

以農業廢棄物摻和濃縮污泥的資源化處理之 初步研究

徐璋杰¹、李得元²、吳銘志³、邱上銘⁴、杜哲鳴⁴

Zhang-Jie Xu¹、Der-Yuan Lee²、Ming-Chee Wu³、Shang-Ming Qiu⁴
、Zhe-Ming Du⁴

摘要

本研究以污水處理廠之濃縮污泥，添加高分子混凝劑和農業廢棄物進行雙效調理，觀察污泥調理脫水和乾燥速率，作為污泥進一步再利用的參考。首先找出濃縮污泥的最佳化學調理劑配方及條件，據此再另添加如蔗渣、米糠及稻殼等農業廢棄物做為物理性調理劑；農業廢棄物之添加方式則有廢棄物之原始型、乾燥型及粉碎型。實驗結果顯示，濃縮污泥經混凝調理後製成脫水污泥餅之過濾時間、濾水量、含水量、乾燥速度與所摻和的農業廢棄物種類及其使用量等，皆有很大的關係；摻和農業廢棄物的調理會改善脫水效率，但添加量並非愈多愈佳；三種農業廢棄物不管是次原始型、乾燥型或粉碎型加入調理過程均對污泥脫水效率及污泥餅乾燥均有所差異。本研究結果可作為進一步進行污泥堆肥時的含水率之指標，以及回收污泥和農業廢棄物資源化之參考。

關鍵詞：農業廢棄物、物理調理劑、污泥再利用、脫水速率、含水率

Abstract

In this study, the agricultural waste solids such as rice shell, rice bran and bagasse were used as the physical conditioners to evaluate their effects on sludge dewatering and drying under the preconditioning, with polymer as the chemical conditioner. And three types, original, dried, and crumbled, will be tested for three agricultural waste solids. The results showed that, with the same dose of polymer, the adding and various types of these waste solids effected the filtering and drying rate (filtering time, filtering volume, moisture content, and drying time). However, it was not positive for more amount of wastes solids added. Additionally, rice shell, rice bran and bagasse are the common solid wastes produced from agriculture. Recycling these agricultural waste solids to be as the physical conditioners of sludge may also simultaneously solve the treatment and disposal problems of solid wastes. The results in this study will be referred of the reuse of agricultural waste and sludge in the future.

Keyword : Agriculture waste; Physical conditioner; Reuse of Sludge; Dewatering Rate; Moisture content.

¹ 國立成功大學地球科學研究所碩士生

² 嘉南藥理科技大學生態工程技術研發中心副教授

³ 國立成功大學地球科學研究所副教授

⁴ 嘉南藥理科技大學環境資源管理系大學部學生