Abstract Preview of 'Nutrient recovery techniques' (GPCNRA)

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Preferred Symposium	Environment
Preferred Session	Waste Management and Recovery: Concepts and Solutions
Allow Recording	My presentation may be recorded for viewing after the conference
Invited Speaker	No
Preferred Presentation	Oral
Poster Competition	No
Oral Poster Competition	No
Learning Outcomes	Participants will be able to understand the technical concepts of nutrient recovery from digested waste and will have knowledge of the quality and value of the recovered end-products.
Audio/Visual	

Preview of your abstract

Renewable fertilizers from digested waste: Nutrient recovery techniques and end-products **C. Vaneeckhaute**[*$] *<céline.vaneeckhaute@gch.ulaval.ca>*, Chemical Engineering Department, Université Laval, Québec, QC, G1V 0A6; **E. Meers** *<erik.meers@ugent.be>*, Department of Applied Analytical and Physical Chemistry, Ghent University, Belgium, 9000; **P.A. Vanrolleghem** *<peter.vanrolleghem@gci.ulaval.ca>*, Canada Research Chair in Water Quality Modelling, modelEAU, Université Laval, Québec, QC, G1V 0A6

Nutrient recovery from digested biodegradable waste as inorganic fertilizer products has become an important task for anaerobic digestion plants to meet both regulatory drivers and market demands, while producing an internal revenue source. The aim of this research was to provide a comprehensive overview and critical comparison of the available and emerging technologies for nutrient recovery from digested waste and a classification of the resulting end-products according to their fertilizer characteristics. The technical and economic performance of the existing technologies has been evaluated, operational bottlenecks have been identified, and the recovered product quality and value has been assessed. Based on the stage of implementation, the technical performance, as well as financial aspects, struvite precipitation/crystallization, ammonia stripping and (subsequent) absorption using an acidic air scrubber to produce ammonium sulfate were selected as best available technologies to be applied at full-scale. To date, recovered bio-based fertilizers can be classified as renewable N/P-, K/P-, or P-precipitates, P-extracts, N/S-solutions, N/K-concentrates, N-zeolites, and biomass. All technologies require further technical fine-tuning in order to minimize operational costs, especially related to energy and chemical use, and to improve the quality and predictability of the produced fertilizers.

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