

A study on size reduction of eucalyptus bark from the processing industry for producing biomass pellets

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Abstrak

Recently, there was an increase in demand of biomass pellets as an alternative energy source. However, it is necessary to reduce the size of granular materials during the pelleting process. The size reduction of eucalyptus bark occurs in the industrial processing of biomass pellets production, using a hammer mill together with three sieve sizes of 3, 4, and 5 mm and the sieve speeds of 900, 1000, 1100, and 1200 rpm, respectively, which have been examined at a feed rate of 80 kg/h. The aims of this study were to determine the important parameters, namely rotational speed, to determine suitable sieve size for reducing the size of eucalyptus bark, and to analyze energy usage in the size reduction process by using a hammer mill. The results have shown that using a 5 mm sieve size at 900 rpm sieve speed resulted in the best operating conditions in order to offer the highest capacity and lowest specific energy consumption. Moreover, the average particle size of 0.15 mm was an acceptable value. This study could be very beneficial in the development process to produce biomass pellets.