

The potential for gasification and pyrolysis of biomass

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2pm (NZST), Tues 8th Feb 2022
9am (AWST) | 11.00am (AEST) | 12noon (AEDT)

Biomass gasification and pyrolysis are processes by which biomass can be converted into value added products, therefore utilising forest-related residues and mitigating polluting bio-based waste disposal strategies whilst simultaneously generating useful products such as biofuels, biochar, syngas, electricity, heat, and biochemicals.

Biomass gasification allows the conversion of different biomass feedstocks to a more convenient gaseous fuel that can then be used in conventional equipment (e.g., boilers, engines, and turbines) or in synthesis of biofuels and hydrogen for advanced equipment (e.g., fuel cells). The conversion to a gaseous fuel provides a wider choice of technologies for heat and electricity generation for small- to large-scale applications. Furthermore, electricity generation from gaseous fuels is likely to be more efficient and cleaner compared to the direct combustion of solid fuels. Efficiency is a particularly important issue for biomass systems because of the possible energy and cost implications of the production and transport of biomass fuels, which are generally characterised by a low energy density and complex composition.

The upgrading of biomass feedstocks to gaseous fuels is also likely to lead to a cleaner conversion. In addition to the production of heat and electricity, the product gas could be used to produce transport fuels, such as synthetic diesel or hydrogen.

Biomass pyrolysis is the thermal decomposition of biomass occurring in the absence of oxygen. Pyrolysis offers a flexible and attractive way of converting solid biomass into an easily stored and transported liquid or solid bio-char, which can be successfully used for the production of heat, power and biochemicals.

This webinar will provide an update on world-wide applications of these two technologies, mitigation of challenges in the applications and the transferability of this concept into the New Zealand and Australian context.

The Bioenergy Association invites anyone interested in how gasification and pyrolysis technologies can contribute to a sustainable and circular bioeconomy in New Zealand to attend this webinar.



Dr Shusheng Pang is a professor in the Department of Chemical and Process Engineering, and Director of Wood Technology Research Centre, University of Canterbury, New Zealand. In past 20 years, he has led a number of R&D projects on biomass thermochemical conversion technologies for production of heat and power, liquid fuels, gaseous fuel and hydrogen.

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