

Accelerating the Transition to a Circular Economy with High-Throughput Technologies

Abstract Submission

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Nowadays, our economies and industries are heavily dependent on limited, fossil-based resources that do not contribute to a circular economy. In these contexts, a tremendous effort is required to shift the gear towards more sustainable and renewable resources.

Many governments and companies have taken the initiative to integrate circular economy in their politics and regulation and still more companies join the trend. To facilitate the movement toward circular economy and waste recycling, high throughput technology offers a rapid and precise tool to: 1) develop new sustainable processes, 2) enable the transition of existing processes to reduce waste production and increase process efficiency and flexibility, 3) enable the utilization of renewable resources, 4) and enable the recycling of process wastes into exciting value chains.

In this poster, we show 4 successful examples of implementing hte's technologies in supporting our client in their journey towards circular economy. The first example will cover hte's capability in process development towards bio-based monomer from sugar-based intermediates. This includes catalysts synthesis, moving from batch to continuous process and process scaling up. In the second examples, we present a show case of the transition of oil to bio-refinery using a high-throughput trickle bed unit. The third example will cover the utilization of renewable resources such as CO₂ and the synthesis of green Methanol from CO₂ and renewable H₂. Finally, we present our technology in plastic upcycling and its conversion to fuels and chemicals.