Comparison of the effect of torrefaction and hydrothermal carbonization on biomass properties

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Currently, one of the priority areas for the development of new methods of power supply is the elaboration of technologies for autonomous power supply of settlements. Energy utilization of waste, the main of which are wood and agricultural waste, solid municipal waste is a solution to the complex task of organizing local energy supply to settlements and eliminating accumulated environmental damage.

The study considers the effect of heat treatment on woodworking waste (sawdust) in order to improve their thermal properties, including hydrophobicity. Torrefaction and hydrothermal carbonization were used as heat treatment methods. Torrefaction is a type of pyrolysis that occurs at temperatures of 200-300 °C in an oxygen-free environment, while hydrothermal carbonization (called wet torrefaction) proceeds at temperatures from 180 to 280 °C in the presence of water and without access to air. The main task was to study the thermal characteristics of biocoals obtained as a result of heat treatment.

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