

# Vital Ingredients

**The right technology and a responsive partner were key requirements when Unilever came looking for a batch control system for its personal care plant in Vietnam. *Bob Gill* reports.**

Adding vitality to life of the Vietnamese people through provision of a wide range of international quality and affordable products in health, hygiene, and nutrition. That's the professed commitment of Unilever, the mega multinational consumer products company responsible for such globally recognized brands as Sunsilk, Dove, Ponds, Close-up, Lipton, Flora, to name just a few.

While shampoo and soap and toothpaste may not be the most glamorous of products, being the necessities of life that they are, Unilever's vitality mission recognizes that global trends such as increasing urbanization and growing affluence are driving consumer needs for more variety, quality, taste and enjoyment out of such everyday products.

That fits Vietnam quite nicely. With a population of some 85 million – 60 percent of whom are said to be under the age of 30 – a high literacy rate and all the aspirations that come with an expanding market economy and increasing international exposure, it is no surprise to learn that Unilever's business in Vietnam has seen consistent growth since operations were first established in the country in 1995.

And it was the need to cater for rapidly expanding consumer demand that led Unilever Vietnam to

build a new factory in the Cu Chi industrial zone of Ho Chi Minh City. It began production in April 2005 and now employs around 1000 people.

## Liquid engineering

For the Liquid plant in the complex, which is mainly used for shampoo production and operates under the Personal Care division, project manager Pham Manh Tri was tasked with introducing the process equipment and associated control systems technology.

The basic production process involves batches of raw materials (chemicals) prepared, weighed, and then aggregated in large mixing tanks. Automated controls regulate the mixing speeds and the heating and cooling rates. Once a batch is complete, it is pumped to a storage tank and then from there on to the filling line where the liquid is inserted into the individual package units, i.e. bottles, sachets, etc, that eventually find their way onto the store shelf.

“For the control system selection, there were two key decisions that had to be made,” says Pham. “First, what kind of batch software should we employ, and second, which company could provide the degree of service and support required for a new installation running 24 hours, six days a week.”

Unilever Vietnam invited a number of vendors to present and discuss their solutions. One requirement that it was particularly keen on seeing met was software conformance to the batch standard ISA S88, which specifies good design and operation practices to improve control of batch manufacturing plants. “We found that Simatic Batch, supplied by Siemens, conformed much closer to the S88 spec than the other solutions,” Pham explains.

In fact, as Siemens Vietnam outlined to Unilever during the pre-sales consultation phase of the project, Simatic Batch would allow the implementation of a batch solution for the Liquid Plant that followed the equipment and recipe hierarchies defined in ISA S88-01, the part of the batch standard that defines requirements by using an agreed terminology and a set of models.

And supplied as part of Siemens' process control system PCS 7, the integration of Simatic Batch





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While Siemens Vietnam did have prior experience of PCS 7 projects in the country, these had always been implemented by overseas partners. Thus, the proposal to work with CAC, a Vietnamese systems integrator, was welcomed by Unilever and firmed up the decision to go with PCS 7 and Simatic Batch for the new Liquid Plant.

### Batch performance

In terms of configuration, the control system comprises a Simatic S7-400 PLC linked via Profibus DP to eight ET 200 remote I/O modules, which in turn link to the plant-floor process instruments and actuators via conventional analog cable. Other equipment in the control room includes PCS 7 operator and engineering stations – connected to the PLC through an industrial Ethernet switch – and motor control center cabinets.

According to Pham, the main issues during the implementation had to do with ensuring that the control requirements of the liquid process could be adequately communicated and understood in order to be correctly translated into software.

“CAC’s software engineers had to learn the language of the process engineers, and our process engineers had to learn the language of the software engineers,” he recalls. On the product side, as Siemens Vietnam technical sales engineer Hoang Thi Kieu Anh explains, special training sessions were organised for Unilever staff to familiarize themselves with PCS 7 (then at version 6.0) and Simatic Batch.

The average batch cycle time is 1.5 hours, which means that several different products can be manufactured during the course of a 24-hour shift. When there is a change in product the control system instructs the line to stop in order that the equipment can be cleaned so that succeeding batches are not contaminated. The batch quantity of each product is based on the production plan, which in

turn is based on market demand. The vast majority of the plant’s output is for domestic consumption.

Pham notes that compared to Scada or conventional control systems, recipe changes for new products or formulations can be made relatively easily by Unilever operators via Simatic Batch, and that the key benefit of the installed system is its ability to control production complexity inherent in the batch environment. This has also contributed to the Liquid Plant coming out on top in cycle time in a Unilever region-wide benchmarking exercise, something which the team at Cu Chi is justifiably proud of.

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*Reflecting on a successful local collaboration: Unilever Vietnam project manager Pham Manh Tri (left), and Siemens technical sales engineer Hoang Thi Kieu Anh (right).*

### Profitable partnership

Unilever sees the long term success of its Vietnam venture as being intimately interconnected with the vitality of the environment and the communities in which it operates. It is committed, it says, to forming strong partnerships with local businesses in production processing, material supply and packaging.

“We want to develop our partners,” explains Pham Manh Tri. “If we can make our partner strong then that gives us a solid base and we can reach a higher level of operations. If he is weak, then we are also not stable.”

Hence, the decision to use Siemens Vietnam and CAC to supply and install the Liquid Plant control system helped to achieve this objective, as well as having a number of other benefits, like the common language aiding understanding between the teams, especially given some of the technical terms needed to be used, and the fast response times enabled by having support personnel geographically close by.

Meanwhile, Hoang Thi Kieu Anh of Siemens sees the success of the Unilever project as a feather in the cap for the company, proving that the Vietnam team can tackle key projects for large global clients, which may previously have gone to an overseas unit of Siemens.

On a rainy Saigon afternoon, as my part of the interview draws to a close, she is anxious to tell Unilever about some of the features in the latest release of PCS 7 (version 7.1) and how these could benefit the company in future projects – and, no doubt, help to add even more vitality to Unilever and to Vietnam.

**CEA**