

COMPARATIVE SYSTEMS ANALYSIS OF THERMOCHEMICAL AND BIOCHEMICAL RECYCLING OF ORGANIC WASTE TOWARDS INDUSTRIAL FEED-STOCKS

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Abstract

Pyrolysis and gasification as well as anaerobic fermentation can be used to transform organic waste into secondary raw materials. Gaseous and slurry intermediates are further processed, e.g. via Fischer-Tropsch-Synthesis to provide a variety of compounds that may serve as base chemicals to produce either fuels or polymers. In particular the routes towards synthetic materials are predestined to allow a closer cycle of materials and reduce dependence on either fossil or biobased raw materials. The work attempts to analyze the efficiency of these routes with regard to "carbon capture" and the system-wide environmental impacts as well as technological and economic implications.