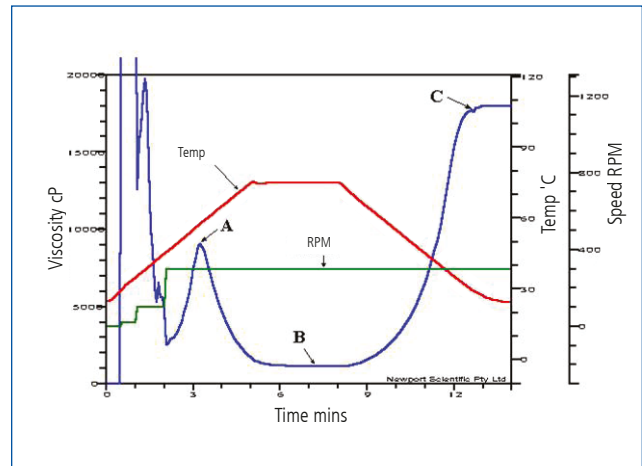
Ingredient Performance Analysis

Important ingredients

Dairy stabilizers are used to keep semi-gelled dairy products like yogurt and sour cream from separating after packaging, or to improve the texture of reduced-fat products. Common components of dairy stabilizer blends are carrageenan, gums, other hydrocolloids, and starch. For organic dairy products, there are strict rules governing the stabilizer components, making them subject to greater variability than nonorganic stabilizer blends.

Verify product performance

The Rapid Visco® Analyser® (RVA) allows you to measure your product's functionality before it leaves your facility, so your customers can rest assured that your product will meet their use demands. You can cook up cheese powders and monitor gelling and pasting properties just as the customer will use it, and record the results and fingerprints for comparison and verification.



Uses and benefits

Dairy producers benefit in several ways by using the RVA for quality control of stabilizer blends and components.

The system:

- Reveals flaws in raw materials before an entire batch is put through the packaging process – saving time and money through reduced packaging scrap and rework
- Shows flaws or sources of contamination in the large-scale finishing process
- Allows facilities to test every batch of yogurt that's produced for viscosity, reducing manufacturer recalls of out-of-spec products

And once an RVA test is initiated, the operator doesn't need to be present – the results are digitally archived and reported automatically. This eliminates sources of operator error and allows them to be more efficient with their time.



CHEESE ANALYSIS

Six-second compositional analysis

With the DA 7250 SD system, you can measure multiple components in cheese in just six seconds. Analysis can be performed on grated, block, sliced, or core samples. Samples are analyzed in open-faced dishes, minimizing sample preparation and eliminating time-consuming cleanup. Large sample volumes can be tested to ensure that they're representative of an entire batch. Typical parameters include moisture, fat, pH, and salt.

Formulate processed cheeses using the RVA

Processed cheese quality depends on the performance of its components: natural cheese, dairy solids, and other functional ingredients. Because of the natural variability in component ingredient performance and the high cost of rework, processed cheese manufacturers use the RVA to ensure optimal performance and drastically reduce rework and waste. The RVA allows you to:

- Ensure normal performance of incoming ingredients
- Quantify melting performance of finished processed cheese
- Make informed decisions about blending and rework to minimize additional waste

Uses and benefits

The DA 7250 SD system is the ideal platform for analysis of cheese products, enabling you to:

- Optimize use of ingredients
- Monitor cheese quality quickly and accurately
- Save money by reducing rework
- Improve customer retention through delivery of consistent quality products
- Formulate processed cheeses to exact specifications

In addition, you can use the RVA as a miniature pilot plant to optimize costs of ingredients such as emulsifiers, while maintaining desired functionality.

Because RVA tests are user customizable, our applications group can work with you to create the most descriptive, highest throughput tests possible. RVA results are similar to a fingerprint for a given product's performance, so deviations from normal behavior can be detected and dealt with at the source.

Improve product quality using the RVA

Yogurt – Extremely repeatable, user-friendly, rapid analysis of texture, viscosity, mouth feel, effects of shear, heat, cold, and enzymatic activity.

Cheese and processed cheese spreads – Analyze melting characteristics, viscosity of melted cheese, gelling characteristics of whey protein concentrates, and the hydration index of rennet caseinate.

