

“Nowadays, we have a wider view of production and a higher integration of information. Now that our factory is automated with Wonderware solutions, it will be easier to communicate and analyse data. Now we are working on the security of the system, so it is more reliable.”

Narcís Sirvent, Automation Manager, PURAC Bioquímica

PURAC Bioquímica makes its production process more efficient with the Wonderware solutions

by Wonderware Spain – Logitek SA



PURAC Bioquímica, S.A., located in Montmeló (Barcelona), is the Spanish subsidiary of the leading producer of lactic acid, lactate and gluconate. The PURAC group, which has factories in the United States, Brazil, Holland and Spain and a worldwide trade network, belongs to the CSM multinational, which is specialized in producing and distributing ingredients and components for food products.

In 1947 PURAC Bioquímica (then called Luis Ayuso) started to produce lactic acid from sugar fermentation. Today, this factory exports 80% of its production to countries all over the world, mainly for food industry, but also for the cosmetic, pharmaceutical and chemical industry.

In 1989 PURAC Bioquímica started to automate its factory in Spain. Taking into account the experience that the group had achieved in Holland, a PLC system was implemented and a SCADA peculiar to PURAC was developed. In 1994 the control architecture of the plant was changed by implementing industrial computers on field buses, using pioneer standards. However the former automation infrastructure was maintained in some of the areas of production.

In the early 2000, PURAC decided not to go on developing their own SCADA, as it did not them to adapt to the standard software in the market. It was decided that the new automatization technological infrastructure should respect the current buses structure, be compatible with the new standards in the market and with the future connection needs and, what is even more important, the installation of the system should involve the minimum amount of stops in production and it should have connectivity with the existing managing applications of the plant.

Choosing Wonderware

The new system is shaped according to Wonderware's plant automation solutions:

Company Overview

PURAC Bioquímica - Montmeló, Barcelona, Spain
PURAC Bioquímica S.A. is the world's largest and most experienced producer of natural lactic acid, lactates and gluconates. The Spanish company is a subsidiary of CSM, a global player in bakery supplies & food ingredients, and has factories in America, Brazil, Spain and the Netherlands, plus a worldwide sales network.



PURAC plant in Montmeló

- **Industrial Application Server** as data centralized store;
- **Wonderware InControl**, as Real-Time control software;
- **Wonderware InTouch** to replace the former inner development SCADA system,
- **Wonderware IndustrialSQL Server** as historical data server.

Moreover, the industrial computers has been replaced by others of the latest generation, keeping the existing field buses.

Among the objectives stated at the beginning of the project, the **“zero stopping time” is the first one, as a way to maximize production benefits. Besides, it intends to improve the efficiency of the plant and obtains a more effective information analysis in order to respond to a constantly demanding market. It also means to maintain control functionality in real time, graphs and production trends.** As a requisite, its implantation should be as fast and as least traumatic as possible.

For Josep Maria Sas, Chief Engineer at PURAC Bioquímica, the choice of Wonderware solutions was analyzed in depth: *“We needed a system we could trust, since our plant works 24 hours a day 365 days a year. Also, technologists and chiefs of plant are always asking for modifications, so we need a tool like Wonderware, which is easy to maintain and quick if there is any production change”.* Narcís Sirvent, Automation Engineer at PURAC Bioquímica adds: *“When something needs to be modified, we must do it right away, with 100% of our production going on”.*

The configuration of the new automation system in Montmeló was the work of a technical staff consisting of the automation department, the engineering department and the management of the PURAC Bioquímica plant, together with **enco** Ingeniería i Control system integrator. From the PURAC main branch in Holland they were given freedom to include any technological improvement that they regarded

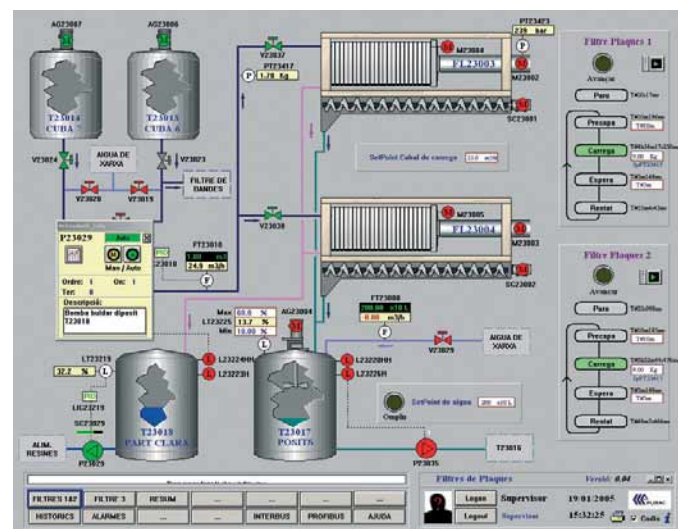
necessary for the production process. Furthermore, the factory in Holland was already successfully implementing Wonderware InTouch, so the possibilities of standardization and exchanging knowledge and information between the two plants is increased.

