THE USE OF OXYGEN UTILIZATION RATE (OUR) IN MUNICIPAL WASTEWATER CHARACTERIZATION

By

NORFAZILAH BT ABD MANAN

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DECLARATION BY THE CANDIDATE

I Norfazilah bt Abd Manan (2002238757) confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

..... (25/10/04)

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ABSTRACT

Wastewater characterization constitutes the starting point before undertakings the designing process for wastewater treatment. Basically, wastewaters are contributed from various resources such as commercial, industrial and domestic. In this study, the municipal wastewater has been characterized in term of strength and treatability using 5-days Biochemical Oxygen Demand (BOD_5) and Chemical Oxygen Demand (COD). But, these two conventional methods are becoming to be questioned as their relevance in representing microbial processes in wastewater. Oxygen Utilization Rate (OUR) is now being promoted as an alternative tool to characterize the wastewater. This study apply the OUR method to characterized municipal wastewater into various COD fractions.

Seventeen (17) samples had been tested during laboratory work. Result from BOD_5 and COD measurement gives that the municipal wastewater at sampling area are considered weak in strength and highly treatable. While, the result on OUR measurement and COD fraction analysis on municipal wastewater at sampling location show that the range of COD fractions of municipal wastewater in Malaysia differs from values reported by IAWPRC Task Group (Henze *et al.*, 1987). The easily biodegradable COD, Ss, fraction in this study was found lower at manhole and (WWTP). The hydrolysable component was found higher for both locations compared to IAWPRC values. An equation has been established to find a relationship between BOD_5 and Modified COD fractions. From the equation established, only a proportion (in percentage) of slowly biodegradable COD, Xs_2 are used in BOD_5 process.

KEY WORDS

Wastewater characterization, Oxygen Utilization Rate, COD fractions, Biochemical Oxygen Demand

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