

Performance Test of Prime Biomass Stove with Fan

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ABSTRACT

LPG is a stove fuel that comes from fossil energy. The dependence of fossil energy sources supposed to shift from fossil energy sources to renewable energy such as biomass stove. The utilization of biomass stove such as Prime is expected to scale down people's dependence to LPG. Current Prime Biomass Stove is not being equipped with fan. This study examines the performance of Prime Biomass Stove with fan to supply the combustion air. This study is proposed to determine additional air supply impact to fuel demand, combustion time and efficiency on Prime biomass stove's. 500 grams of mahogany wood was being used as firing supply. In this study, four conditions with air speed supply of 4 m/s, 6 m/s, and 8 m/s were tested. The study shows that 4 m/s air speed results 16,26 % efficiency with 130 grams of mahogany as firing for warm up time 7:1 minute. 6 m/s air speed results 14% efficiency with 184 grams of mahogany wood as firing for 5:06 minute, while 8 m/s air speed results 13.21 % efficiency with 220 grams of mahogany wood as firing for 4:4 minute. The results showed that the faster the air supply speed, the lower the efficiency of the stove. The faster the air supply speed, the more the fuel consumption.

Key words: efficiency, biomass stove, air supply.