

Arkema Marseille migrates to System 800xA DCS family Result – a more efficient control of its process



The challenge: to modernize Arkema's control system at one of their major sites, with minimum production affects, and make it future proof. Confident in the integration capabilities of ABB's System 800xA architecture, ABB France took on the challenge. Arkema's Marseille Saint Menet oleochemical factory now has an 800xA automation platform, which replaced the previously installed Honeywell TDC2000/3000 control system. The migration was successful, caused minimal interruptions in the production and was performed on-line, on time and within budget.

ABB has been providing products and solutions to Arkema since 1986, when the first MOD300 distributed control system (DCS) was installed at an Arkema site in Europe. Covering more than 10 locations, this ABB solution represents about 75,000 I/O (inputs/outputs). The Arkema-ABB collaboration is manifested by Arkema's commitment, made in 2003, to modernize its ABB systems.

Technical Challenge for Critical Project

Specialized in producing amino 11 monomer from castor oil, the Marseille Saint Menet Arkema factory was using the Honeywell TDC 3000 system for controlling the process. Some of the system's equipment is near the end of its life time. As processes develop and change, new operator work stations need to be added, along with connections to new controllers and I/Os. Furthermore, the costs of spare parts and maintenance were high. Investing in a new system that provides new ergonomics and advanced features has proven worthwhile.

When Arkema made the decision to modernize the control system, ABB was given an opportunity to demonstrate the 800xA system's ability to gather both data from the ABB system and from the TDC 3000 system simultaneously and make it available in the same graphical displays. Additionally the tool provided by ABB enabled stepwise evolution so that Arkema was able to adapt its own project schedule and related costs over time.

The goals of the automation platform migration were to interface various kinds of Level-1 and Level-2 equipment, replace some existing and add new controllers and transfer instrumentation to the DCS.

Beyond the technical challenge, the specific nature of the process required the installation to be carried out on-line, with no interruptions to production. The analysis work began in September, 2008 and the ABB system was operational – on schedule – by December 24, 2008.

With its high Seveso II (a European Union law aimed at improving the safety of sites containing large quantities of dangerous substances) threshold level, the Marseille Saint Menet factory considers safety a top priority. Components and equipment must comply with safety standards, especially ATEX (ATmosphère Explosive – a French classification of hazardous areas). ABB was the guarantor of the safety of the process during migration operations.



All photos: Gérard Ceccaldi, France.

Mr Michel GUICHON, automation and instrumentation manager of Arkema Marseille.

“ABB’s modernization of the control system of our plant was done without any production losses and prompt in time.”

World-wide Exclusive: System 800xA and HSM Connect
ABB’s expertise in platform migration was already established since a long time, but had not yet proven itself with Arkema’s existing system at the Saint Menet Arkema factory. To show Arkema the communication capacities of the new 800xA platform, ABB drew on the skills of its technicians and engineers, who worked with the competitor system to come up with a plausible solution that was tested on the existing system. The demonstration won Arkema over, having fully met expectations.

ABB’s solution is based on the 800xA architecture with a connectivity (the so called HSM Connect) for the part interfaced with the existing TDC 2000/3000 system and AC 800 Connect for the five AC 800M controllers for the replacement of the existing traditional control panels (or 1,060 Modbus and S800 I/Os).

The 800xA system enables replacement of the old control panels. It also enables the addition of new operator work stations, which is as easy as extending the number of licenses and clients.

Installing new controllers requires no modification to the operator interface, as communication has been simplified between the ABB controllers (via AC 800 Connect) and those of the old system (via HSM Connect).

Deleting obsolete components has resulted in a substantial reduction in maintenance costs. A secure remote maintenance connection ensures speedier troubleshooting.

Custom Services and Strict Methodology

From the evaluation phase through commissioning to post-installation assistance, ABB’s services are part of a strict methodology that complies with Arkema’s specifications.

These services fall within a clearly defined scope of responsibility which includes:

- Recovering input data: Joint ABB-Arkema functional analyses and evaluations
- Establishing project rules and user validation of programming standards
- Creating a database (import)
- Building imaging from location data, creating the control environment
- Simulation and testing: internal tests, acceptance of applications with the end-user, participation of operators and system specialists in validating the integrity of the project (hardware, software, applications)
- Installing and starting up on site
- Training of system specialists, maintenance crews, supervisors and operators
- Startup assistance and loop checks
- Starting production
- Establishing a remote maintenance connection
- Maintenance contract: 24/7 technical assistance with repair guaranteed within 4 hours.

Each step of the way, ABB and Arkema forged an excellent relationship. ABB demonstrated the advantages of its technology and provided technical expertise. Arkema especially appreciated ABB’s commitment in executing the work timely and efficiently. Maintenance for System 800xA and other platform components is included in this service agreement.

System 800xA

Thanks to the ABB solutions now installed in the Saint Menet site, Arkema now has a control environment designed for its present and future needs. The 800xA system has great integration capabilities, it is flexible and has a state of the art operator environment, providing for Arkema St Menet's increased production through:

- Reduced decision time
- High-integrity automation, which reduces risk
- Integrated information for better visibility
- Improved quality, repeatability and batch production time
- Optimized equipment performance and availability
- Controller and I/O availability, factoring in all requirements for the factory and for safe operation
- System capacity extension through continuous development.

The modernization project includes a future phase in which the old Honeywell controllers will be replaced by AC 800Ms and new controllers or control stations are to be added. The 800xA system will integrate other equipment packages or manufacturing areas. Also planned are optimization features such as alarm and safety system management.

The potential of the 800xA system enables Arkema to plan for new developments at its Marseille Saint Menet factory. Arkema now has a tool to evaluate profitability and guarantee process safety. ABB's maintenance service provides support over the life time of the products and systems, extending their efficiency.

Arkema's Marseille Saint Menet is an oleochemical factory specialized in producing amino 11 monomer from castor oil (picture 1 and 2). System 800xA with a so called HSM Connect is interfaced with the existing Honeywell TDC 2000/3000 system (picture 3). Five AC 800M process controllers is replacing the existing traditional control panels (picture 4).



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