Sauces – Assess thickening, viscosity breakdown, melting, and starch pasting characteristics quickly.

Savings potential

The DA 7250 SD NIR instrument analyzes yogurt, cheese spreads, and sauces in only six seconds – and thanks to disposable analysis cups, there's no need for cleanup after analysis. You can quickly test for moisture/solids, protein, and fat, saving money on ingredients while improving consistency.

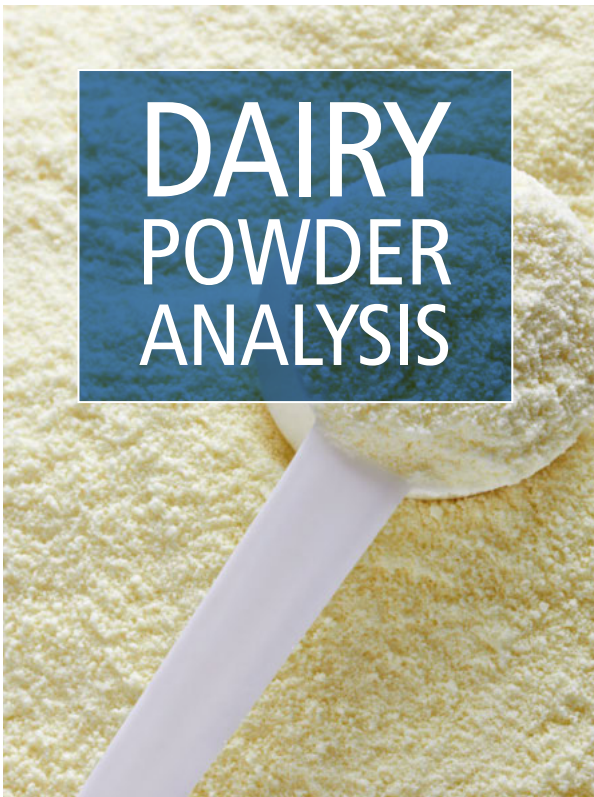
YOGURT, CHEESE SPREADS, AND SAUCES ANALYSIS



Better results

Our NIR instruments help you optimize production and ensure you meet your most stringent regulations as profitably as possible. The DA 7300™ In-line NIR system measures fat, moisture, and salt in real time in the process line, and can be integrated into various process-control systems to feed results directly into them. You can optimize production and minimize tolerances on butterfat, reduce rework and product recalls, and avoid penalties.

The DA 7250™ SD At-line NIR system measures the same parameters at-line or in the lab, in only six seconds. It uses disposable cups, so it needs no cleanup after analysis. Results are nearly instantaneous and can be used for both production monitoring and verification of finished product quality.



Variety of uses

Dairy powders are used as ingredients in many different types of foods. The diversity of uses places stringent specifications - both nutritional and functional - on dairy powders. The combination of NIR and the RVA will help you to meet all of your customers' needs, allowing you to customize products for specific uses – whether it's a milk powder for pudding production or a whey protein powder for protein supplements.

Improve quality while optimizing profitability

Our DA 7300 In-line NIR system measures moisture, fat, protein, and more in real time in your production process. You can use it to optimize drying or verify conformity with specifications, and the continuous measurement provides better information on your process than a grab sample does.

The DA 7250 SD system analyzes all types of dairy powders for multiple parameters in just six seconds, and ease-of-use features allow your plant operators to analyze all batches, simply and easily.

Measurements of physical properties

The RVA system provides valuable information as to how powders perform under various conditions in different matrices. You can test the dairy powder as it is, determine properties such as gelling temperature, or detect heat damage due to processing or storage. You can also test it as a component within a given formulation, ramp the temperature and mixing speeds up and down, and measure responses to these stressors over time.

Uses and benefits

- Monitor quality and detect product variation such as gelling temperature
- Detect manufacturing variation
- Save money through moisture content optimization and by reducing rework and scrap
- Use the RVA to ensure proper performance at customer site
- Formulate products that meet your customers' or consumers' functional and nutritional needs

ANALYTICAL TESTING SOLUTIONS

MaxSignal® ELISA Kits

An enzyme-linked immuno-sorbent assay (ELISA) allows for the fast screening and quantitation of antibodies or analytes against a variety of materials. A wide range of ELISA kits are offered for the rapid detection of industrial contaminants, natural toxins, constituents, hormones, antibiotics, and other veterinary drug residues or small molecules found in food and feed. Each kit has the capacity for 96 determinations.



