

การย่อยตะกอนแบบแอโรบิก



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AEROBIC SLUDGE DIGESTION

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บทคัดย่อ

วัตถุประสงค์ในการวิจัยนี้เพื่อจะศึกษาความสามารถของขบวนการย่อยตะกอน (Sludge) จากโรงงานทำเครื่องคั้นแบบแอโรบิก คุณสมบัติทางฟิสิกส์และทางเคมีของตะกอนที่ได้รับการศึกษาอย่างละเอียดตามแบบมาตรฐานก่อนจะนำมากำจัดในถังย่อยตะกอน เพื่อศึกษาว่าความเข้มข้นของตะกอนและอุณหภูมิจะมีผลอย่างไรต่อประสิทธิภาพของการย่อย.

ผลการทดลองพอสรุปได้ดังนี้

- ๑) ตะกอนจากโรงงานทำเครื่องคั้นมีค่า BOD สูงคือประมาณ ๓๐๐ มิลลิกรัม ต่อลิตร.
- ๒) ค่า Volatile solids, BOD และ COD ของตะกอนหลังจากการย่อยที่อุณหภูมิ ๓๕ ° ซ. จะลดลงมากกว่าที่อุณหภูมิ ๓๐ ° ซ. เพียงเล็กน้อย.
- ๓) ค่า Volatile solids, BOD และ COD จะยิ่งลดลงเมื่อใช้เวลาย่อยตะกอนเพิ่มขึ้น ระยะเวลา ๑๕ วันเพียงพอสำหรับย่อยตะกอนที่มีความเข้มข้นของ Solids ไม่เกิน ๒ %.
- ๔) น้ำ (Supernatant) ที่ได้จากขบวนการย่อยตะกอนแบบ Aerobic จะมีค่า BOD ต่ำกว่าแบบ Anaerobic.
- ๕) ตะกอนจะไม่มีกลิ่นหลังจากย่อยแบบแอโรบิก
- ๖) การย่อยตะกอนโดยวิธีนี้มีปัญหาเรื่องตกตะกอนยาก ซึ่งจะต้องแก้ไขด้วยการวิจัยเพิ่มเติม.

Thesis title Aerobic Sludge Digestion
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ABSTRACT

This research was intended to study the treatment efficiency of the soft drink activated sludge by aerobic digestion method. The physical and chemical characteristics of the sludge were assessed and its biological treatability was evaluated in a laboratory-scale aerobic digestion system.

The results of this study could be summerized as follow:-

1. The sludge from the bottling plant had a high BOD value about 300 mg/l.
2. The reduction in volatile solids, BOD and COD as observed at 35°C was a little higher than at 30°C.
3. The reduction in volatile solids, BOD and COD was a function of time. Detention period of 15 days was sufficient for treating sludge with total solids up to 2%.
4. Supernatant from aerobic digestion method exhibited relatively low BOD values when compared to those from anaerobic.
5. No odour was detected from sludge as treated by aerobic digestion.
6. To treat this kind of sludge by aerobic digestion, the settleability of sludge was a serious problem and should be improved by further studies.

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LIST OF SYMBOLS

BOD	=	Biochemical Oxygen Demand
COD	=	Chemical Oxygen Demand
VS	=	Volatile Solid
FS	=	Fixed Solid
TS	=	Total Solid
SS	=	Suspended Solid

