Clariant Chemistry Day Basel 2018
Poster abstract

Data Science @ Clariant for
SUSTAINABLE PRODUCTION OF SPECIALTY CHEMICALS

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Humanity currently sees itself facing enormous economic, ecological, and social challenges. Sustainable products and production in specialty chemistry are an important strategic element to address these megatrends. In addition to that, digitalization and global connectivity create new opportunities for the industry. The application of data science and simulation are major fields of activity in the digital transformation of the Data Science Team from Group Technology & Innovation of Clariant. One aspect in this context is the opportunity to apply data analysis, model based process control and automated performance monitoring to production related data for a more sustainable and economic production. A basis for these efforts are excellent sensor technologies, a smart control strategy and an evaluation of the benefit and the robustness of the system. A comprehensive toolset is applied ranging from data analytics, via process and chemistry modeling to real time optimization, control and monitoring. Depending on the technical situation, which can be seen as a maturity level, of the application area in focus the toolset is adopted. In case of new processes and products simulations are often the first step to gain insights in the process. So, yield and energy demand of a process can be evaluated in the design process. After the start-up of a plant process data analytics supports further optimization and can be developed up to an autonomous process monitoring system. The project approach, which is chosen by the team also follows a clear structure from data collection via analytics to the proposal of the final solution. Data science projects do not only end in data driven solutions like dashboards or advanced control systems. Often the results are new process designs, new apparatus designs or better product specifications.
All these efforts have significant impact on improved yields, reduced energy and water consumption and they lead to products fulfilling the needs of our customers.