

热化学过程中生物电能的生产

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摘要

目前, 生物能被视为在未来有潜力提供大部分可再生能源的储备, 它可以以气体、液体或固体燃料形式提供生物燃料或者用于发电和供热。有三种主要的提供生物能的途径, 即热转换、生物转换和物理转换, 这些方法都需要配置和设计各种各样的化学反应器。文章重点研究能高效、低成本、高度通用地提供大量能量、燃料和化学产品的热化学转换过程。特别研究和讨论了所谓的气化和快速热解技术, 其主要产品可以是气体、液体或固体燃料, 而其副产品则是电能和/或热能、液体燃料及大量的化学品。文章还对阻碍不同技术的市场配置的主要技术性和非技术性壁垒进行了概述。

关键词 [热化学过程](#); [生物能](#); [快速热解](#)

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Power Generation from Biomass by Thermochemical Processes

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Abstract

Bioenergy is now accepted as having the potential to provide the major part of the projected renewable energy provisions of the future as biofuels in the form of gas, liquid or solid fuels or electricity and heat. There are three main routes to providing these biofuels—thermal conversion, biological conversion and physical conversion — all of which employ a range of chemical reactor configurations and designs. This paper focuses on thermochemical conversion processes for their higher efficiencies, lower costs and greater versatility in providing a wide range of energy, fuel and chemical options. In particular the so-called advanced technologies of gasification and fast pyrolysis are described and discussed. The primary products that can be derived as gas, liquid and solid fuels are characterised, as well as the secondary products of electricity and/or heat, liquid fuels and a considerable number of chemicals. The main technical and non-technical barriers to the market deployment of the various technologies are summarised.

Key words [thermochemical processes](#); [bio-energy](#); [fast pyrolysis](#)

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