



## PAC

### Process Analytical Chemistry - Data Acquisition and Data Processing

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| <b>Main location</b>   | Linz (Upper Austria)  |
| <b>Other locations</b> | Kundl (Tirol), Salzburg, Lenzing (Upper Austria), Krems (Lower Austria), Vienna   |
| <b>Thematic field</b>  | Gaining valid chemical information directly from the process streams of chemical and biochemical industry, inline and in real-time. |

#### Success story summary

##### Live-stream from the Tall-oil distillation

In the chemical process of tall oil distillation it is important to be able to precisely monitor the process in order to optimize the parameters so that an economic process management is possible. Previously at least three samples from the process were measured daily in the laboratory. If something goes wrong and it is too late recognized are the process quality and economical targets at risk. The developed and in the process implemented inline-monitoring system using infrared spectroscopy provides continuous flow of critical process parameters: it is therefore possible to reduce the laboratory analyzes and the general safety factors are greatly increased!

#### Success story

The employees at the tall oil distillation process of company Kemira in Krems feel as if they had won in a lottery: they have less tedious tasks to manage and have gained better control of the process! This might sound suspicious, but scientists in the PAC-Network have shown the reliability of the output of the infrared spectroscopy combined with the automated analytic methods. Previously it was necessary, in order to efficiently control the tall oil distillation process, to take samples a couple of times a day. The samples were prepared and analyzed in the laboratory - meanwhile the operator could only wait and hope that the product was as good as expected.

The special challenge is the delay of up to three hours between taking the samples and getting the results from the laboratory! During this time the distillation process continued of course. And so, also if laboratory results showed that the sample was good, it wasn't easy for the operators: they always needed to think of all possible scenarios for cases if something had happened after taking the sample.

Now the process control is much easier. The operator only needs to look at the display to see the real-time status of all crucial process parameters. In case changes in the process take place, the operators can rapidly recognize the problem and steer the process towards optimum. As a result, the energy costs are reduced, product quality is secured and yield increased – a benefit for the company, for customers and also for the environment.

#### Impact and effects

Increased control of the process using inline process monitoring. With the rapid identification of potential problems during the distillation it's possible to take actions quickly and to avoid long lasting production errors.

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