

AMMONIA NITROGEN REMOVAL IN A FILTRATION PROCESS BY ZEOLITE MODIFIED MANGANESE BED

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Summary

The paper presents research on using natural zeolite modified for cleaning municipal sewage thoroughly. The research was carried out in laboratory scale in system composed of Sequencing Batch Reactors and filter bed with zeolite modified with manganese ions. Synthetic sewage prepared on the basis of organic and mineral components was used for cleaning process. After biological treatment with activated sludge in the reactor, the sewage was directed to filtration column. Due to the fact that reactor was operating in cycles; the sewage was treated on the bed in portioned way and kept submerged. The research was carried out in a few stages: without regeneration of the bed, with periodic regeneration and cyclical after each cycle of SBR reactor operation. Obtained results of nitrogen, phosphorous and carbon compounds removal were verified on real sewage. For that purpose biologically treated sewage was directed in a continuous way to a filtration column from secondary settling tank of sewage treatment plant, regenerating bed with different methods after exhausting its catalytic properties. Verification showed great effectiveness of used configuration for removal ammonia nitrogen, carbon and phosphorous compound from sewage. Decrease in electrical conductivity of sewage and a slight increase of nitrate nitrogen concentration was observed. The research showed great effectiveness of proposed filtration configuration for sewage treatment and a possibility of bed regeneration with keeping its work effectiveness.