MaxSignal Mycotoxin Testing Kits: Aflatoxin M1

MaxSignal Antibiotic & Drug Residue Screening Kits: Amoxicillin, Beta-Lactam, Chloramphenicol, Chlortetracycline, Ciprofloxacin, Doxycycline, Fluoroquinolone, Lincomycin, Oxytetracycline, Sarafloxacin, Sulfamethazine, Sulfamethoxazole, Sulfonamide, Tetracycline

Other Residues: Dairy Product Pasteurization Verification Kit, Diethylstilbestrol, Melamine

MaxSignal® 4302 Microplate Reader

The MaxSignal 4302 microplate reader is a versatile microplate spectrophotometer for 96-well plates, providing all the functionality needed for numerous applications while offering superior performance and value. The MaxSignal 4302 microplate reader is a compact, PC-controlled, multipurpose instrument designed to read and calculate the results of microplate-based assays.



Mycotoxin Testing Kits: Aflatoxin M1 ELISA Kit

Antibiotic & Drug Residue Screening Kits: Amoxicillin ELISA Kit, Beta-Lactam ELISA Kit, Chloramphenicol (CAP) ELISA Kit, Chlortetracycline ELISA Kit, Ciprofloxacin ELISA Kit, Doxycycline ELISA Kit, Fluoroquinolone ELISA Kit, Lincomycin ELISA Kit, Oxytetracycline ELISA Kit, Sarafloxacin ELISA Kit, Sulfadiazine ELISA Kit, Sulfamethazine ELISA Kit, Sulfamethoxazole ELISA Kit, Sulfonamide ELISA Kit, Tetracycline ELISA Test Kit

Other Residues: Dairy Product Pasteurization Verification Kit, Diethylstilbestrol (DES) ELISA Kit, Melamine ELISA Kit

AuroFlow™ Lateral Flow Test Strips

Designed for the detection of a broad range of antibiotics in raw, commingled cow's milk. These rapid tests detect antibiotics at or below the sensitivities required to adhere to EU and CODEX standards for beta-lactam antibiotics, major tetracyclines, and major sulfonamides.



Antibiotic & Drug Residue Screening Kits: AuroFlow™ Beta Lactam Strip Test, AuroFlow™ BT Combo Strip Test, AuroFlow™ BTS Combo Strip Test, AuroFlow™ PR1ME™ Beta-lactam MRL Assay, AuroFlow™ PR1ME™ BT Combo MRL Assay

AuroBLOCK™ Incubator

The AuroBLOCK incubator is used to ensure all AuroFlow™ PR1ME™ kits receive a constant incubation temperature. A fixed temperature combined with optimized tubes enhance the flow of sample along the strip tests, allowing for proper visual interpretation. Each incubator arrives ready to use for all AuroFlow PR1ME kits with no programming needed.



QuickSTAR™ Horizon™ Strip Reader

A patented rugged handheld lateral-flow testing system that provides rapid qualitative assay results and increases testing throughput and efficiency. The unit features a rechargeable lithium battery and a touchscreen menu-driven interface and provides users test results in less than 10 seconds. The unit is compatible with a wide array of preprogrammed test types, and the software can be upgraded to accommodate additional assays.



Solus Pathogen Testing Kits

The Solus ELISA range uses dual enrichment to provide results within two days. For those in need of faster time to results, the Solus One range requires only a single enrichment to provide selective and accurate results within one day. There are two Solus kits available: one-plate (96 tests) or 5-plate (480 tests) formats, and all Solus assays can be run manually or easily automated using the Dynex DS2 ELISA processing unit for higher throughput.



