86. 簡易污泥濃縮及乾燥技術研析

紀泱竹[(1)]　鍾承訓[(1)]　蘇天明[(1)]　蕭庭訓[(1)]
[(1)]行政院農業委員會畜產試驗所

本研究之目的為建立簡易污泥濃縮及乾燥技術，藉由重力方式進行厭氧污泥之沉降濃縮，並開發小型污泥濾床，評估污泥脫水乾燥效果。試驗結果顯示，取總廢水場及養豬場厭氧污泥，分別注入圓柱型與方形錐狀之不鏽鋼污泥濃縮桶槽，經 3 日沉降濃縮，總固形物濃度分別提升 7.25 及 6.29%與 7.30 及 6.99%，換算總固形物提升率則為 120 及 39.5%與 133 及 61.8%。另取未經沉降濃縮之養豬場厭氧污泥，注入污泥濾床（污泥厚度 5 cm），經 3 日脫水乾燥，污泥體積減量 42.8%，污泥含水率降至 74.5%，水分去除率達 21.4%。綜上，污泥含水率越高，其沉降濃縮效果則越好，建議先經方形錐狀不鏽鋼污泥濃縮桶槽之沉降濃縮，提高固形物濃度；另總固形物較高之厭氧污泥宜直接注入脫水乾燥濾床，注入之污泥高度以 5 公分為佳，可提高乾燥處理效率，達到污泥快速脫水乾燥之效。

關鍵語：厭氧污泥、濃縮、乾燥

Research and analysis on simple sludge concentration and drying technology

Y. C. Chi[(1)], C. H. Chung[(1)], T. M. Su[(1)] and T. H. Hsiao[(1)]
[(1)]Livestock Research Institute, Council of Agriculture, Executive Yuan

The purpose of this study is to establish simple sludge concentration and drying technology, to perform gravity sedimentation and concentration of anaerobic sludge, and to develop a small sludge filter bed to evaluate the dewatering and drying effect. The test results showed that the anaerobic sludge from the wastewater plant and pig farm were injected into the cylindrical and square cone-shaped stainless steel sludge thickening tanks. After 3 days of sedimentation and concentration, the total solid content increased by 7.25 and 6.29% and 7.30 and 6.99%, respectively. The converted total solids improvement rate is 120 and 39.5% and 133 and 61.8%. In addition, the anaerobic sludge from the pig farm without sedimentation and concentration was injected into the sludge filter bed (sludge thickness 5 cm). After 3 days of dehydrated and drying, the sludge volume will be reduced by 42.8%, and the sludge moisture content will be reduced to 74.5%. The moisture removal rate reached 21.4%. In summary, the higher moisture sludge, the better the sedimentation and thickening effect. It is recommended to settling and thickening through the square cone-shaped stainless steel sludge thickening tank to increase the solid content of sludge. In addition, anaerobic sludge with higher total solid content should be directly injected into the dehydration drying filter bed. The height of the injected sludge is preferably 5 cm, which can improve the drying efficiency to achieve the effect of rapid dehydration and drying of the sludge.

Key Words: Anaerobic sludge, Thickening, Drying