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Recycling Biowaste and Residuals into Chemical Products

ABSTRACT

The shift from fossil fuels to renewable carbon sources is not only a technical challenge for the chemical industry, but also raises the question of future raw material availability. Primary biomass from agriculture and forestry already contributes to the supply of raw materials for the chemical industry, but it is foreseeable that primary biomass will be limited in the long term due to demand for food and feed, energy production, and industrial uses. For this reason, biogenic residues, waste, recycled materials, and CO₂ are attracting increasing attention. Processes for their utilization are currently being developed and piloted. These potential raw materials are suitable to varying degrees for different classes of chemical products (bulk, specialty, and fine chemicals). They require specific production systems in companies that can rely on adapted public infrastructure, e.g., in terms of logistics and energy supply.

The presentation will outline the current status of the raw materials transition in the chemical industry, the options for non-fossil carbon sources, and examples of the product and process pipeline. Finally, the conditions for an economically and ecologically successful raw materials transition in the chemical industry will be discussed.