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EVALUATION OF POTENTIAL IMPACT OF INDUSTRIAL WASTEWATER TO BIOLOGICAL WASTEWATER TREATMENT PROCESSES

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Abstract

Biological processes are the cheapest methods for treating municipal as well as industrial wastewater. However, wastewater from different industries may contain pollutants which are inhibitory biological treatment processes. Reduction of wastewater treatment (WWT) efficiency may lead to increased loads of pollutants in the effluent. In order to maintain the efficiency of WWT processes or to identify the origin of inhibitory compounds, it is necessary to evaluate the impact of wastewater to wastewater treatment processes. Today, several methods are used for this purpose: ISO 8192 for assessing inhibition of oxygen consumption by activated sludge, ISO 9509 for assessing the inhibition of nitrification of activated sludge microorganisms, ISO 9888 for evaluating the aerobic biodegradability of organic compounds. However there are some processes that are not covered with the aforementioned methods and therefore complete impact cannot be found. In this study, methods for evaluation of the impact of industrial wastewater to biological phosphorous removal and denitrification processes were developed and tested. Combination of these five methods will give the basis to predict potential impact of wastewater to biological WWT as a whole.

Keywords

Industrial wastewater; Inhibition; Denitrificaton; Biological phosphorous removal