



**SIEMENS**

# Greater efficiency through modular production

Today, plants that produce fine and specialty chemicals require more flexibility than ever before. To meet this need, Evonik Operations GmbH in Hanau, Germany, is relying on Siemens' new Simatic PCS neo process control system and the concept of modular production.

"Generally speaking, we're seeing a clear trend in the market toward shorter innovation cycles and more specific adaptations of product portfolios. This also applies to our plant. That's why we wanted to implement a plant concept that would allow us to quickly and easily prepare and expand plant sections for a new test," says Stefan Handel, Project Manager at Evonik.

## A flexible DCS to meet diverse needs

The prerequisite for this modular approach is standardized, cross-vendor interfaces, which guarantee the efficient configuration, communication, and integration of modular plants. An interface of this type is defined in the Module Type Package (MTP). This protocol defines the information technology aspect of process modules or plant sections in such a way that they can easily be integrated into a comprehensive automation solution.

"MTP enables us to structure sections in the plant as modules with their own intelligence. The intelligent modules are combined in an overall process and managed, monitored, and controlled in the central control system, which allows us to configure our processes even more flexibly," says Handel.

## Plug in, set up, go

To implement this modular concept, Evonik is relying on MTP technology and, among other things, on the web-based Simatic PCS neo process control system from Siemens. It already supports the concept of modular production with MTP technology and convinces with its flexibility. Plant sections can be connected with just a few clicks and a minimum of mechanical modifications: Plug in, set the parameters, and go.

## Module for future-oriented production

According to Handel, there was another important factor in Evonik's choice of the new process control system: "We also want our plant to be a pioneer of innovation that promotes digitalization and Industry 4.0. As a web-based system in HTML, Simatic PCS neo provides the ideal foundation. For

example, we can visualize and access systems with no need for local client installations."

## Comprehensive modernization

Before the new control system could be commissioned, the existing SCADA system had to be completely replaced. The Siemens experts did this by revising the existing plant screens and optimizing the control loops by changing from single to cascade control. In addition, the plant and terminal buses were supplemented with new Scalance switches, and the automation systems, communication modules, and interfaces were updated with the latest firmware.

As a system platform, Simatic PCS neo uses the CPU AS410 and nine Siemens industry PCs, with three clients installed on virtual machines. The "zero installation clients" were set up without much effort. Once connected to the domains and with the browser installed, they provide direct access to the system. Simatic Virtualization as a Service (SiVaaS) also makes it easier to configure the server, create virtual clients, and install and configure the operating systems.

## More options in plant operation

In February 2020, just three months after the project was launched, the first modernized plant section began production on schedule. The other plants have been converted since that time. Handel sees this as a total success. "Simatic PCS neo offers all kinds of new

functions that make administering the process control system much easier than it used to be. All user information is stored centrally. We can service the plants centrally and also have a complete inventory of installed hardware and software components.”

The web-based control system also offers more transparency in operation. The Simatic PCS neo Process Historian enables long-term archiving of all the process data. Daily reports for each plant section and for the plant as a whole can be generated easily and automatically in Simatic PCS neo.

### Simpler engineering

The replacement of the current SCADA system in the polymer plant with Simatic PCS neo makes the plant’s systems fit for the future. In addition, this new technology also supports Handel’s team in their day-to-day work,

as they can now react quickly and flexibly to changing framework conditions in day-to-day business.

“Simatic PCS neo allows multiple users worldwide to work on a project simultaneously, allowing them to parallelize engineering and efficiently commission individual plant sections,” says Handel. “Compared with the previous solution, a modular plant can be configured much faster. That saves us a lot of time!”

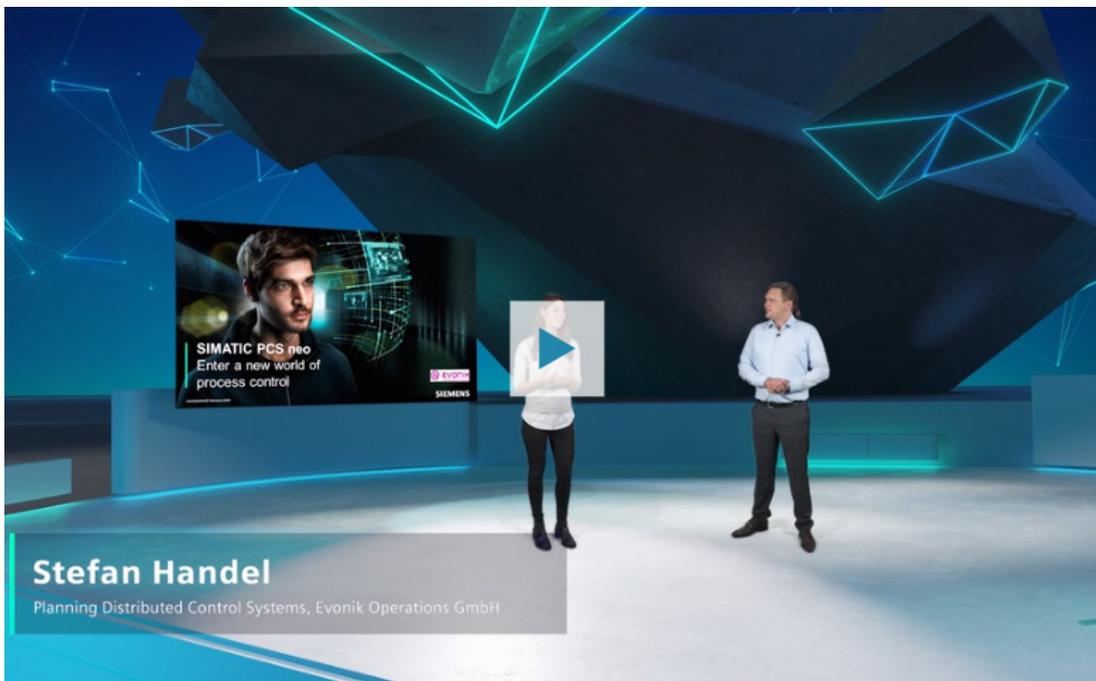
### Plant in the Wolfgang Industrial Park

Even before its modernization, Evonik’s plant in the Wolfgang Industrial Park was already designed for flexibility. For example, synthesis processes developed in the lab can be optimized here and subsequently produced in large-scale plants. In addition, initial batches of new product samples can also be represented on a scale up to one ton.

A total of nine plant sections are available in the plant. Six of these have a similar design. They make it possible to conduct different reactions for test and model representations in a reaction vessel with an adapted stirring geometry using cascade-controlled temperature control of the jacket and internal temperatures. The other three plant sections provide the infrastructure and more process steps.

### About Evonik AG

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €13.1 billion and an operating profit (adjusted EBITDA) of €2.15 billion in 2019. Evonik goes far beyond chemistry to create innovative, profitable, and sustainable solutions for customers. More than 32,000 employees work together for a common purpose: Improving life, today and tomorrow.



Click the box to hear more about the experiences of the first project with the new process control system Simatic PCS neo at Evonik (recorded at the virtual SPS Dialog 2020 on November 26, 2020).

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