

Activated sludge oxygen uptake rate measurement for the inhibitory effect of xenobiotics

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ABSTRACT

The purpose of this study was to investigate inhibitory characteristics, if any, of the activated sludge that had treated a wastewater that may contain inhibitory substances. In this study we use the activated sludge that treated wastewater from an advanced technology factory. Since the compositions of the wastewater are unknown, we thus utilize 2, 4-D and 2, 4-DCP, which are both known to be inhibitory, as a control. Our experiments were to measure the oxygen-uptake-rate (OUR) of the aerobically growing activated sludge when the test objects were introduced into the growth process. We apply the standard OECD209-OUR-process approved by European Union to measure the levels of inhibition of the test samples. Our results indicate that the inhibition of the sample is not apparent of the object activated sludge after its treatment of the wastewater from the factory, but 2, 4-D and 2, 4-DCP represent remarkable inhibition contrastively. Therefore, the waste sludge from this advanced technology factory causes merely weak influence to the environment. The results can also play as a rigorous reference on the reduction of the sludge and the treatment of wastes as resources.

Keywords : activated sludge、2,4-dichlorophenoxyacetic acid、2,4-Dichlorophenol、xenobiotics、OUR、Inhibition

Table of Contents

封面內頁 中文摘要.....	iii	ABSTRACT.....	iii
.....	iv	致謝.....	iv
.....	v	目錄.....	vi
.....	ix	表目錄.....	xi
.....	1	第一章 前言 1.1 研究緣起.....	1
.....	1	1.2 研究目的.....	2
.....	3	1.3 研究內容.....	3
.....	3	第二章 文獻回顧 2.1 活性污泥.....	3
.....	5	2.1.1 活性污泥的生成.....	5
.....	5	2.1.2 活性污泥中微生物的組成.....	5
.....	8	2.1.3 活性污泥法之發展經過.....	11
.....	13	2.2 活性污泥處理方法、流程與原理.....	13
.....	13	2.3 2,4-D簡介.....	15
.....	16	2.3.1 2,4-D之特性.....	15
.....	16	2.3.2 2,4-D之生物分解特性.....	18
.....	18	2.3.3 2,4-D在一般環境中的特性.....	22
.....	22	2.3.4 2,4-D在水相環境中的特性.....	22
.....	22	2.4 2,4-D之生物效應.....	24
.....	22	2.5 2,4-DCP簡介.....	24
.....	26	2.6 生物抑制性檢測—攝氧率介紹.....	26
.....	26	2.7 生長曲線之原理介紹.....	26
.....	27	第三章 實驗設備與研究方法 3.1 實驗材料及儀器設備.....	31
.....	31	3.1.1 活性污泥來源.....	31
.....	31	3.1.2 實驗使用藥品.....	31
.....	31	3.1.3 實驗使用材料.....	31
.....	33	3.1.4 實驗使用儀器設備.....	34
.....	35	3.2 研究架構.....	35
.....	35	3.3 活性污泥之培養.....	35
.....	37	3.4 污泥攝氧率實驗.....	39
.....	39	3.4.1 某高科技廠濃縮污泥之攝氧率實驗（固態）.....	39
.....	42	3.4.2 某高科技廠濃縮污泥之攝氧率實驗（液態）.....	43
.....	43	3.4.3 某高科技廠污泥消化液之攝氧率實驗.....	43
.....	45	3.4.4 2,4-D對基本活性污泥之攝氧率實驗.....	46
.....	46	3.4.5 2,4-DCP對基本活性污泥之攝氧率實驗.....	47
.....	47	第四章 結果與討論 4.1 某高科技廠污泥攝氧率之結果.....	49
.....	49	4.2 某高科技廠污泥攝氧率試驗.....	53
.....	53	4.3 某高科技廠污泥攝氧率試驗之結果.....	53
.....	57	4.4 基礎活性污泥攝氧率之結果.....	58
.....	58	第五章 結果與建議 5.1 結論.....	61
.....	61	5.2 建議.....	61
.....	61	參考文獻.....	61
.....	63		63

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