Pasta & Noodle Analysis

Instrumentation and Analyzers

Firmness

Moisture

Protein

Flexibility

Fat

Stickiness

Gluten

Ash

Water absorption

Amylose

Laboratory and Process Instruments and Support

Perten
INSTRUMENTS
a PerkinElmer company

Makers of pasta and noodles can achieve great benefits from rapid instruments that provide relevant results. Reduced waste, improved efficiency, and a more consistent product quality are typical gains. Perten has 50 years of experience in pasta and noodle applications with our instruments being used by producers worldwide. Our product range includes compositional and functional analysis equipment, instruments for use in the lab, and analyzers for continuous process measurements.

Ingredients and Raw material

Quality and Performance

Starch – Viscosity

Screen ingredients

Screening incoming ingredients not only helps you prevent out-of-spec materials entering production, but allows you to segregate by quality and use ingredients to their full potential as well.

NIR instruments quickly determine the composition of flour and other ingredients allowing for immediate screening. Measure moisture, protein, fat, ash, fatty acids and more in only seconds. The versatile **DA 7250** can analyze a wide range of ingredients including flour, oils, eggs, and milk powder. The **DA 7300 In-line NIR** instrument is designed for continuous measurement in pipes, chutes and similar. At material in-take, it can be used to segregate flour into different silos in real-time based on quality parameters such as protein or ash.

The Glutomatic measures gluten properties of flour. For pasta and wheat-based noodles, gluten is a key component that determines dough behavior and finished product texture. While protein content provides an indication of gluten quantity, testing gluten quality and Gluten Index provides a more complete picture.

When using wheat flour, it's important to avoid shipments with high alpha-amylase activity as it will result in a sticky end-product with poor texture. A **Falling Number** instrument is the standard method to test flour for alpha-amylase activity.

The RVA measures ingredient starch characteristics. In noodles made from rice, mung beans and other starchy materials, it's critical to verify that the incoming flour has the correct amylose to amylopectin ratio. Using the RVA helps you avoid flour batches that will produce sticky dough and excessively soft noodles. Further, it allows you to segregate shipments into low and high amylose content for subsequent blending.

Monitor and optimize production

The better understanding you have of the state of the production process, the easier it is to control and optimize. NIR instruments are particularly useful as they can provide results in just a few seconds. Some can even be installed on-line for real-time measurements of process lines.

The **DA 7250 SD** can analyze intermediary products in just 6 seconds, typically without any grinding or other sample preparation. It is built to be placed in production areas. Its stainless steel sanitary design makes it easy to clean, and its IP65 ingress protection makes it water-resistant and dust-proof.

For measurements over belts or other open conveyances, the **DA 7440 On-line NIR** provides real-time moisture monitoring. The results can then be used to control dryer residence times and temperatures to optimize the drying process. Just as our other NIR instruments, it can measure protein, fat, and more.


In the process

Product quality

Verify finished product quality

When ingredients have been properly screened and the production process is being monitored, you have set a strong foundation for product quality. However, it does not remove the need for final product verification – be it dried or fresh pasta or dried or instant noodles.

Moisture and nutritional parameters such as protein, fat, fiber and more are easily determined in just a few seconds using the **DA 7250 NIR** instrument. It's easy to analyze all kinds of finished products with little or no sample preparation required. It can also be set up to calculate energy values and calorific content based on formulas.

