



Agricultural Journals

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Res. Agr. Eng.

**Jevič P., Hutla P.,
Malat'ák J., Šedivá Z.:
Efficiency and gases
emissions with**

incineration of composite and one-component biofuel briquettes in room heater

Res. Agr. Eng., 53 (2007): 94-102

In accordance with the technical standard ČSN EN 13229 "Inset appliances for heating including open fires fired by solid fuels – Requirements and test methods" was performed the basic assessment of thermal efficiency and emission parameters of prototype of combustion accumulation stove SK-2 with upper after-burning and nominal heat output of 8 kW. Verified gradually were the bio-briquettes of diameter 65 mm from mixture of wheat straw and 20% m/m of brown coal, wheat straw and 5% m/m of brown coal, wheat straw, mixture of wheat straw and 10% m/m of water and molasses solution, Ecobiopal created with the fermented blend of 33% m/m of digested clean water plant sludge and 67% m/m of wood chopped material,

blend of wheat straw and 15% m/m of sugar beet pulp, mixture of timothy hay and 25% m/m of brown coal, timothy grass hay, meadow hay, mixture of meadow hay and 25% m/m of brown coal. The lowest CO emissions, when the limit value of $3000 \text{ mg/m}^3_{\text{N}}$ at 13% of O_2 has not been exceeded, determined for more strict 1st class and the highest efficiency at nominal heat performance, i.e. higher or equal to 70% (Class I) have been reached by the briquettes produced from mixture of wheat straw and 15% m/m of sugar beet pulp, timothy hay and mixture of meadow hay with addition of 25% m/m of brown coal. Further were measured NO_x and HCl emissions. NO_x values were significantly lower than limit values determined for similar combustion of solid biofuel. Higher differences of HCl emissions correlate with various Cl content in fuels. Only the wheat straw briquettes with share of 25% m/m of brown coal have exceeded the limit value by 16%. Other fuels have shown considerably lower values. The results