Separation Needs for Producing Bio-Based Fuels and Chemicals in the Emerging Biorefining Industry

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Abstract

Ambitious national goals to reduce oil consumption are leading to increased research on technologies that convert lignocellulosic biomass (i.e., plant materials like wood, grasses and agricultural residues) to fuels and chemicals. One technology option uses a combination of inorganic and organic catalysts to break down the polymeric components of biomass into sugars that are then converted by microbes into fuels and chemicals. To efficiently use all of the various compounds present in lignocellulosic biomass may require producing of a suite of products, a process known as biorefining. The challenge is to cost-effectively recover the various compounds and products in lignocellulosic biomass slurries containing highly porous solids. Various process schemes requiring solid-liquid separation equipment will be discussed along with associated challenges unique to handling lignocellulosic biomass.