

DATA ANALYTICS AND SOFT SENSORS FOR SINGLE USE BIOPROCESSING

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In the last decades, innovative research and engineering brought birth to a plethora of robust and mature process analytical devices. Nowadays, the possibilities to extract chemical-, physical- and biological data from single use processes are manifold and a great quantity of process data is collected on a routine basis. However, novel challenges in the field of data processing and information mining emerged: How can the maximum information content be extracted from the combination of process analyzers? How can big process data be handled and exploited efficiently? And ultimately: How can this information be translated in a business benefit for the manufacturers?

Here, we demonstrate how these challenges can be addressed within the bioprocess lifecycle using innovative mechanistic methods. We present i) novel non-invasive soft sensors for real-time monitoring of single use processes, ii) information mining and process analysis based on the combination of mechanistic models and statistical tools and iii) efficient and scalable process control strategies.

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