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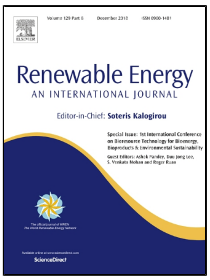

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Performance and Economic Analysis of Natural Convection based Rubber Smoking Room for Rubber Cooperatives in Thailand

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Abstract

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

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

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