

國立暨南國際大學九十三年度碩士班研究生入學考試試題

第 2 節環境工程 適用:(土木所環工 472)

(本試題共 / 頁,第 / 頁)

考生注意: 1. 依次序作答, 只要標明題號, 不必抄題。
2. 答案必須寫在答案卷上, 否則不予計分, 並限以藍黑色筆作答。
3. 試題隨卷繳回。(餘請詳閱試場規則)

- 一、衛生掩埋場設計與操作應符合哪些條件? 如果是要掩埋有害事業廢棄物時, 其設計與操作又應符合哪些條件? (15%)
- 二、請列舉二種氣狀空氣污染物與三種粒狀空氣污染物去除方法或設施, 並說明其去除機制與原理。(20%)
- 三、請比較焚化與衛生掩埋處理廢棄物之優缺點。(15%)
- 四、何謂酸雨? 何謂溫室效應? 何謂臭氧層破洞? 成因分別為何? 對地球環境的危害又分別為何? (20%)
- 五、請將下列文章翻譯成中文, 並就你(妳)所學專業知識, 儘可能延伸解釋此文章之內涵 (舉凡此文章之研究方法、實驗方法、理論等相關課題均可發揮, 只要與此文章相關者均可延伸討論)。(30%)

Kinetics of nitrification and denitrification of synthetic wastewater were investigated by using two reactors in series. An activated sludge unit was used for nitrification followed by a downflow biofilter for denitrification. Glucose solution was fed to the denitrification column to supply carbon source. Reactors were operated at different operating conditions and data were collected for determination of kinetic constants. Experimental data indicated that nitrification and denitrification kinetics followed Monod Kinetics. By using the experimental data, kinetic constants for nitrification were determined as $k = 1.15 \text{ d}^{-1}$, $K_N = 5.14 \text{ mg/L}$, $Y = 0.34 \text{ mgX/mgN}$ and $b = -0.021 \text{ d}^{-1}$. Similarly, kinetic constants for denitrification were determined as $k = 0.23 \text{ d}^{-1}$ and $K_{DN} = 0.27 \text{ mg/L}$. Rates of nitrification and denitrification increased with increasing nitrogen loading rate.

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