

Anaerobic digestion of wastewater screenings for resource recovery and waste reduction

Abstract

Wastewater screenings are produced during the first stage of the wastewater treatment process and at present are disposed of to landfill. This material may not only cause operational failure to the treatment system, but also lead to environmental problems. In view of the high organic content of screenings, anaerobic digestion method may not only offer the potential for energy recovery, but also nutrient. In this study the, anaerobic batch digestion was performed at different dry solids concentrations of screenings to study the potential of biogas and phosphorus recovery. The tests demonstrated wastewater screenings were amenable to anaerobic digestion with methane yield was 355 m³/kg VS, which are comparable to the previous results. The digestate was high in P content and can be recovered up to 41%. This study also shows that anaerobic digestion was not only to turn this waste into useful resources, but also has a potential in reducing the organic content up to 31% for safe disposal. In this way the amount of wastewater screenings going to landfill is not only can be reduced, but also valuable products such as methane and phosphorus can also be recovered.