Automated Batch Process Analysis for the Food and Beverage Industry

Advanced Automation brings customized batch process analysis to the food industry, with better data integrity and the ability to easily meet food safety standards.

- Advanced Automation develops Batch Process Analysis systems for the food and beverage industry, which aid in meeting food safety standards for the BRC and SQF, as well as passing audits.
- InduSoft Web Studio was chosen for development of this system because of its open platform, large library of drivers, and flexibility for customization.
- Customers see complete ROI within 6-12 months of adding the system, and save hundreds of hours in labor costs. Data integrity is improved, and product waste minimized. One-click reports make audits and mock recalls much easier.

Background

Few industries are regulated as closely as the food and beverage industry. Food safety standards are particularly critical to public health, and there are many regulating bodies that audit and dictate the standards that food manufacturers must meet. Among these regulatory bodies are the FDA (Food and Drug Administration in the United States), and independent organizations such as the GFSI (Global Food Safety Initiative). Manufacturers of food products are often audited by these agencies for food safety, and as a result, recordkeeping for food manufacturers is vital to the process of food manufacturing and packaging.

Mandates are driving the food industry to adopt new safety standards, such as the BRC (British Retail Consortium) and SQF (Safe Quality Food). To meet these standards, food production systems often require improved systems for properly meeting the regulations of these standards, which require frequent audits and mock recalls.

Figure 1: Shown here is an eight tank silo for the Batch Process Analysis system, which enables simultaneous batching and production.
Advanced Automation is a provider of the systems that enable food and beverage manufacturers to meet safety standards, preserve the integrity of their data, and streamline the production process. When a customer has needs that cannot be met with off-the-shelf solutions, Advanced Automation works to create custom-built machinery for the food and beverage industry.

The Challenge
The need arose for a specialized solution when Advanced Automation was approached by a customer who was undergoing a BRC audit, and having a difficult time properly accounting for ingredient handling, as well as identifying ingredients and batches for a mock recall. Mock recalls can be incredibly difficult if the data is not stored and recorded properly.

Manual recording was a particular source of trouble during ingredient handling and mock recalls, particularly for the employee responsible for the batching process. It was very easy to lose data integrity at many points during the process, as ingredients were moved, weighed, transported, and added. With no way to receive an alert if ingredients were missing, added out of order, or improperly weighed, consistency of the product and waste were also an issue. Another large factor in the decision to automate the batch process was the amount of overtime hours accrued as employees spent excessive amounts of time logging data by hand.

With these issues in mind, Advanced Automation began searching for a software that would allow them to work on current and future Batch Process Analysis applications. Key factors in the software decision included the ability to make changes to the application easily, and...
integrate it both with older hardware already owned by the customer, and newer devices installed by Advanced Automation. Another potential future requirement was the ability to have custom drivers created. An open platform, an extensive PLC driver library, communication with SQL databases, and scripting capabilities were all considered.

InduSoft Web Studio fit the bill for this project. After downloading the trial version of the software, Marcelo Tise, president of Advanced Automation, visited InduSoft Headquarters in Austin, TX, and said, “InduSoft seemed like a great company to work with, and we felt very confident going forward with the project after seeing what InduSoft Web Studio was capable of.”

The Solution
Advanced Automation has created many customized solutions to aid food manufacturers in better meeting safety standards and automating the collection of data. One solution is their Micro Batch Process Analysis solution, which consists of a smart scale and an InduSoft Web Studio Thin Client running on the machine, and another is the Batch Process Analysis system, which can automate an entire silo with multiple tanks.

Advanced Automation designed a smart scale system to solve a wide variety of problems. Recipes are stored in the SQL database, rather than in an employee notebook, and the customer can keep an unlimited number of recipes on the system. Storing the recipes makes it possible to quickly and easily adjust the size of the batch, rather than relying on the batching employee to manually calculate different batch sizes based on the recipe. The smart scale also allows simultaneous recording and production. By weighing each ingredient, the application can record mass balance, lot numbers, tracking information, and current ingredients in stock and in use. The system also allows employees to quickly locate ingredients in the warehouse or in the finished product by lot number, enabling seamless recalls should the need arise.

One-touch reporting is a large component of this application when it comes to audits. By adding a button to download reports, auditing professionals can see a paper trail immediately, or track a lot within seconds. The system can also inform employees how much ingredient is in use, how much is left over, and aids in purchasing and manufacturing decisions.

The Results
Advanced Automation’s Batch Process Analysis system offers ROI within 6-12 months,
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Thanks to the savings in overhead and payroll hours. Customers can meet food safety standards quickly and easily, and are able to move through the auditing process much faster than before. Data is more reliable, thanks to the automated recording functions, and can be more easily shared between one stage of the process and the next.

Thanks to the ease of customizing InduSoft Web Studio, Advanced Automation has been able to rapidly develop custom applications for customers in a variety of industries, including baking, adult beverages, fragrances, cheese processing. The large driver library and the ability to develop new drivers means that it’s very easy to add the Batch Process Analysis system to the systems customers already have in place, which allows them to protect their own investments into equipment.

As food safety standards increase and become more consistent globally, working with a flexible, open platform like InduSoft Web Studio will truly make the difference for food and beverage systems.

Figure 4: Before installation of the system, batch ingredients were recorded manually. With the automated system, the smart scale records information by lot number, making it possible to track ingredients anywhere in the warehouse, determine how much is on hand, how much has been used, or what ingredients are currently being used in production.

For more information contact your local distributor or InduSoft directly at info@indusoft.com.