

## Virtual simulation and testing for smooth commissioning

Creating a virtual environment to simulate real-world commissioning helps keep actual plant commissioning and start-up on schedule and reduces the need for engineering resources' presence onsite. This was recently proven with one of the most detailed simulations ever done by GEA.

During commissioning and start-up, a plant, that before existed only in the form of process descriptions, flow charts and other engineering documents, becomes reality and is expected to successfully start production. However, this is not always how it goes especially for large process plants where commissioning can be quite long and challenging and it is precisely in such case that virtual commissioning is useful to help identify and proactively reduce potential risks and thereby ensure a shorter overall commissioning time.

“Extensive simulation done during virtual commissioning allows us to collect a wealth of useful information about how the plant will function, and at no risk at all,” says Dr. Jörg Becker, Process Engineer Distillation & Fermentation.

This is one of the reasons that led engineers in APC Chemical together with PTC Separation to carry out detailed simulation on a complex distillation plant in Austria earlier this year. The result was a very smooth commissioning and shorter time spent on-site.



View of the distillation plant located in Austria

### Creating a detailed digital copy with WinMOD

WinMod is the system platform used to program the virtual distillation plant. For this project, a detailed digital copy of the plant was reproduced with realistic dynamic calculation of flow, heat, mass

transfer rates, separation of substances etc. Main equipment like distillation columns and compressor were also incorporated in the simulation to test different and multiple scenarios.

With the “digital twin copy” of the plant, commissioning was done in a record two months compared to the average three to four months required for a plant of this size and complexity. As a result, not only was the client able to meet his objective of quickly starting-up production but was also able to begin early training of operators in the virtual plant environment.

“It’s definitely a win - win solution for both GEA and the client that we will be developing further,” says Jörg Becker adding that the automation and process engineers on the Austrian distillation plant project are already very keen to renew this experience on other future, even smaller projects.

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