

Tolerant Processes – Challenges and Answers to Fluctuating Markets and Raw Materials

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Against the backdrop of global changes regarding energy and raw material situation, chemical industry is facing novel challenges in existing and emerging markets. The commitment to sustainable products and processes calls for new dimensions in process innovation. A novel paradigm in process development is mandatory to balance time-to-market, process robustness as well as performance.

Bio-based chemistry as flexible answer to the changed raw material situation with seasonal dependent variables challenge process design regarding robustness of the process itself as well as the novel downstream situation (e.g. water stable catalysts). Process robustness in terms of flexibility in utilization of various feedstocks and renewable energies, both of fluctuating quantity, can be achieved through tolerant process design. Such overall efficient and sustainable processes are key for green chemistry, compared to dedicated and performance optimized design paradigms.

The Clariant sunliquid[®] process is a 2nd generation biofuel production process as well as an ideal platform for bio-based chemicals. It demonstrates how innovations in an interdisciplinary environment and tolerant process design enable green chemistry.

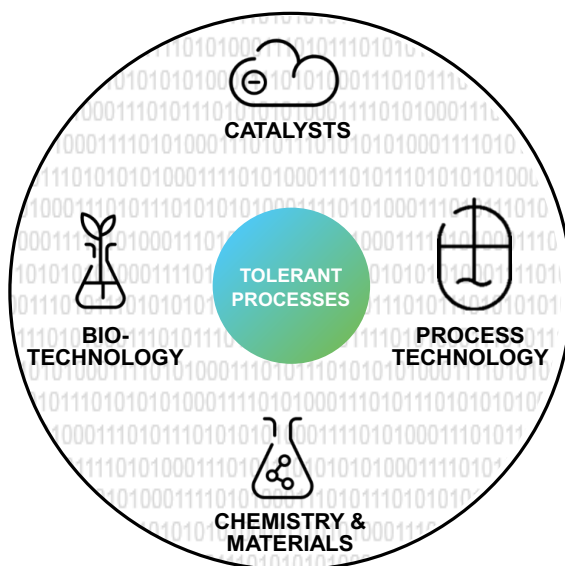


Fig. 1: Digitization, closed ranks between disciplines and tolerant processes enable green chemistry.