

# High Throughput Experimentation in Chemo-Catalytic Valorization of Biomass-based Polyols to 1,6-Hexanediol

## Abstract Submission

### Session 6 “Polymer-based and Renewable Organics“

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The use of biochemicals as alternatives to petroleum-based products has attracted much attention over the last few years. This attractiveness stems from their classification as sustainable products supported by legislative incentives to promote their market penetration.

In recent years, the research focusing on tailored valorization schemes of non-food biomass has increased significantly. Especially lignocellulosic materials alongside algae and animal fat present a sustainable and abundant carbon source to produce platform chemicals.

The development of new processes to convert bio feedstocks into drop-in biochemicals with a short time to market requires efficient R&D tools. High throughput experimentation (HTE), i.e. the ‘many at once’ approach, has proven a valuable tool for accelerating traditional chemical and biochemical R&D

In this poster, we illustrate the added value of high throughput experimentation for the development of new catalytic processes for biochemicals. The given case study describes the conversion of C5/C6 polyols derived from biomass intermediates (e.g. sugars and HMF) towards 1,6-hexanediol, a monomer for polyamide 6.6 known as Nylon. The whole development cycle is presented, from catalyst synthesis and upscaling, mechanistic and kinetic studies to process optimization and feedstock screening, including detailed catalyst characterization and product analytics.