



INVESTIGATION OF SOLID BIOFUEL POWERED BOILERS – PERFORMANCE, EFFICIENCY AND EMISSIONS

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ABSTRACT

In all the European countries, as well in Lithuania, the residential heating with biofuel is applied using a variety of heating equipment: water-heating boilers, stoves, open and closed fireplaces and air heater. However, most of the devices are technically obsolete, but not being used for biofuels or just not properly equipped, so the heating system with the following devices do not perform and significantly increase environmental pollution.

These problems can be solved only by the gradual replacement of obsolete equipment with new ones, which meet modern efficiency and emissions requirements. The investigations were done with different types of boilers. They are made in Lithuania and operates on different principles show that making improvements with boiler's combustion chamber leads to a better situation of newly manufactured boilers. It has a positive impact on two main goals: to achieve the highest and economically based coefficient of efficiency and to minimize the emission of solid particles to the environment.

Keywords: Biomass, wood fuel, water boilers, efficiency, emissions