The **TVT 6700 texture analyzer** measures a wide range of physical properties, quickly and objectively. Determine firmness, stickiness, springiness and more in all types of pasta and noodle products. Our wide selection of probes and rigs allows you to perform tests according to standardized methods or to develop your own customized tests.
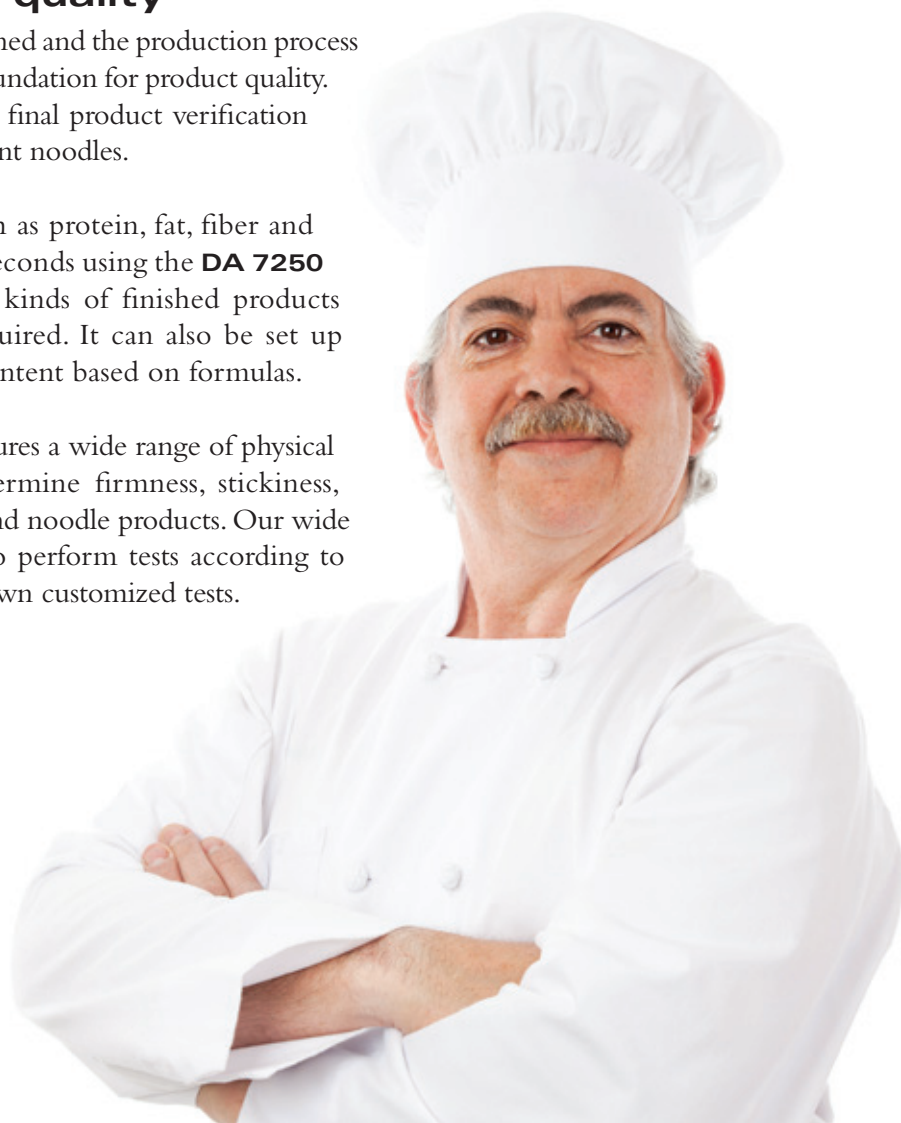
DA 7250
Most accurate, feature rich & versatile NIR analyzer

DA 7440
On-line process NIR sensor

The DA 7250 NIR analyzer offers superior performance and versatility. In only 6 seconds, it determines moisture, protein, ash, fat and more in ingredients such as flour, eggs, seasonings and oils as well as intermediate and finished pasta and noodles. In most cases samples are analyzed as they are, with no grinding or other sample preparation required. This makes it the fastest and most easy-to-use analyzer available.

Touch screen operation and intuitive software simplify DA 7250 operation. Its sanitary design and IP65 classification means you can place it in harsh environments, even in production areas. Windows connectivity makes it simple to connect to printers, barcode readers, etc. to facilitate use and sharing of analysis results.

Use the DA 7250 to ensure incoming ingredients meet specifications, test intermediate pasta doughs and extruded shapes for process control, and verify finished product quality. Its speed and ease of use make it possible to perform many more analyses as compared to traditional methods. It provides you a better understanding of your process thereby helping you reduce waste and improve quality.

DA 7440 On-line NIR sensor The DA 7440 measures parameters such as moisture, protein and fat in real-time – typically over a conveyor belt. Its modern diode array NIR technology provides accurate and stable results which allow you to optimize your process. A typical application is moisture measurement of finished product after the dryer. These continuous and real-time measurements provide feedback to optimize your process and improve product quality.

DA 7300
In-line process
NIR flour sensor

Inframatic 9500
NIR flour
analyzer

DA 7300 In-line NIR Sensor

Large producers benefit from using the DA 7300 with real-time knowledge of the quality of delivered flour and semolina. The sensor is installed in pipes or similar transitions and measures moisture, protein, ash and color. Its integrated, high definition camera performs color measurements, speck counts, and provides live video from inside your process.

The DA 7300 is built for industrial environments and is installed in hundreds of food plants around the world. It readily connects to plant control systems using a wide range of communication protocols.

