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STUDY OF GASEOUS PRODUCTS OF PLANT WASTE PYROLYSIS

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Fast pyrolysis referred to as a promising method of disposal of waste wood, food and agricultural industries, municipal solid waste with high content (50%) of organic matter. The efficiency of this process is determined and the pyrolysis temperature is dependent on the chemical composition of the raw material, its moisture, presence of oxygen, the catalyst and other conditions. As a result of pyrolysis receive gas and liquid energy, and solids, used as a fertilizer raw material for construction materials.

The purpose of research - a comparative analysis of the chemical composition of the gaseous products of different fast pyrolysis plant waste by using capillary gas chromatography method.

Materials and methods of research. Studies were conducted on the pyrolysis installation design Experimental Factory "Alexander" and FGBNU VIESH.

Pyrolysis subjected sawdust (pine), peat biomass of three varieties of winter rye straw, leaf litter and waste textiles. Fast pyrolysis was performed at 600 - 650 ° c for installation in a metal reactor and the quartz reactor docked with a fractionating column (length 50 cm with 7 cups for collecting liquid products, the column jacket was cooled with running water). The gaseous products were collected in containers politetraftalata. Organic components were analyzed on a quartz pyrolysis PLOT-politrimetilsililpropinom column (17m x 0.32 mm, df = 0.4 microns, 50 ° C, N_2, 15 cm / s), inorganic (H_2, O_2, N_2, CO) - by column of molecular sieves 5A (m 2 x 4 mm) column polysorb-1 (2 m x 4 mm) was measured CO_2 (40 ° C, No, thermal conductivity detector, J = 90 mA).

The results of research. The composition consisted of methane pyrolysis, saturated and unsaturated C_2 hydrocarbons (ethane, ethylene), C_3 (propane,

propylene); C_4 (butane izobutelen butene, cis-butene, trans-butene); H_2, CO, CO_2, O_2 and N_2.

Methane - the main component, the content ranges from 14 to 55% by weight. It depends on the variety and nature of the biomass. Alkanes of 2-3 times larger than the alkenes. The presence of metal has a positive effect on the formation of hydrocarbons and confirms the data on the effect of additives on the catalytic conversion of light hydrocarbons in a mechanical activation.