

PROJECT

SUSAN - SUSTAINABLE AND SAFE RE-USE OF MUNICIPAL SEWAGE SLUDGE FOR NUTRIENT RECOVERY

URL: <http://www.susan.bam.de/>

http://cordis.europa.eu/result/rcn/46724_en.html

DURATION

2005 - 2008

PROJECT TYPE

EU Project, funded within the 6th Framework of the European Union, Project ID 16079

SCOPE

Municipal sewage sludges are often highly polluted with organics, such as hormones, antibiotics, endocrine disruptors, persistent organic pollutants (POPs), and inorganics such as heavy metals e.g. cadmium, chromium, copper, nickel, mercury and zinc. In the last couple of years, the agricultural application of sewage sludge has decreased in the European Union, while the interest in alternative sludge disposal routes to protect farmland and human health has increased. However, following this strategy, nutrients (most notably phosphorus) are irreversibly lost and the need for mineral fertiliser products will increase. The scarce resource phosphorus could be recovered if a sound recycling strategy is developed and applied.

OBJECTIVES

The SUSAN-project aimed at developing a sustainable and safe strategy for nutrient recovery from sewage sludges using thermal treatment. Mono-incineration of the sludges completely destructs the organic pollutants in a first step. The incineration residues are ashes with a high phosphorus content that still contain heavy metal compounds above the limits for agricultural use. Furthermore, phosphorus in the ashes exhibits low bioavailability - a disadvantage in farming. Therefore, in a second thermochemical step heavy metals are removed and phosphorus transferred into mineral phases available for plants. The principle of the SUSAN-project is the separation of the small heavy metals fraction from the ashes to receive a phosphorus rich product suited as raw material for fertilisers that also contains SiO₂, CaO, Al₂O₃, Fe₂O₃, MgO and K₂O.

The thermochemical process is based on evaporation of volatile heavy metal chlorides at 850 - 1000 °C. The sewage sludge ashes are mixed with chlorine donors such as MgCl₂ or KCl, grained and treated in a thermal aggregate e.g. a rotary furnace. At the same time a transfer of non soluble P-compounds into mineral phases available for plants takes place.

Besides technological development of the thermochemical process, the products fertilisation performance, the product design, the market for the products and the sustainability of the whole process chain are emphasised in the SUSAN-project.

CO-ORDINATOR

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OUTCOME

The results of the project SUSAN are available in form of the final report on the Cordis-Website:
http://cordis.europa.eu/docs/publications/1206/120694461-6_en.pdf

VIDEOS

[BAM-066-SUSAN-en.flv](#)
[BAM-065-SUSAN-de.flv](#)

PUBLICATIONS

- SUSAN – Sustainable and Safe Re-use of Municipal Sewage Sludge for Nutrient Recovery Final Activity Report - http://cordis.europa.eu/docs/publications/1206/120694461-6_en.pdf
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