

## New Dimensions in Process Innovation as Enabler for Green Chemistry

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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 is an answer to changed raw material situation and market pull for green solutions. However, overall process design challenges like tolerance towards e.g. seasonal dependent variables, renewable fluctuating energies and novel downstream scenarios (e.g. water stable catalysts) demands answers. Robust process design requires comprehensive end-to-end approaches that balance between high performance and process reliability. Enablers such as high throughput experimentation, big data analysis and innovation project management are key success factors.

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 sustainable and green chemistry.

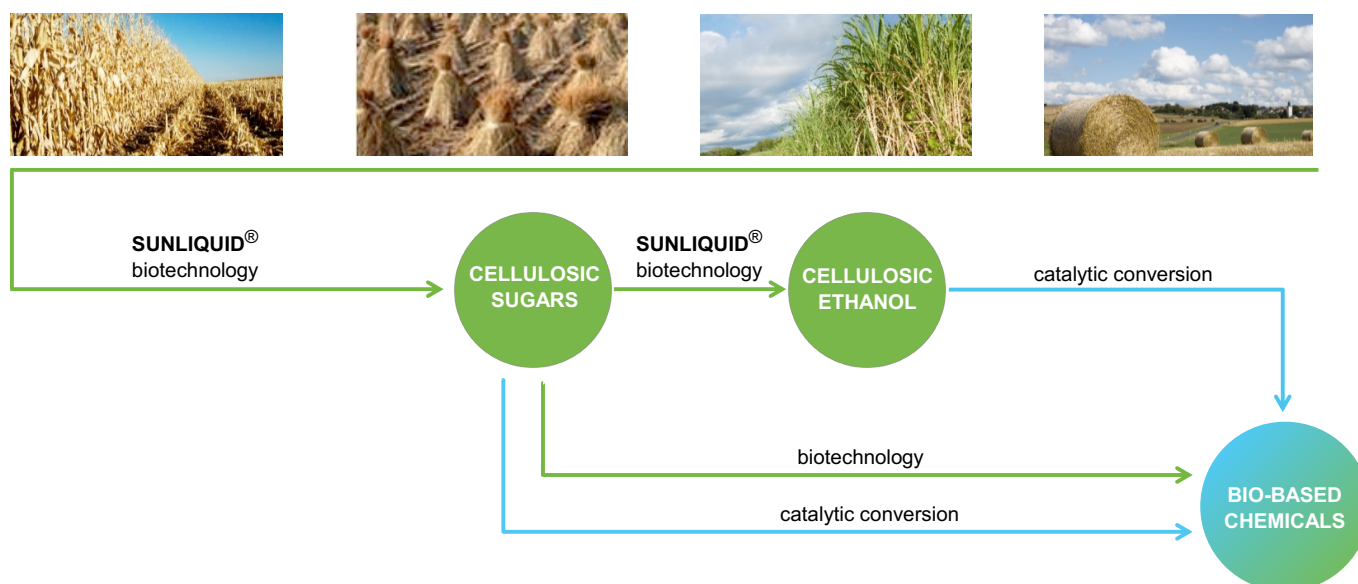


Fig. 1: Clariant sunliquid® process scheme.