

DESIGN OF A MEAT PROCESSING WASTEWATER ANAEROBIC DIGESTER

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ABSTRACT

Wastewater treatment processes are dynamic due to the many parameter's variety, such as in fluid concentration and streams composition for different polluted and industrial discharged waters. Due to these wide values discrepancy, they can't be precisely controlled, and so, it is preferable to use mathematical models and simulations that are essential to describe, predict, and control the occurring processes in the industrial wastewater system. This study presents a model that describes the design procedure of an anaerobic digester performing activated sludge treatment for carbon removal, nitrification and denitrification reactions. This simple mathematical approach of the first order, has been successfully used to describe the biodegradation of organic matter comprises in wastewater derived from the meat processing industry in Albania. In this study, was carried out a detailed pre-treatment analysis using the specific coagulation process adding FeCl_3 agent, followed by the activated sludge treatment. The influent enters the digester with a BOD value of 2200 mg /l O_2 , but this rate is reduced during primary treatment before the influent passes through the biological treatment unit of the design considered plant. The permitted value of BOD should not be greater than 50 mg/l of O_2 in the out coming treated water. Digester simulation model was useful and was used to design the activated sludge process entirely.

Keywords: Slaughter wastewater, biodegradation, reactor design, COD, BOD_5