LactoScope™ Milk Analyzer

AOAC and IDF compliant for the analysis of fat, protein, lactose, and total solids in milk. It's a state-of-the-art instrument, with modern Fourier Transform Infrared (FT-IR) optics and simple-to-use, powerful software. It can test other products such as cream, yogurt, and whey, increasing its value and versatility. Ideal for checking incoming milk and end products, it offers low cost of ownership, modular design, low reagent expense, and 30-second response time. It's the perfect component-analysis tool for busy dairy laboratories. We offer two models of the LactoScope, to suit the different needs of individual dairy operations.

- Lactoscope FTA FT-IR Versatile, accurate, AOAC/IDF-compliant liquid dairy analyzer.
- Lactoscope FTB FT-IR Dedicated milk analyzer for total solids, butterfat, and protein



DA 7250™ SD At-line NIR

The DA 7250 SD is an IP65 certified sanitary design NIR instrument for use in production areas or the lab. Six-second analysis; no sample preparation or cleaning required; flexible and easy to use. Analyze all types of dairy products with accuracy including liquids, slurries, powder, pastes, and solids.



DA 7300™ In-line NIR

USDA-approved NIR process sensor to provide continuous real-time control. The instrument and results are readily integrated into process-control systems for automated or manual adjustment. Connect to butter churns and control butter fat to <math><0.2\%</math> of target while monitoring salt levels. Mount on dryers for moisture optimization.



DA 7440™ On-line NIR

The DA 7440 On-line offers real-time analysis over a moving conveyor belt. It measures fat, moisture, and more in samples like sliced or grated cheese and cheese products.



Rapid Visco® Analyser®

A flexible heating, cooling, and variable shear viscometer for process simulation of recombined products such as sweetened condensed milk, yogurt, cream cheese, and ice cream. Assess batch differences in skim milk powders, whey protein concentrates, and protein isolates that affect fitness for purpose. Assess the rehydration rate of rennet caseinate. Use the RVA as a miniature pilot plant for processed cheese manufacture and meltability.



TVT Texture Analyzer

The TVT measures various textural properties of dairy products by cutting, pulling, pushing, and poking samples and measuring force response over time. The TVT is used in R&D/product development to test effects of new ingredients or suppliers used in production/quality control to ensure consistent quality. It also measures properties such as cutting force, gel strength, springiness, gumminess, and extensibility.



SOFTWARE

Software is the glue that holds a solution together. Analysis software, data reporting, electronic lab notebooks, and so much more, our software helps you get the most out of your instrumentation – and your dairy analysis solution.

NetPlus

Monitor your analysis results and configure your NIR instruments from anywhere, any time. Our web-based NetPlus software suite provides access wherever you are. NetPlus Reports lets you monitor production, verify quality of ingredient shipments, get an update on latest analyses, and see results in tables and charts on your laptop. NetPlus Remote lets you configure instruments, monitor performance, and update calibrations. Whether you manage one instrument or a hundred, NetPlus Remote streamlines your tasks.

Electronic Lab Notebooks

Our electronic lab notebooks facilitate the make/test/decide workflow common to virtually all scientific disciplines. ELNs provide the central framework for record keeping, collaboration, and the data for insights from integrated tools, including Signals™ Lead Discovery, Signals™ Screening, and TIBCO Spotfire®.

LimsLink

A laboratory-integration solution that reduces errors and costs associated with manual data management by ensuring that results and sample information are accurately and efficiently transferred in real time between instruments, instrument data systems, and informatics systems such as LIMS, ELN, LES, SDMS, DMS, SAP, and more.

LimsLink helps laboratories in any industry maximize their investments in instruments and informatics by providing accurate, efficient, and real-time transfer of data and information between all instruments, instrument data systems, and informatics systems.

SERVICE

In today's world of complex operations in process environments, every function must work in sync towards the common goals of improving productivity. And that's the overarching goal of OneSource® Laboratory Services, too. We deliver solutions that cover all aspects of operations and can be customized for specific workflows – and business outcomes – you're driving towards. Simply put, OneSource is the one service organization with the requisite understanding of your needs around service and support, delivering a customized systems approach to your success. With a full measure of insight and expertise, our consultants can pinpoint the issues and inefficiencies and engineer the right solutions to solve your scientific and business challenges. From relocation services to everyday instrument repair and service, to preventive maintenance to method development services and scientific staffing, OneSource Laboratory Services can help streamline your processes and get your workforce back to its main order of business.

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