

Sorption properties of carbon waste pyrolysis product for biological wastewater treatment

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Abstract

© 2017 Institute of Thermomechanics CAS, v.v.i. Influence of pH, temperature and time of contact for adsorption of heavy metals are studied. Experiments on model solutions of heavy metals ions at 20 °C against constant pH value are provided. From the obtained data, isotherms of sorption are constructed and sorption size is calculated. Dependence of sorption extent of heavy-metal ions on volume of the past model solution is studied. Also, the influence of temperature and time on the sorption of heavy-metal ions is investigated. It is found that the adsorption time is 15 minutes for copper ions and 10 minutes for the iron and chromium ions. When the temperature rises to 60 °C, the time of sorption of heavy-metal ions is reduced insignificantly (on 5-10 min). According to the obtained results, the maximum degree of adsorption on iron ions (III) was 95.9 %. After passing through the sorbent model solution obtained in 4 dm³ volume, the degree of adsorption decreased to 50.9%.

Keywords

Heavy-metal ions, Pyrolysis, Silt rainfall, Sorbent, Waste

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