THAYER
SOLIDS FLOW CONTROL®

Case Study:

A Perfect Blend for Shredded Cheese

Background

Cheese industry brand owners recognize that advanced processing technologies are needed to keep pace with evolving consumer trends in flavor, color and texture. There are many challenges associated with cheese conversion, the process of making shredded cheese from blocks of cheese.

A prominent customer brand leader in cream cheese, natural cheese, process cheese, shelf-stable beverages and yogurt, whose annual sales exceed $5 billion turned to Thayer Scale for a comprehensive solution that solved these challenges as well as aligned with their food safety initiatives, including:

- Reduced sanitation time – quick disassembly without hand tools to optimize sanitation effectiveness.
- Tolerance to high pressure, high-temperature sanitation evolutions without measurement drift or compromising measurement sensitivity.
- Assistance with CGMP, HACCP and HARCP program compliance.

The Thayer Scale Solution

In cheese conversion shredded cheese and anti-clumping agents (such as corn starch, potato starch, powdered cellulose, or calcium sulfate) are metered into a rotating coating drum wherein individual cheese strands are uniformly coated to prevent particle agglomeration in packaging.

The correct proportion of anti-clumping agents to shredded cheese plays a crucial role in the quality of the finished product and the consumer's perception of the final product. Insufficient application of anti-clumping agents leads to product agglomeration in its packaging. Over application of anti-clumping agents produces housekeeping issues in process areas. More importantly, it leads to negative consumer perception of the finished product, as excess anti-clumping agent is perceived as mold growth.

Getting the desired ratio application of an anti-clumping agent to shredded cheese is difficult. Inconsistent particle flow through centrifugal shredder outlets along with a variable number of shredders in use at any one-time results in a non-uniform "profile" of material on a moving conveyor. As a result, accurate measurement of cheese flow is challenging.

Distributing anti-clumping agents in the correct proportion and uniformly across the width of a constantly varying shredded cheese profile poses another challenge.

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Thayer Scale's Hygienic Weigh Feeders (HWF), built in accordance with the design principles of 3-A, NSF and USDA, accurately measure the rate of flow of shredded cheese based on the direct measurement of mass and velocity variables. Cheese measurement takes place over a fixed length of the weigh feeder conveyor using a moving window average of measurements taken multiple times each second.

A specialized Thayer Scale control algorithm, Scale Location Compensation (SLC), synchronizes the delivery of the anti-clumping agent with the varying cheese flow, ensuring that the anti-cake agent is delivered both in the correct proportion, as well as in the proper phase of the sometimes intermittent, but constantly fluctuating cheese profile. Thayer Scale offers additional programmable compensation factors that adjust product deliveries to the unique characteristics of a given discharge mechanism.

Thayer Scale's proprietary, easy to clean Loss-in-Weight feeder technology controls aeration and defeats poor flow properties of anti-clumping agents to assure precise, reliable delivery to a single-point or uniformly across a wide band.

Thayer Scale instrumentation seamlessly integrates with the sites' modern process software facilitating automatic, real-time analysis of base cheese measurement and the delivery of the anti-clumping agent.

Programmable alarm points immediately signal issues with any of these critical measurements and comprehensive manually supervised and/or fully automated calibration processes provide quick validation of measurement accuracy.

Thayer Scale's optional Remote Monitoring Terminal, compatible with the sites' secure end-to-end / on-demand industrial VPN access / security management systems, facilitates access from any web browser to reduce the cost and downtime associated with in-person site visits.

Overall, the use of Thayer Scale equipment has reduced product quality instances and improved housekeeping with a low, long-term cost of ownership.

Who We Are

Thayer Scale is a leading global manufacturer of specialized or continuous weighing and metering equipment for dry bulk solids of all particle shapes and classifications. For over 70 years, our mission has remained unchanged – providing long-lasting solutions and exceptional product support. Thayer Scale equipment maintains high Overall Equipment Effectiveness (OEE) with a low long-term cost of ownership.