Automate manufacture of Products Formulated in Jet Engines for the Pharmaceutical Industry
by Wonderware Spain

"With the Wonderware solution, it is possible to easily expand our production facilities. This will allow us to create a standard engineering approach, and we will be able to expand our control system while maintaining the robustness and reliability of the production system."

Manuel Orriols, Automation Manager, Laboratorios Almirall, S.A.

**Company Overview**
Laboratorios Almirall, S.A. – Barcelona, Spain

Almirall, an international pharmaceutical company based on innovation and committed to health, headquartered in Barcelona, Spain, researches, develops, manufactures and commercialises its own R&D and licensed drugs with the aim of improving people’s health and wellbeing. The therapeutic areas on which Almirall focuses its research resources are related to the treatment of asthma, COPD (Chronic Obstructive Pulmonary Disease), psoriasis, rheumatoid arthritis and multiple sclerosis. Almirall’s medicines are currently present in over 70 countries with direct presence in Europe and Latin America in 11 countries, specifically in Germany, Austria, Belgium, France, Italy, Mexico, Poland, Portugal, Spain, the United Kingdom-Ireland and Switzerland. Some Almirall’s proprietary R&D products are: almotriptan (anti-migraine drug - 2000), aceclofenac (anti-inflammatory - 1992), ebastine (antihistamine - 1990), cinitapride (gastroprokinetic - 1990), piketoprofen (anti-inflammatory - 1985), almagate (antacid - 1984) and clebopride (gastroprokinetic - 1979).

For further information please visit the website at: www.almirall.com

**VALUE DRIVERS**

**Goals**
- To automate the seven new jet engines and drier filter;
- To create a new Recipe;
- Management System while maintaining compatibility with the existing PLCs and SCADA that are already in place.

**Challenges**
- To assure that the new system is fully ISA S88 compliant;
- The new system should be compatible with the code of the existing PLC and SCADA programs;
- The solution must be deployed with minimal effect to the existing manufacturing.

**KEY METRICS**

**Wonderware Solutions**
- ActiveFactory software;
- InBatch software;
- InTouch HMI;
- Wonderware System Platform.

**Results**
- The system is easily explandable and the cost is lower for the engineering required to add features and functions;
- The developed system provides an easy and intuitive operation of the plant;
- The reporting system complies with the requirements of FDA 21 CFR part 11;
- The solution is robust that breakdowns are minimized.

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Initial situation

Laboratorios Almirall, S.A. is one of the leading pharmaceutical laboratories in Spain and this leading position is shared by its industrial installations, which have a high grade of automation in their processes. When we started this project, Almirall wanted to automate the functioning of seven new jet engines and a dryer filter, but at the same time, we had to substitute software of receipt manufacture, which worked for six automate equipments with PLCs and SCADA that were already there and that should remain there. The new receipt software had to be compatible with the old control system, but moreover, it had to be compliant to the prescriptions of the ISA S88 law for Batch processes.

Solution implementation

The project was assigned to EMTE Sistemas, S.A.U., ArchestrA-certified system integrator. EMTE started the project making a wide analysis of requirements, functionalities, securities, etc., of the plant, together with Almirall’s technicians. They worked very hard in the different project’s phases like the modelling of the process, definition of steps, etc. until they had the total security that the defined criteria were the most suitable ones for this installation, and that these could be implemented in the planned system. The installed control system responds to a configuration of servers, where each of them is dedicated to fulfill the following functions:
- Communications and objects server with Wonderware System Platform and Wonderware Application Server (part of the Wonderware System Platform software solutions’ offering). This server provides connection to the field controllers in a simple and robust way. Its function is “sharing” data and orders by a two-way communication between the controllers and the monitoring and control system;
- InTouch HMI (Human Machine Interface) implemented in a Client-Server architecture. Thanks to InTouch HMI, Almirall is able to have an interface which is needed for the operators to monitor and control the process running in the reactor’s plant. On the operational standpoint then, the architecture required the installation of 4 InTouch HMI for the operators’ supervision;
- Wonderware Historian (formerly known as IndustrialSQL or InSQL Server and part of Wonderware System Platform offering) and ActiveFactory software. This server is responsible for achieving all data and events of interest throughout the process. It is possible to access information related to changing the variables, alarms and other data that allow Almirall to identify with precision the evolution of the process. With this information, it is possible to answer all questions about traceability;
- Batch Server with InBatch software. The development of the active ingredients in reactors requires the usage of a batch process. This is the reason why Almirall required the InBatch software server release. This solution complies all requirements and regulations needed in an pharma environment and of course in this project.

"Now, with Wonderware architecture, it is possible to expand easily our production facilities. This will not imply a new engineering approach, and we will be able to expand our control system keeping the robustness and liability of the production system” said Manuel Orriols, Automation Manager, Laboratorios Almirall, S.A.

The entire solution is based on the TPC/IP communication between Server stations, clients’ stations and PLCs. EMTE has minimized the laying of signal wires, because they used remote entrances – exits directly installed in the classified area and connected by means of Profibus to the PLC. The integration of the previous control system to the new management system of inBatch software receipts has been developed thanks to the flexibility that has Wonderware System Platform system and the technical capacity of EMTE Systems in the design of an efficient interface.

Architecture’s benefits

“The new control system has been validated in its different stages DQ-IQ-OQ, and after some months working in normal conditions, we can state that thanks to Wonderware technology, the project has fulfilled all its expectations that we have formulated in its beginning. The developed system allows us an Interface of an easy and intuitive operation, it gives us complete reports on how each of the manufactures have been developed (Batch’s reports) and furthermore they fulfill our requirements according to the FDA 21 CFR part 1.1 law.” said Carlos Gonzalez, Industrial Sales Manager, EMTE Sistemas, S.A.U. “Moreover the adopted configuration allows us to fast and securely overcome eventual breakdowns that the system may have. To sum up, both the Wonderware Archestra technology and the integration that EMTE Systems has done for this project have satisfied all our expectations” commented Orriols.

This document was realized thanks to the support of: Laboratorios Almirall, S.A., and EMTE Sistemas, S.A.U., ArchestrA-certified system integrator