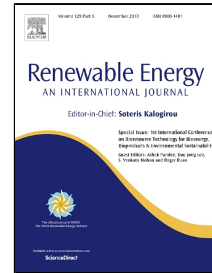


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Performance and Economic Analysis of Natural Convection based Rubber Smoking Room for Rubber Cooperatives in Thailand

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1 **Performance and Economic Analysis of Natural Convection based Rubber Smoking Room**
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17 **Abstract**

18 A modified rubber sheet smoking room was designed, constructed and tested, with uniform hot
19 air flow inside in it, so that the temperature difference between any plane was less than 7°C. This
20 room can dry up to 1500 sheets in 72 hours. Specific fuelwood consumption was 0.42 kg/kg of
21 dried rubber. It consumed 67% less fuelwood and increased the fraction of good quality rubber
22 sheets by 8.5% when compared to a conventional rubber smoking room. Thermal efficiency also
23 increased from 6.9% to 15.7%. Moreover, the modified smoking room can save 1,410 USD/year
24 with payback period of 5.7 years. Therefore, the modified design can be recommended to rubber
25 cooperatives for a better return.

26 **Keyword** Ribbed smoked sheet; Drying; Thermal efficiency; Economics; Payback period
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