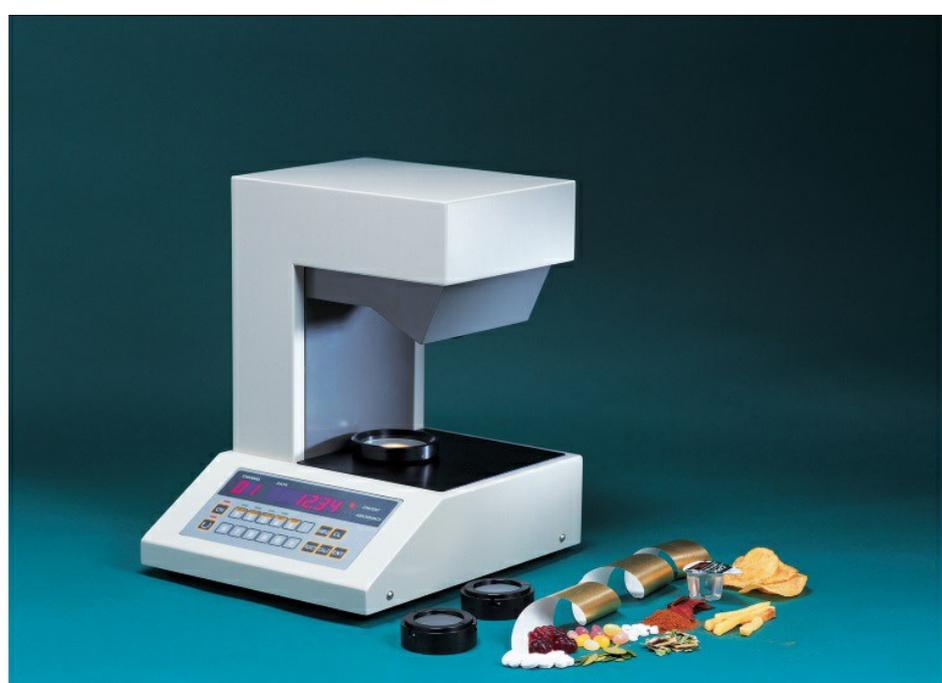


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Case Study: Ingredient and snack food manufacturer optimizes quality with simplified moisture measurement

Leading food processors maximize quality and minimize waste with timely measurement from ingredient receiving through production



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From the ingredients that food manufacturers begin with, to dry mix blends, and ultimately the finished snack foods produced, moisture measurement is required along the entire process to improve food quality and minimize product spoilage.



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For dry ingredients, moisture content needs to fall into a specific range for safety and quality. Neglecting to properly take this into account through the entire ingredients

receiving and production process is a recipe for failure. It can result in the product being rejected at the receiving dock and replaced at the producer's cost.

For snack foods, it also takes state-of-the-art moisture measurement to produce the highest quality products. Inaccurate moisture content can alter taste, texture, and appearance, as well as lead to sogginess, staleness, or compromised shelf life, which could lead to mold or product spoilage.

"Measuring moisture is one of the most important quality checks, so it is vital for us to have good control from incoming raw ingredients through processing," says Elodie Thao, quality assurance manager at Western Foods, a dedicated gluten and allergen-free grain milling facility in Woodland, CA, which produces grain flours, meals, and blended products in the heart of state's rice growing region.

Input and Process Testing

According to Thao, when the company receives incoming raw ingredients, whether grain or premade powders for dry mix blends, quality control technicians collect samples and do a moisture test on every lot to ensure the moisture is within specification.

Thao says testing is performed on an average of approximately 15 truckloads per day, utilizing a FD720 moisture balance by Kett USA, a manufacturer of a full range of moisture and organic composition analyzers.

The moisture balance allows the user to quickly and accurately measure the moisture content in any solid or liquid. Using the principle of loss on drying, the device automatically weighs a sample, dries it, measures the weight loss due to drying and calculates the moisture (or solid) content of the product. With the device, tests can be conducted by personnel of any skill level, both near the production line or in the laboratory.

As part of testing incoming ingredients, Western Foods, which manufactures a significant amount of rice flour, also uses a rice whiteness meter. This tests whole rice kernels and instantly provides the "whiteness value." The value can be used as an assessment of milling quality and purity. Such analysis allows the rice processor to easily test products for color stability and grading.

During production, additional quality checks are performed every hour from the start of production to the end.

"We do moisture tests of our finished products inline to ensure it is within specification," says Thao. "The industry standard for flour is usually 12 to 13 percent moisture content, so that is our range. If it is above that, it is put it through a drying process and then re-tested."

R&D Testing

Western Foods' sister company, Pure Nature Foods, a healthy snack product contract manufacturer, operates out of the same 60,000 sq. ft. production facility in Woodland, CA.

Pure Nature Foods focuses on contract product development and helps food companies create taste profiles with project specific blends.

The contract manufacturer typically starts from a base of rice, corn, or sorghum. The company adds a variety of vegetable proteins, ancient grains, grains and seeds, as well as vegetables and fruit powders. It creates a wide range of product types including puffs, chips, croutons, and breadings, as well as snacks in stick, flat, or wavy form.

Since the company focuses on healthy snacks, it is essential to measure not only

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The "State of the Industry: Snack & Bakery" editorial webinar, presented by Snack Foods & Wholesale Bakery, will take place on August 16, 2017, at 2 p.m. Eastern. This webinar will provide expert snack and bakery perspectives and will discuss key developments within snack and bakery, addressing both "big picture" issues and specific examples related to snack and bakery product categories.

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moisture content but also analyze a host of organic factors important to health and nutrition.

“When we develop new products, determining moisture content is one key component,” says Thao, who oversees quality control at Pure Nature Foods as well. “We also analyze protein, fat and other organic factors to indicate if we are on track with health goals, or need to tweak the formulation.”

The contract manufacturer utilizes a Kett KJT270 Infrared Composition Meter to measure both moisture and the organic components of the snack products it is formulating. One test, which takes only seconds, can provide simultaneous analysis of constituents such as moisture, fat/oil, protein, sugar, fiber, and macro organics.

While moisture balances are limited to measuring water content, composition meters utilize a more sophisticated process to analyze the moisture content and organic composition of food samples. Composition analyzers are available as inline, online, handheld, or QA laboratory desktop models.

The approach utilizes Near-Infrared (NIR) light, a highly accurate, non-contact secondary measurement method that can deliver immediate, laboratory quality, composition readings. This technology was originally developed by the USDA so it is proven for food products and ingredients.

“NIR composition meters provide very accurate instant measurement of solids, granular products, pastes, gels, and liquids without contact or sample preparation, so there is no contamination,” says John Bogart, managing director of Kett USA.

“Once the meter has been calibrated against the lab or production standard, the calibration is stored in the device, so no calibration is required in the field,” he adds. “Measurements are fully traceable to the original measurement method.”

According to Thao, although Pure Nature Foods currently utilizes the composition analyzer primarily for R&D, it will also use the device as a quality check for ingredient input as well as for in-process and finished product testing.

“We are happy with all the devices that help us measure moisture, whiteness, and composition,” says Thao. “Because they are very accurate and reliable as well as easy to use and maintain, they help us maintain quality throughout our process, which always helps the bottom line.”

About Kett:

For more info, contact Kett: call 800-438-5388; email support@kett.com; or visit www.kett.com.

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