

A partnership that overcomes all obstacles

Cost-effective evolution of DCI System Six to 800xA at Sumitomo Bakelite Europe NV, Belgium

Sumitomo Bakelite Co., Ltd. is the largest producer in the world of “Phenolic molding Compounds” and one of the leading producers worldwide of specialty phenolic resin. Phenolic technology is the foundation of their business through history for over 100 years. For many decades, the company has produced resins and polyesters for industrial applications. Innovation, customer orientation, safety, environment and quality are the company’s priorities.

The Genk entity, which is engaged in development, production and sales, counts 140 employees and has a turnover of 85 million Euros. For many years, the company has relied on ABB process control systems for its plant.

Customer challenge

However, the recent change from ABB’s DCI System Six to System 800xA was not without challenges for both partners. “Before, the control systems were inside electrical cabinets that offered protection from explosion and had push buttons, relays and indicator lights. In the nineties, we moved up to ABB’s DCI System Six, which opened the way to increased automation,” explains Fabian Haest, Engineering and Maintenance Manager for Sumitomo.

“We continued to use this system until a few years ago, but ABB had since evolved toward a more recent solution, the 800xA system. Although the hardware infrastructure of the last few years was compatible, the graphics - that is, the screens and interfaces used by operators - needed to be renewed. Updating was therefore recommended.”

Better than the competition

The advantage of the 800xA system is that it allows keeping part of the hardware infrastructure, thus greatly reducing the need to rewire. In 2012, Sumitomo decided to add another reactor and to equip it with a new control system. The company compared System 800xA with control systems from two other manufacturers and once again chose to work with ABB. Fabian: “Effectively enough, we had already called on the services of ABB, and our positive experience with the DCI System Six worked in favor of this choice. Although for years the installations were observed to be particularly reliable, we nonetheless seriously considered other market players. We compared the various manufacturers by putting the accent on the same criteria each time: reliability, the technique used, price and compatibility. ABB was still the winner.”



Phenolic Resol resins - Photo courtesy of Sumitomo

Tailored software

The first project involving System 800xA was the installation of Reactor 12, used for the production of phenolic resins. Since then, ABB has supplied a turnkey solution. Collaboration on the project by Xavier Vanhove, Application Engineer at ABB, was a crucial factor. Since he previously worked for the ABB Service Department, he had already intervened a number of times at Sumitomo and was therefore very familiar with the customer company and their systems. Xavier: “I first programmed two reactors using Reactor 12 as a pilot project. When ABB designed the 800xA system, it also developed complete documentation. This is a collection of codes that refer to functions and procedures that can be used by the programmers. The advantage of this documentation is that programmers don’t have to write new code for standard operations. And the less you change things, the fewer the problems you will have for later updates. In any case, it is almost impossible to fully follow the basic configuration. Fabian and I therefore adapted the documentation to the needs of Sumitomo so that code would be as efficient as possible.”

An accelerated transition plan

Since Xavier worked frequently at the site, it was very easy for him to communicate with Fabian, which accelerated the consultation procedure. Once Reactor 12 was in place, we could start the step-by-step project to transition the rest of the site to the new system. However, a serious incident occurred in February 2015 that suddenly gave a boost to implementation. “We had just implemented a simplified version for Reactor 2. The control system dated from the eighties and still worked using relays and buttons,” comments Fabian.

There was major damage from a fire, which led to stopping the entire production process. It was only after weeks of cleaning that

the plant was able to restart operations in phases. "Thus, we decided to assign Xavier to the site permanently," adds Guy Damen, ABB's Account Manager for Sumitomo. "It turned out to provide invaluable assistance during restart and was a life-saver for Fabian. Together, they were able to put the system update into operation and deploy it in an accelerated way in spite of very tight deadlines."

Visualization of interlocking

In the end, the incident provided a good opportunity to include additional security and repair a series of defects inherited from the past. "The new system enables an even clearer vision of interlocking, which includes the operations that allow interconnecting the status of two mechanisms or functions, such as control valves," explains Xavier. "This means, for example, that if one valve opens, the others are automatically closed. Visualization of interlocking is automatically generated by the system, which makes everything both safer and more efficient. In addition, each type of interlocking has a specific name and is easy to consult."

From a graphic point of view, the changes are also impressive. The graphics formerly used by operators were based on a variety of color codes that sometimes made visualization complicated. Fabian: "Today, everything is much clearer and more operational. the operator sees only what he's interested in. A symbol turns red only when there's an issue. With just a click, the operator can consult the underlying level and determine what is happening. Before, an operation like that required knowing a lot about programming language!" As a result, six of the fifteen reactors have been adapted, and the rest will follow in the next three years.

Customer benefits

- One common and consistent operator environment, regardless of the underlying control system, lets operators supervise and control larger parts of their process with an improved insight and visualization, thus significantly reducing operational errors and improving productivity of operations
- System 800xA Operations offers complete integration with the existing DCI controllers protecting the intellectual property investments achieved of many years
- Increased system stability and availability for continuous operations with extended lifecycle
- True system evolution allowing Sumitomo to build on their strong DCS foundation by providing the flexibility to implement new functions in an incremental stepwise fashion
- Upgrade had minimal impact to operations personnel
- Operators and plant management have access to relevant information related to the installed control systems through My Control System, a secure web-based platform

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From left to right: Fabian Haest (Sumitomo), Xavier Vanhove (ABB) and Guy Daemen (ABB)

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Collaborating with ABB

The constant presence of ABB engineer Xavier Vanhove on the Sumitomo site at Genk was judged positive by both parties. The main advantage evoked is the possibility of interacting and making decisions quickly. „But we should also note that it simply makes work more efficient," says Xavier. „When I work for another client, I start by programming a bit of code, which I submit to the client. Next, I listen to his remarks and include them in my work. This procedure requires extra time. Here, I am able to approach problems and solutions directly with Fabian, which greatly speeds moving the reactors up to the new system.“ At Sumitomo, Xavier's involvement is very much appreciated. Fabian: „He's even gone so far as to come to work on New Year's.“

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