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Modelling and Simulation of Biomass Pyrolysis

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Abstract : There is a concern over the energy shortage in the modern societies as it is one of the primary necessities. Renewable energy, mainly biomass, is found to be one feasible solution as it is inexhaustible and clean energy source all over the world. Out of various methods, thermo chemical conversion is considered to be the most common and convenient method to extract energy from biomass. The thermo-chemical methods that are employed are gasification, liquefaction and combustion. On gasification biomass yields biogas, on liquefaction biomass yields bio-oil and on combustion biomass yields bio-char. Any attempt to biomass gasification, liquefaction or combustion calls for a good understanding of biomass pyrolysis. So, Irrespective of the method used the first step towards the thermo-chemical treatment of biomass is pyrolysis. Pyrolysis mainly converts the solid mass into liquid with gas and residual char as the byproducts. Liquid is used for the production of heat, power and many other chemicals whereas the gas and char can be used as fuels to generate heat.

Keywords : biomass, fluidisation, pyrolysis, simulation
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