From detergent additives to feedstuffs, from laboratory batches of 100 grams up to campaigns of 10,000 tons – flexibility is one of the strengths of inprotec AG. The company develops and produces high-quality powders and granulates to customer specifications at three locations. It often takes less than six months from the initial idea, through the feasibility study, up to technical implementation.

The company has laboratory, pilot and production facilities with an annual production capacity of over 100,000 tons. inprotec AG manages the contract manufacturing process as an integrated service approach with a focus on customers and their products. Together, ideas are developed and then quickly and reliably realized based on the company’s wealth of experience.
In addition to its headquarters in Heitersheim, Baden-Württemberg, inprotec also operates plants in Leverkusen and Genthin. The multi-purpose facilities, spray granulators and spray drying towers are specially adapted for the specific contract manufacturing task – and optimally matched to the corresponding product by the in-house workshops. As the head of the „Electrical, instrumentation and control systems“ department, Uwe Kirschner is responsible for all of the electrical and electronic systems in the Genthin factory. He is also responsible for the control technology in both Genthin and Leverkusen. „Depending on the campaign, we change over our fluidized bed granulators five to six times a year,“ explains Mr. Kirschner. „Our trained personnel carry out all the necessary work – from converting the machine through the electrics up to the process control technology.“ Mr. Kirschner is responsible for planning, engineering and commissioning the entire automation.

Long tradition
Even before inprotec AG took over the Genthin site in 2009, the SIMATIC PCS 7 process control system from Siemens was used to control and monitor the granulators. It was introduced as early as 2001 by the owner of the factory at that time, the Henkel Group. With the takeover, the automation systems were systematically expanded, based on Siemens technology. Mr. Kirschner accompanied the individual steps from the beginning: „We started with SIMATIC S5 controllers and version 5.1 of SIMATIC PCS 7. Now we have redundant OS servers, a web and a process historian server as well as eleven clients in Genthin.“ The entire production, including energy management, is now integrated into SIMATIC PCS 7. Thanks to the redundant OS servers, controller programs can be modified without incurring any standstill. „And with the current order situation, we also cannot afford interruptions,“ adds Mr. Kirschner.

Efficiency is just as important as flexibility in contract manufacturing. The Genthin and Leverkusen factories are therefore always kept at the same version level with regard to process control. „This significantly simplifies planning at both plants, especially when taking into consideration the frequent conversions,“ explains Mr. Kirschner. The standard „Advanced Process Library (APL)“, introduced with version 7 of the Siemens process control system, also ensures efficient engineering and operation. With regard to automation technology, each inprotec plant is implemented using this block library. Standardized software functions are available for all process engineering tasks. These function blocks facilitate easy and reliable engineering, and
form the basis for uniform process control and visualization across all sites. Especially when it comes to the flexibility demanded and the frequent campaign changes, this form of standardization is an important lever to achieve a high efficiency – and a factor that contributes to implementing customer requirements in a short period of time.

At the individual sites, powders or granulates are manufactured from solid, liquid, paste-like or dusty raw materials – either continuously or batch-wise using various methods. The properties of the end products depend on the methods used. To obtain an optimal yield at the highest product quality, the plant operators monitor and control the processes using Siemens control technology. Thanks to regularly performed system updates, inprotec AG benefits from new possibilities. “Since version 8.2, we have been using trend curves, which can be called up directly from the process image for each measuring point. Based on these the trend curves, our plant operators can derive the the next process sequences at any time and, if necessary, proactively adjust it by hand,” states an appreciative Mr. Kirschner. This function is used by the operators just as much as the commenting function, which allows notes to be entered across shifts directly at the measuring point.

Remote access for a higher degree of versatility

Genthin and Leverkusen are a good four and a half hours’ drive apart. From there, it is another four and a half hours to the headquarters in Heitersheim. It is therefore no surprise that Dr. Andreas Baranyai, one of the board members of inprotec AG, made a strong commitment in 2015 to the concept of remotely accessing the production facilities. Dr. Baranyai, responsible for production, technology and marketing, likes to be informed at all times about the status of the individual plants – despite the long distances involved. The ideal solution for remote access was found in the management platform for remote networks, SINEMA Remote Connect from Siemens. „We were positively surprised at how lean the system is. We have installed one SCALANCE router into each facility as VPN client, and set up the SINEMA Remote Connect server application here in Genthin,“ explains Mr. Kirschner. „Within a very short period of time, I was able to configure and test the entire system with the help of the regional Siemens support."

SINEMA Remote Connect manages the (VPN) tunnel connections between the server and the installed plants. Instead of establishing direct access to the plant network, the system employs a neutral control center: The user and the production plant to be maintained separately establish a connection to SINEMA Remote Connect. By exchanging security certificates, the identities are checked there and only then is the remote access connection established.

The connection to SINEMA Remote Connect can take place via mobile communications, DSL or within private network structures. The production facilities in Genthin and Leverkusen are each connected to the local SCALANCE S615 routers via internal ports. The routers establish the VPN connection to the server application via the external WAN port. The S615 routers with enhanced security functions are specifically designed for use in industrial automation environments, while also providing security functions from the office and IT worlds – such as a firewall or NAT. VPN standards such as OpenVPN or IPsec with tap-proof and takeover-proof encryption up to 4096 bits ensure the necessary data transmission security.

Using SINEMA Remote Connect, plant data can be retrieved at any time on multiple tablets using secure VPN connections.
Secure remote access to the production facilities of all sites can now also be realized using mobile tablets with different operating systems – provided the user possesses the appropriate authorization level. „Dr. Baranyai is very often on business trips, but at the same time needs constant access to current process screens. With his in-depth technical and process knowledge, he immediately sees whether everything is running properly,” states Mr. Kirschner. „I use the remote access for configuring the process control, while the test supervisors in Heitersheim use it to track whether everything is OK in the laboratory in Leverkusen. And all of this can be implemented without the time and costs of having to physically go there.“

With this remote access solution, inprotec AG not only saves valuable time and reduces the impact on the environment, but also benefits from flexible access options to plant data. In conjunction with the advantages of the cross-plant standardization for configuration, operation and diagnosis with the SIMATIC PCS 7 process control system, inprotec AG is in an excellent position for future contract manufacturing orders.

Security information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept. For more information about industrial security, please visit http://www.siemens.com/industrialsecurity

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