



Intellution Control Systems Help SmithKline Beecham Achieve Product Consistency, Accelerate Time to Market

In 1996, SmithKline Beecham launched "Project Rainbow, a multi-million pound effort to consolidate European production of its oral health care products – primarily toothpaste – at its Maidenhead plant in the United Kingdom. The Maidenhead plant, like a handful of other SmithKline Beecham facilities throughout Europe, had been manufacturing a wide variety of products prior to Project Rainbow. Officials of the leading pharmaceuticals and consumer health care products felt, however, that they would achieve a number of important business benefits through establishment of the Maidenhead plant as a center of excellence for oral care products.

Three years later, SmithKline Beecham is realizing the results it had sought. Following major physical plant renovations, the installation of new processing equipment and implementation of Intellution control systems in its production and pilot plants, the company has reduced its costs, more than doubled its annual production, accelerated its time to market and improved its product consistency.

In addition, the company expects to realize further benefits in 2000, when it integrates its production control system with SmithKline Beecham's enterprise resource planning system.

Inconsistency Takes a Toll

SmithKline Beecham markets four brands of toothpaste throughout Europe. With production spread throughout the continent prior to Project Rainbow, however, product consistency fluctuated.

"If a production problem occurred in one plant, other plants across the continent were expected to take over and supply the market. But there would be slight changes in the product as a result, and those changes were noticeable to our customers," said Peter Martin, the Maidenhead plant's electrical systems engineer.

Manual process control and the management of as many as twenty product recipes for oral care products contributed to inconsistency.

“We had many mixers — each one with an operator who would adjust ingredients. They also would control when those ingredients would be added to mixers, and would manually operate valves and weighing systems,” said Martin. “As a result, the consistency issues involved not only raw materials, but mixing times and conditions of the mix. Decisions were totally in the hands of individual operators.”

Because production of oral health care products was distributed among a number of plants in several countries, the price of raw materials fluctuated largely as the result of differing exchange rates. In addition, the reformulation of a product or the introduction of a new one required many months of preparation to meet governmental validation requirements before the recipe could go into production.

Intellution System Ushers in Improvements

As part of Project Rainbow, SmithKline Beecham appointed a team to establish an automated production system at the plant. After considering several systems, the team selected Intellution’s FIX SCADA package for control and data acquisition. In 1998, the plant also implemented Intellution’s Visual*Batch* as its batch control engine.

“We wanted control systems built on standard, open platforms that would be easy to maintain and configure, and we also wanted a highly scalable system that would allow for growth in the future,” Martin said. “As for batch, we wanted to implement a system that complied with the ISA’s S88 standard for batch control. Intellution’s systems were a perfect fit in those regards,” said Martin.

The Windows NT-based Intellution control system allows SmithKline Beecham to easily maintain, change and implement recipes to make product. Because the processes are controlled automatically, product inconsistency has been eliminated. The plant also purchased four state-of-the-art mixers, each of which is capable of processing 4000 litre batches. These replaced existing smaller mixers that had been used previously.

“As a result of improved control and better equipment, we’re able to do bigger batches more quickly.” Said Martin, “we were able to reduce our batch cycle time by greater than 50%. Not only that, we were able to accomplish those improvements while the physical plant was still under construction.” Overall, he added, “we have increased our output capability by over 150%.”

In addition to Project Rainbow, SmithKline Beecham built a small pilot plant (Project Pinnacle) that allows its research and development department to test new products and reformulations without having to tie up production line equipment. Intellution’s SCADA and Visual*Batch* systems also control processes in the pilot plant. The system’s ability to gather historical data on the research and development projects has reduced and simplified processes for product validation, Martin said. He added, once research and development is completed, the new recipe can be used for production almost immediately.

The reduced time-to-market is critical to success in the highly competitive consumer health goods market, he noted.

“Prior to putting Intellution systems to work in both the pilot and production plants, it would take us three or four full-scale batches before we got the scaled-up recipe correct. Rewriting the recipe for the production plant would have been a week’s work,” said Martin. “With Visual*Batch*, however, we’re able to change just a few parameters, and we can run the new recipe in full production within a couple of hours.”

In 2000, SmithKline Beecham plans to integrate the plant control system with its ERP system, giving the company new capabilities in meeting consumer needs and demands while improving its supply chain management and keeping inventories of raw materials and finished goods low.

“Once the systems are integrated, we’ll be able to do real-time planning and updating to ensure that we can get the raw materials in and the finished goods out as the markets require,” said Martin. “We’ll be able to give our logistics people live data on the usage of materials and the finished goods. Thus, we can supply the market more easily because they’ll have information on what exactly is in the mixers at a given time. We’ll also have a better handle on our supplies of raw materials, such as toothpaste tubes.”

Martin also said that the benefits the Maidenhead plant is achieving through better control are making other plants take notice.

“With the infrastructure that some plants have in place, they have to completely redesign their systems when they come out with a new product,” he said. “They see the benefits of our system, where we can actually change from one product to another very easily and very flexibly.”