



Investigation of the properties of biochar obtained from poultry litter by dry and wet torrefaction

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The results of a study of wet torrefaction (WT) of poultry litter (PL) in a fluidized bed in a superheated water steam environment are compared with the results of a study of the process of dry torrefaction (DT) of PL in a fixed bed and in a fluidized bed in a nitrogen environment at 300 °C. The process of crushed PL particles fluidization was studied. The torrefaction technology does not affect the biochar characteristics: WT and DT in a fixed and a fluidized bed provides an increase of the carbon content in PL in 1.12 - 1.16 times and a decrease in oxygen content in 2.41 - 2.81 times. As a result of the heat treatment, the net calorific value of PL increases in 1.1 - 1.13 times. At the same time, torrefaction in a fluidized bed reduces the required processing time of PL by 4 times. Biochar after DT and WT can be used as biofuel, since its characteristics are close to lignite. A by-product of WT (superheated steam condensate) can be processed by anaerobic digestion for biogas production

