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Pretreatment Techniques for Biofuels and Biorefineries

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Chapter 17
Pre-treatment of Malaysian Agricultural Wastes Toward Biofuel Production

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Abstract Various renewable energy technologies are under considerable interest due to the projected depletion of our primary sources of energy and global warming associated with their utilizations. One of the alternatives under focus is renewable fuels produced from agricultural wastes. Malaysia, being one of the largest producers of palm oil, generates abundant agricultural wastes such as fibers, shells, fronds, and trunks with the potential to be converted to biofuels. However, prior to conversion of these materials to useful products, pre-treatment of biomass is essential as it influences the energy utilization in the conversion process and feedstock quality. This chapter focuses on pre-treatment technology of palm-based agriculture waste prior to conversion to solid, liquid, and gas fuel. Pre-treatment methods can be classified into physical, thermal, biological, and chemicals or any combination of these methods. Selecting the most suitable pre-treatment method could be very challenging due to complexities of biomass properties. Physical treatment involves grinding and sieving of biomass into various particle sizes whereas thermal treatment consists of pyrolysis

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