

# INSPEC

## Integrating Sensor Based Process Monitoring and Advanced Process Control



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### Objective

INSPEC quantitatively integrates information from state-of-the-art Process Analytical Technology, process measurements and dynamic process models (data driven or physics-based) into Advanced Process Control. This will induce a step-change with respect to process controllability and enables operation in a more energy efficient regime, while reducing off-spec production.

**Increasing production efficiency** of (bio)chemical industrial plants, by minimizing the product variability and the consumption of raw material and energy.

### Deliverable

INSPEC will deliver dedicated **advanced process control and monitoring solutions** in the shape of public software. Both scientific and industrial communities will thereby be able to implement the developed methodologies in their processes.

### Status

Case studies have been selected for each industrial partner and data for those case studies has been collected. Currently, the academic partners are **developing statistical and dynamic models** for the case studies, and are looking for ways to practically integrate them.

### Motivation

Industrial processes have to deal with many exogenous **sources of variability**, such as variations in raw material, operators or the weather. Because of this they are operated within **overly conservative control regimes**, leading to a waste of raw material and energy without improving the quality of the product.

The fields of **chemometrics** and **control systems engineering** collaborate in INSPEC to **integrate statistical and dynamic models** to allow for a more efficient use of first-principle knowledge and data from process parameters, product quality and process analytical technology (PAT).

