

VALUE PROPOSITION

ROCKWELL AUTOMATION

Canbra Foods Saves \$45,000 Annually with Automated Batch System

ROCKWELL SOFTWARE RSBIZWARE™ BATCH HELPS FOOD MANUFACTURER INCREASE THROUGHPUT, REDUCE WASTE AND PROVIDE A SAFER WORK

SOLUTIONS

RSBizWare™ Batch, Allen-Bradley® PLC 5-80E and RSView@32™

- Automate milk-preparation process
- Employ ISA S88 standards
- Write and manage recipes
- Deliver precise control
- Provide view of the operation

RESULTS

Faster and more precise operation

- Eliminate manual loading of ingredients
- Provide safer work environment
- Save \$45,000 annually
- Reduced cycle time

Reduced Waste

- Minimize ingredient spillage on processing floor
- Greater batch consistency

Improved batch tracking and analysis

- Standard data collection and recording for food audits and trend analysis
- Common ground for engineers to program, troubleshoot and maintain system

Improved visualization

- Real-time monitoring and control



BACKGROUND

Canbra Foods Ltd. is Canada's largest fully-integrated oilseed crushing, refining, processing and packaging company. Its major products include cooking and salad oil, margarine, shortening and a full line of proteins. Recognized as a leading supplier of canola products in the North American and international food industries, Canbra markets its products in packaged form to retailers and distributors in the food service industry and in bulk-to-food manufacturers.

With stiff competitive pressure from soy manufacturers, Canbra is constantly seeking ways to increase manufacturing efficiency and reduce costs. At the company's Lethbridge, Alberta, Canada facility, Canbra relies heavily on Rockwell Automation technology to control, automate and monitor production.



The production process begins with canola seed cleaning using seed cleaning equipment to remove unwanted matter. Next, the seeds are crushed to extract the oil. Finally, Canbra runs the oil through a refining process involving a crystallizer machine where it is made into a finished product for packaging. In the refining phase, Canbra also blends the oil with a custom milk to create its margarine products.

CHALLENGE

While Canbra's oil preparation process has been largely automated, the milk-preparation stage remained mostly a manual operation. The milk-preparation process began with the manual addition of 33 pound bags of salt and 44 pound bags of whey powder into a pre-mixer on an open processing floor. This labor-intensive process created production bottlenecks, spillage, as well as documentation challenges. In addition, the pre-mixer occasionally received inaccurate amounts of ingredients. Worse yet, employees

faced potential injury from manually lifting the bags and pouring them into the pre-mixers, and manual activation of the mixer and pumps left the process open to human error.

With these challenges in mind, Canbra sought to automate ingredient addition in the milk-preparation phase using batch management software to reduce waste, increase throughput and eliminate risk of injury.

"Rockwell Automation supplies all of the manufacturing software in the Lethbridge facility," said Rick Kurio, control systems coordinator, Canbra Foods. "Therefore, when we considered implementing a batch management solution, Rockwell Software RSBizWare Batch™ was a natural choice. In addition, RSBizWare Batch would allow us to leverage Rockwell Automation's integrated architecture and employ batch mobility and standardization concepts through the ISA S88 standards. This was important since we were also seeking a common ground for our engineers to program, troubleshoot and maintain the system."

SOLUTION

The automated solution combines RSBizWare Batch with a Flexicon® Corp. bulk handling system that conveys, loads, unloads, weighs, feeds, and processes bulk solid material.

RSBizWare Batch controls all of the operations of the bulk handling system using Allen-Bradley® PLC 5-80E programmable controllers with Allen-Bradley Remote I/O located locally on the system. For example, when an operator picks a recipe from RSBizWare Batch that calls for 200 pounds of salt and 300 pounds of whey powder, the controller receives two setpoints. RSBizWare Batch then directs the bulk-addition system to operate two 15-foot high bulk-bag dischargers to dump the whey powder and salt

into two eight-cubic-foot capacity stainless steel hoppers. From each hopper, a 30-foot long flexible screw conveyor elevates the ingredient for gravity feeding through two Y-diverter valves. From there, the ingredient is transported to one of two mixing tanks.

As a bag discharges, load cells transmit weight-loss signals to a controller, which shuts off the flexible screw conveyor once the set batch weight has been reached. The controller passes the data to and from the SCADA system, which also communicates with a controller that governs the system's agitators and pumps.

"We chose RSBizWare Batch to write the recipes for the milk preparation process and to control the clean-in-place (CIP) process for each tank," said Kurio. "RSBizWare Batch follows the ISA S88 model, providing us with a 'cut and paste' approach to easily develop and reconfigure recipes. We are currently using eight milk recipes and 10 CIP recipes."

RESULTS

Automating the milk-preparation process with RSBizWare Batch gave Canbra the ability to minimize production bottlenecks, increase efficiency and provide a safer work environment.

"We have been delighted with the results to date," said Kurio. "Since automating the process using RSBizWare Batch, we have been able to save \$45,000 per year."

The RSBizWare Batch and Flexicon bulk handling systems also eliminated manual ingredient addition, reducing cycle time by roughly half an hour per batch.

In addition, using the ISA S88 batch standard, RSBizWare Batch collects data on each batch and compiles it into batch records or event logs. This allows Canbra to identify process trends and

deviations, as well as efficiently track ingredients for food safety audits.

"We've been able to achieve additional savings through increased batch accuracy," Kurio added. "On top of that, worker safety has improved since they no longer have to handle 30- to 40-pound bags of material."

The success of the Rockwell Automation solutions has prompted Canbra to explore integrating its oil blending system with the milk blending system to streamline the production process further.

"In the next three to five years, we will obtain even greater savings and efficiencies," said Kurio. "By incorporating the oil preparation phase into the RSBizWare Batch system, we'll have a seamless process for producing our margarine products. We will look to Rockwell Automation to help us get there."

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