

Process Development for the Production of Biobutanol from Cellulosic Biomass

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Biobutanol has recently attracted great attention (as transportation fuel) because of its unique properties (such as high energy density, low higroscopicity, low vapor pressure, low corrosiveness etc.) over other biofuels. Similar to ethanol, it is a biomass based renewable fuel that can be produced via fermentation of sugars, starches, and lignocelluloses obtained from agricultural feedstocks. However, its current production from *Clostridium acetobutylicum* is not economically feasible, as the toxicity of butanol ultimately limits the overall production in bioreactors. An engineered design of an industrial processing plant that will produce butanol is required to make fermentation with *C. acetobutylicum* a more attractive means of biofuel production.

Computer-aided process simulation, as a major tool in process engineering to scale up experimental results and provide meaningful predictions on the performance of manufacturing plants, has been adopted in the development of biobutanol production processes. Hence, this work focuses on the simulation of a complete process for producing butanol from cellulosic biomass.