

The South African Breweries Limited

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"All in all, for the first time, we now have an automated system giving us the information to achieve what everybody is striving for - continuous improvement."

Eddie Jordaan
IS Manager

SAB Maltings Adopts Latest Wonderware Technology for Batch Tracking and Reporting

Goals

- Track products through the production process in order to get a complete view with respect to production variables applicable to each batch
- Generate reports detailing product transfer times and vessel occupancy times

Challenges

- Merging of production and process timelines into a single source of information, with all the data in context, for meaningful numerical and graphical reports regarding production KPIs
- Safeguarding existing system investments

Solutions and Products

- Wonderware InTouch HMI
- Wonderware Equipment Operations Module
- Wonderware System Platform

Results

- The new system has highlighted operational and plant issues, which had previously been "hidden" from view
- True vessel occupancies and transfer times can be determined
- Real-time data provided in the correct format has now made users more aware of true production realities
- Meaningful information is helping SAB Maltings achieve its overall objective of continuous process improvement



Caledon, South Africa – SAB's involvement in the barley and malting industries in South Africa stretches back more than a century but moving to more modern times, barley growing started in the Caledon, Swellendam and Bredasdorp areas in the Western Cape in the early 1970s.

Southern Associated Maltsters (SAM) was established in April 1978 as a joint venture between SAB and two cooperatives. During the mid 1990s, a second barley growing area was established under irrigation in the Vaalharts and Taung areas. In 2006, more than 800 farmers were planting barley for the malting industry. SAM, now called SAB Maltings, at Caledon (Western Cape Province) is a wholly owned subsidiary of the South African Breweries Limited and has been in operation since 1981.

Caledon Maltings is now one of the largest in the Southern Hemisphere, with an annual capacity of 180,000 tons. Caledon Maltings runs a 24/7/365 operation and every 14 to 16 hours, a 306-ton batch of malt is produced. Each batch takes nine days to complete, is equivalent to nine rail wagons and will produce 7.8 million cans of beer. With such demands, SAB Maltings decided to improve insight into its production with a batch tracking and reporting system from Wonderware.

Project Goals

"We needed a system that could track our product through the production process in order to get a complete view with respect to production variables applicable to each batch," said Eddie Jordaan, IS manager, SAB Maltings.

"From a user perspective, we wanted to supply a system that could generate a report per batch, detailing the production KPIs numerically and graphically. In addition, we needed reports detailing product transfer times and vessel occupancy times. This information would assist us in optimizing processes."

From this requirement arose the need for a batch tracking system for production and process data. Previously, the system consisted of an InTouch HMI (Human Machine Interface) and Wonderware

Historian providing process data and some trending, but there was a lack of production information and no automated reports.

The project objective became the merging of production and process timelines into a single source of information with all the data in context for meaningful numerical and graphical reports regarding production KPIs. Another project requirement was the safeguarding of existing system investments.

Solution Selection

This last project requirement mandated the use of the latest offerings from Wonderware and this meant growing the system by adopting the Wonderware System Platform based on ArchestrA technology.

In addition, Wonderware Equipment Operations Module would be responsible for capturing the production data that would then be stored in the Wonderware Information Server, while Microsoft Reporting Services would be used for the generation of the necessary reports.

This choice of solutions would provide seamless integration with the existing Wonderware investment.



Credit: One Red Eye/Philip Meech

Wonderware Equipment Operations Module is designed to help improve the consistency and effectiveness of plant operations by helping to execute production activities consistently, as well as providing accurate visibility into the status of operations.

It's also used where there are demands for end-to-end traceability of materials, equipment and other resources across production processes. Compatible with the ISA-95 industry standard, Wonderware Equipment Operations Module includes genealogy functions for correlating events and information captured across multiple areas and process segments.

"In view of the solution choice, we needed a Cape-Town-based and ArcestrA-certified system integrator that could provide a turn-key solution and that also had a local support infrastructure," added Jordaan. "AMR Automations was eventually selected after following a standard tender process."

Solution Implementation

AMR Automations made a point of understanding SAB Maltings' business requirements before starting any engineering effort.

"Once we understood what was required, we drew up a functional specification which was agreed upon and signed off by everyone including the production personnel," said Andrew Rennie, director, AMR Automations. "This also applied to the report layouts and content."

AMR Automations went even further through a Factory Acceptance Test for a complete simulation of the solution before starting the implementation in order to make sure that the system complied with SAB Maltings' requirements in every detail. It took approximately one month to establish the base-infrastructure on site.

"Although this is a hybrid solution featuring a legacy InTouch HMI installation connecting to newer System Platform software, the integration is so seamless that you would never know it," said Rennie.

"The ArcestrA technology underlying Wonderware System Platform allowed us to define and apply standards that reduce engineering effort and provide for its reusability. Notably, this is the first installation of the Wonderware Equipment Operations Module in SAB."

Delivering the Information

- Wonderware Information Server - Provides for web-based delivery of information with security. Along with Wonderware System Platform, AMR Automations had the opportunity to use the Microsoft SQL Server technology and this combination proved to be an effective way of delivering the required information to those who needed it while making use of the Microsoft security layers.
- Microsoft Reporting Services - Reporting functionality was designed using Microsoft Reporting Services that provided interactive reporting with drill-down capability to view production and process data.
- Dashboards and KPIs - Are visualized using published InTouch HMI graphics.

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"The eventual solution exceeded my expectations," said Jordaan. "The first version produced the desired reports with about 80% accuracy. The inaccuracies were traced mainly to operational and plant issues, which were subsequently identified and which we are currently addressing."



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