

Biomass Based Platform Chemical - Promising Value Chains and Major Challenges

R. Palkovits

Institute of Technical und Macromolecular Chemistry, RWTH Aachen, Germany

Abstract

Renewable carbon feedstocks such as biomass and CO₂ present an important element of future circular economy. Especially biomass as highly functionalized feedstock provides manifold opportunities for the transformation into attractive platform chemicals. However, these resources require novel paradigms in process design. Fossil feedstocks are processed in stationary gas-phase processes at elevated temperature. On the contrary, biorefineries are based on processes in polar solvents at moderate conditions to selectively deoxygenate the polar, often thermally instable and high-boiling molecules. Considering “green electrons” provided by renewable energy technologies, also dynamic (electro)catalytic processes become attractive as key technology of a throughout circular economy. Herein, selected value chains via biogenic platform chemicals will be discussed with major emphasis on the valorization of biogenic carboxylic acids by heterogeneous catalysis and electrochemistry.

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