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.