Performance and Emission Parameters Change of Small Heat Source Depending on the Moisture

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It is relatively complicated to effectively burn biomass. Combustion of biomass fuel itself as a renewable energy source does not automatically ensure the best use of its energy content with low emission production. Biomass combustion with bad settings of combustion conditions can be ineffective and with a high production of emissions. The article discusses the impact of humidity on the thermal technical parameters of the heat source. The influence of the relative humidity of combustion air and the fuel moisture on thermal power and emission production in automatic boiler for combustion of wood pellets were specifically determined. The results show that these properties of combustion air and biofuel have an effect on the thermal and emission parameters of biomass heat source. Biofuel moisture had higher impact on thermal power and emissions production in comparison with relative humidity of combustion air impact.

Keywords: Dendromass, Emissions, Fuel moisture, Air humidity

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