Nitrogen mineralisation and greenhouse gas emission from the soil application of sludge from reed bed mineralisation systems

A sludge treatment reed bed system (STRB) is a technology used for dewatering and stabilising sewage sludge via assisted biological mineralisation, which creates a sludge residue suitable for use as fertiliser on agricultural land. We evaluated the effect of sludge residue storage time (stabilisation time) for three STRBs on soil N mineralisation and CO2 and N2O emissions in soil. The experiment revealed that the N mineralisation rate and emissions of CO2 and N2O decreased as a function of treatment time in the STRBs. Mixed sludge residue (sludge residue subjected to different treatment times) for the three STRBs resulted in N mineralisation rates similar to the sludge residue subjected to a shorter treatment time but lower N2O emissions similar to the values of the older sludge residue. This finding reveals that combining fresh and more stabilised sludge residue ensures high N availability and reduces N2O emissions when applied to land.

General information
State: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering, Office for Finance and Accounting, University of Copenhagen
Authors: Gómez-Muñoz, B. (Ekstern), Larsen, J. D. (Intern), Bekiaris, G. (Ekstern), Scheutz, C. (Intern), Bruun, S. (Ekstern), Nielsen, S. (Intern), Jensen, L. S. (Ekstern)
Number of pages: 9
Pages: 59-67
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Environmental Management
Volume: 203
Issue number: Part 1
ISSN (Print): 0301-4797
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.28 SJR 1.141 SNIP 1.779
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.19 SNIP 1.717 CiteScore 3.86
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
The Recharging Infrastructure Needs for Long Distance Travel by Electric Vehicles: A Comparison of Battery-Switching and Quick-Charging Stations

On-road electric vehicle recharging infrastructure is essential in the transformation of electric vehicles into a practical transportation option. This study focuses upon assessing the need for recharging infrastructure for long distance travel for a large market share of electric vehicles, finding the optimal infrastructure deployment, and understanding the economic, social and environmental costs and benefits associated with the optimal infrastructure deployment. The analysis considers quick-charging and battery-switching as plausible recharging technologies. Results show: (i) the promotion of electric vehicles is beneficial when considering economic costs and benefits for operators and users, tax redistribution, and environmental externalities, even with a relatively modest market share; (ii) the number of required recharging stations for satisfaction of the travel demand is at the magnitude of 1–2% of the current gasoline infrastructure, under the assumption of wide availability of off-road recharging at home and the workplace; (iii) the optimal deployment of the recharging stations is along the main national highways outside of urban conurbations, under the assumption of wide availability of home recharging; (iv) the battery-switching technology is far more attractive to the consumer than the quick-charging technology for long-distance travel requiring more than one recharging visit.
Host publication information
Title of host publication: Spatial Analysis and Location Modeling in Urban and Regional Systems
Editor: Thill, J.
ISBN (Print): 978-3-642-37895-9
ISBN (Electronic): 978-3-642-37896-6
Series: Advances in Geographic Information Science
Main Research Area: Technical/natural sciences
Geography, Geographical Information Systems/Cartography, Electric vehicles, Recharging stations, Location optimization, Socio-economic analysis, Battery-switching, Quick-charging, Spatial-optimization, EVs
DOIs: 10.1007/978-3-642-37896-6_15
Source: FindIt
Source-ID: 2393858771
Publication: Research - peer-review › Book chapter – Annual report year: 2017

Energy Saving on Cleanroom Fume Hoods

Bibliographical note
Sustain Abstract P-13
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Projects:

Mobilitetspotentiale for Aarhus Letbane
Department of Management Engineering
Management Science
Transport DTU
Operations Management
Operations Research
Office for Finance and Accounting
Period: 01/01/2016 → 01/01/2017
Number of participants: 5
Project participant:
Barfod, Michael Bruhn (Intern)
Kronbak, Jacob (Intern)
Larsen, Rune (Intern)
Activities:

TEACH FOOD seminar  
Lene Duedahl-Olesen (Organizer)  
Lars Bogø Jensen (Organizer)  
Håkan Vigre (Organizer)  
Pernille Hammar Andersson (Organizer)  
Sofie Katrine Lorentzen (Organizer)  
National Food Institute  
Research Group for Analytical Food Chemistry  
Research Group for Microbial Food Safety  
Research Group for Genomic Epidemiology  
Office for Study Programmes and Student Affairs  
Office for HR  
Office for Finance and Accounting

Description  
Seminar for teachers at DTU FOOD  
Degree of recognition: Local

Related event

TEACH FOOD seminar: seminar for DTU FOOD teachers  
29/10/2015 → 30/10/2015  
Hvalsø, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.