An integral project

Once the technological system component is chosen, its architecture has to be defined: the field elements are connected to a PC which will control the process through Wonderware InControl. From this level, the information is sent to the Industrial Application Server, the centralized production database, so the users, according to their function at the plant, can have a personalized view. In a parallel way, a historical data server, through Wonderware IndustrialSQL Server, has reporting functions, so users can write reports easily using the common ophimatic tools.

PURAC Bioquímica was the first plant in Spain to implement Wonderware Industrial Application Server. The change from a point to point architecture to an object-oriented centralized data system meant a great challenge for the technical staff in charge of the project. According to Josep Maria Sas, it was necessary to establish clear priorities regarding its execution: *“PURAC Bioquímica has a very simple software and was beginning to work with a software that has a lot of possibilities, so the first thing we had to do was to delimit it, not to do it all at once. We decided first to substitute what we already had and then develop whatever we thought necessary”.*

The implementation of the new automation system was carried out in three steps, each of them dealing with different projects or production areas, up to twenty of them.



HMI Windows synoptic



PURAC plant automation project technical staff

At the first stage urgent projects were included, those that had to be deeply modified and those that had automatization or control problems, as it was the case of the packaging lines. At the second stage, the change of automatization of the rest of the projects is taken into consideration, depending on their complexity, the needs of production and the relationship that they had with other projects that had already been set up. At the last stage, it is decided to consolidate where the production data are available for all users who would need them when making any decision. Previous to the general implementation of this solution, a real trial was carried out in the water treatment and potabilization plant. One month later, the change of the former system for Wonderware solutions proved a success. Apart from giving PURAC Bioquímica all the expected production control benefits, it did not involve any traumatic change for the plant.

Benefits at all levels

Once the new automation system was set up, the advantages came soon, as Manuel Guil, enco System Integrator, points out: *“With Industrial Application Server it is easier to carry out schematizations and plant models to evaluate the production functioning. Moreover, with centralized information one has a more global view, which improves making decisions at all levels”*.

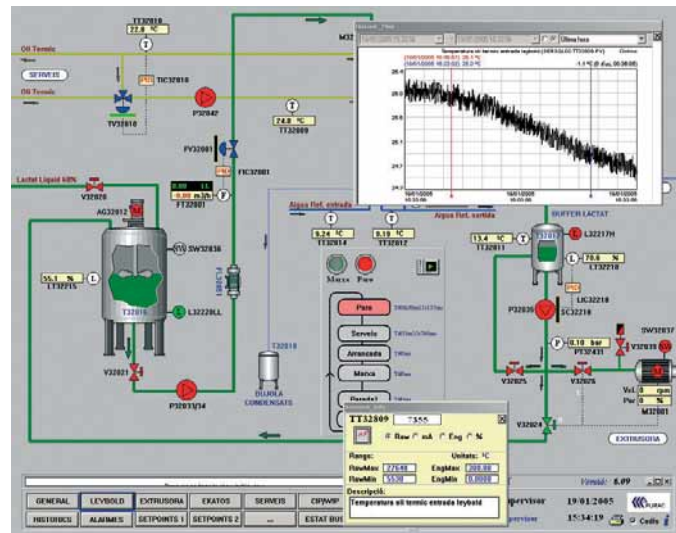
Together with these direct advantages on production effectiveness, the technical staff involved took advantage of the benefits of Industrial Application Server: *“The fact that Industrial Application Server is reusable allows reducing the required engineering time, therefore there is a decrease in the project cost. Furthermore, the Wonderware solution is a flexible and easy-to-maintain tool”*, Manuel Guil states.

Regarding InControl, the decision to use it was justified because, according to Guil, *“it is one of the most complete tools in the market and, as a part of Wonderware FactorySuite it offers total integration with Industrial Application Server and other software applications”*. Wonderware InTouch is chosen, according to the report by the technical staff, because *“it is the leader of SCADA’s*

on Windows, it is one of the most complete software packs in the market, it can easily integrate with InControl and because of its SQL database in real time”.

In practice, the benefits of using Wonderware involved a fast development, thanks to the possibilities of reusing its code and all the advantages involved in working with PCs: *“Nowadays, we have a wider view of production and a higher integration of information. Now that our factory is automatized with Wonderware solutions, it will be easier to communicate and analyse data.*

Now we are working on the security of the system, so it is more reliable”, says Narcís Sirvent. For Guil, the possibility of having a higher number of alarms or discovering problems that were difficult to learn about before, is a key factor. He also points out as one of the critical utilities the possibility of validation and planning that Wonderware offers in order to adapt to the standards in



HMI Windows visualization

industry. Once the project was developed, and to take full advantage of Wonderware solutions, both the engineers and workers took part in a training course on the product: *“We have done a training course at all levels to show the wide range of functionalities that Wonderware software has and the way they have to be used”*, Manuel Guil says, of enco. *“The workers appreciate its advantages since it makes their work easier and so do the technical staff, because now they have more and better tools to analyse the processes information. This affects the quality of production, and you can respond more efficiently to clients’ demands. It involves an important investment, but it is worth it”*, he concludes.

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