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Sludge recovery, recycling, treatment and disposal — Information on the processes and technologies for inorganic substance and nutrient recovery

Valorisation, recyclage, traitement et élimination des boues — Guide sur les procédés et les technologies de récupération des substances inorganiques et des nutriments

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 275, *Sludge recovery, recycling, treatment and disposal*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Inorganics and nutrient recovery is necessary to build a sustainable society; there are many studies and plants all over the world that demonstrate this concept. Above all, phosphorus recovery systems to produce fertilizer material are increasingly common and other nutrients recovery systems are now being developed.

This document provides a selected overview of various technologies and is based on country standards and guidance documents already in existence or under preparation, and documents provided by private organizations.

As inorganics and nutrient recovery knowledge and technology is developing rapidly, this document will therefore be reviewed regularly to reflect the advancing nature of the industry and technology.

Annex A provides examples of sewage sludge composition, which can help determine which element(s) can be recovered. Annex B provides case studies of nutrient recovery, including practical and emerging ones.

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Sludge recovery, recycling, treatment and disposal — Information on the processes and technologies for inorganic substance and nutrient recovery

1 Scope

This document provides information on the processes and technologies for inorganic substance and nutrient recovery from sludge.

This document is applicable to sludge and products from urban wastewater collection systems, night soil, wastewater treatment plants for urban and similar industrial waters. It includes all sludge that can have either similar environmental or health impacts, or both.

Hazardous sludge from industry and dredged sludge are excluded from this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
ammonia stripping
method that removes ammoniacal compounds from water by making it alkaline and of aeration

3.2
calcium phosphate
salts that consist of calcium ions and phosphate ions

Note 1 to entry: Hydroxyapatite (HAP) is a form of calcium phosphate.

3.3
centrate
liquid product from a centrifugal dewatering device

3.4
hydroxyapatite
HAP
sparingly soluble salt that is generated from phosphate and calcium ions

Note 1 to entry: The general chemical formula of HAP is $Ca_{10}(OH)_2(PO_4)_6$.

3.5
incineration ash
residue of combustion

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