

BIOMASS TO CHEMICALS PROCESS DEVELOPMENT “AN IFPEN VISION”

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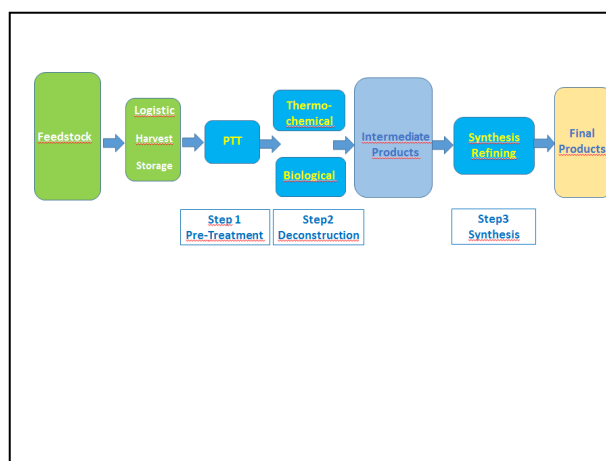
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This presentation proposes an IFPEN vision of the development of bio-based intermediate chemicals initially based on the background acquired to develop processes to produce 2nd generation biofuels from biomass. The production schemes can be classified according to two main approaches.

Thermochemical pathways through a direct liquefaction of the biomass using processes with or without hydrogen, with or without catalyst, and with, in some cases, the use of subcritical or supercritical water or organic solvents or through indirect liquefaction with the production of syngas (CO+H₂) with a dedicated gasification process, followed by conversion of this syngas, such as through the Fischer-Tropsch synthesis or MeOH synthesis. Most of these processes are well adapted to biomass conversion but they can also potentially treat other feedstock such as municipal or industrial organic wastes.

Biologic pathways based first on an enzymatic hydrolysis step followed by a fermentation step to produce alcohols, or even to directly produce olefins, that can be used as chemical intermediate bases. In addition there are other pathways, usually falling under the “biotech” denomination, based on the biological/biochemical conversion of sugar extracted from lignocellulose to produce platform molecules for the chemical industry.

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Overall conversion and synthesis/refining pathway