IM 9500 NIR Flour Analyzer

Determine moisture, protein, ash, gluten and color in flour and semolina in only 30 seconds. The Inframatic 9500 is rugged and easy to use also for non-technical staff. With high performance at a value price, the IM 9500 is a good investment for all pasta producers.

RVA
Starch pasting characteristics & amylose content

Falling Number®
Sprout damage detection

RVA Whether your raw material is rice flour, semolina, or wheat flour, starch characteristics are important for noodle and pasta quality. The RVA determines starch pasting properties in less than 15 minutes, making it easy to detect non-performing batches.

Samples are analyzed in a disposable canister. Simply add a small amount of water and place the canister in the RVA. The RVA begins to stir and heat the mixture according to a predefined profile while continuously measuring the viscosity. As the sample is heated the starch gelatinizes. In effect, the RVA acts like a miniature pilot plant, determining how the materials will behave in the production process.

Different types of noodles require different ratios of amylose and amylopectin. The RVA is used by many noodle producers to determine the ratios of incoming flour batches. If amylose content is too low, the noodles become too sticky and soft causing productions problems and poor quality noodles.

Noodle manufacturers segregate incoming flour based on amylose content, and later blend from several bins to reach optimum amylose content. This provides a consistent raw material which removes variability and reduces waste. Additionally, lower amylose flours can be accepted and blended with higher amylose loads.

Falling Number When semolina is made from durum that has started to sprout before it's harvested, the pasta quality will suffer due to increased levels of alpha-amylase. Testing each incoming batch of semolina with a Falling Number instrument safeguards quality and reduces waste. It is easy, does not require technical staff, and only takes a few minutes.
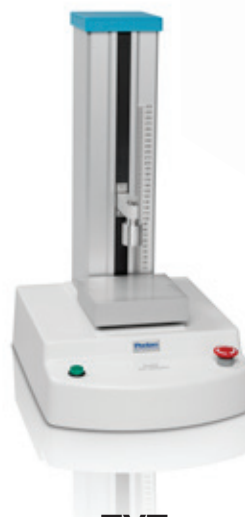
Results are reported as a Falling Number value. A low value means that the semolina is unsuitable for pasta production, whereas a high number indicates that the semolina is not sprout damaged.

Glutomatic®
Gluten quantity & quality

TVT
Texture analysis

Glutomatic While protein content in semolina and flour is important, its gluten characteristics are critical. The Glutomatic is the world standard for measuring gluten quantify and Gluten Index in wheat, durum flour, and semolina. It's rapid, reproducible and does not require technical staff for its operation.

Gluten is the key protein component. Gluten quality and quantity have great impact on the processing characteristics and end-product quality. A very low gluten quantity or low Gluten Index results in a sticky dough with poor extrusion properties. However, different types of pasta products have different requirements as some products can be too stiff if the gluten is too strong.

Gluten strength – or a high Gluten Index – is more important in instant pastas as they require greater strength during processing. Store fresh pasta, however, requires a more extensible dough and weaker gluten to improve sheeting properties.

Texture Analyzer TVT 6700
The TVT 6700 determines key texture properties such as firmness, stickiness and springiness of all types of pasta and noodle products. It's user-friendly, efficient and versatile, with rigs and probes to quantify a wide range of textural properties of cooked and uncooked pasta and noodle products.

With the TVT 6700, you can measure according to standardized methods and develop customized methods using our wide range of probes and rigs. Our customers perform measurements such as:

- Firmness
- Stickiness
- Tensile and cohesive strength
- Flexibility and extensibility
- Springiness, cohesiveness and resilience

Food Analysis Experts for 50 years

Founded in 1962, Perten Instruments is a leading supplier of advanced analytical instruments to the food and agricultural industries. We serve some of the largest companies, smaller specialized operations, and the research institutes which support the food and agriculture industries.

Perten is focused on developing innovative methods and instruments which help the food industry feed the world more efficiently. We invented several widely used analysis methods including the Falling Number and Glutomatic methods and continue to invest heavily in R&D.

Today, Perten is a part of PerkinElmer, a global leader in instrumentation and diagnostic solutions. Perten heads up the Food Business Unit within PerkinElmer. Perten products – in combination with Delta liquid milk analyzers and Bioo Scientific safety test kits – offers one of the most complete lines of testing and analysis solutions available.

Our presence is worldwide through Perten and PerkinElmer offices and distributors. In total, we are active in over 100 countries. The Perten Instruments Group headquarters is located in Stockholm, Sweden, and we have local offices in a number of countries around the globe.

- Perten Office
- Perten Distributor

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