

Characterization of sludges — Good practice for landfilling of sludges and sludge treatment residues

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee EH/5, Sludge characteristics, which has the responsibility to:

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When European Member State Ministers agreed the EU Landfill Directive they specifically excluded sewage sludge from its reach because they maintained that landfill was needed as a strategic option when no other was available. Member States' implementations of the Directive have not necessarily taken this into account.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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English Version

Characterization of sludges - Good practice for landfilling of sludges and sludge treatment residues

Caractérisation des boues - Bonne pratique pour la mise en
décharge des boues et des résidus de traitement des
boues

Charakterisierung von Schlämmen - Gute fachliche Praxis
bei der Deponierung von Schlamm und Rückständen aus
der Schlammbehandlung

This Technical Report was approved by CEN on 24 April 2005. It has been drawn up by the Technical Committee CEN/TC 308.

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Foreword

This document (CEN/TR 15126:2005) has been prepared by Technical Committee CEN/TC 308 "Characterization of sludges", the secretariat of which is held by AFNOR.

This document is voluntarily presented in the form of a CEN Technical Report because most of its content is not completely in line with practice and regulations in each Member State. This document gives recommendations for good practice concerning the landfilling of sludges and sludge treatment residues, but existing national regulations remain in force.

Introduction

All the recommendations in this document constitute a framework within which the landfilling process can be proposed as a substitute for field spreading, or in addition to specific or combined incinerations, or any other process.

This document should be read in the context of the requirements of Directive 1999/31/EC on the landfill of waste which applies to the landfill of sludge and any other relevant regulations, standards and codes of practice which may prevail locally within Member States.

1 Scope

This CEN Technical Report gives one of a series of sludge management options and describes good practice for the disposal of sludges and sludge treatment residues to landfill where national regulations permit.

This document is applicable to the sludges described in the scope of CEN/TC 308, i.e. specifically derived from:

- storm water handling;
- night soil;
- urban wastewater collecting systems;
- urban wastewater treatment plants;
- treating industrial wastewater similar to urban wastewater (as defined in Directive 91/271/EEC);
- water supply treatment plants;
- water distribution systems;

but excluding hazardous sludges from industry.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1085:1997, *Waste water treatment – Vocabulary*

EN 12832:1999, *Characterisation of sludges – Utilization and disposal of sludges – Vocabulary*

EN 13965-1:2004, *Characterization of waste – Terminology – Part 1: Materials related terms and definitions*

EN 13965-2:2004, *Characterization of waste – Terminology – Part 2: Management related terms and definitions*

CR 13714, *Characterisation of sludges – Sludge management in relation to use or disposal*

3 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions given in EN 12832:1999, EN 1085:1997, EN 13965-1:2004, EN 13965-2:2004 and also in the following Directives apply:

Directive 91/271/EC concerning urban wastewater treatment

Directive 75/442/EC the waste framework directive as amended by Directive 91/156/EC

Directive 1999/31/EC on the landfill of waste.

Directive 2001/77/EC on renewable energy.

For the understanding of this document, these abbreviated terms apply:

BIO: Biomass
BOD: Biological Oxygen Demand
COD: Chemical Oxygen Demand
CSO: Chemically Stabilized Organic
DPM: Decomposable Plant Material
MSW: Municipal Solid Waste
PSO: Physically Stabilized Organic
RPM: Resistant Plant Material
TOC: Total Organic Carbon
VFA: Volatile Fatty Acids
WWTP:

4 Outline of landfill processes

4.1 General

The landfill processes which are of importance for understanding the potential for controlling waste stabilization are the physical, chemical and microbial activities which lead to the modification of waste, from often complex substances with significant pollution potential to simpler compounds which can be environmentally benign. In the case of a landfill containing degradable waste, the principal processes of interest are those which lead to the breakdown of complex organic compounds found in the putrescible fraction of non-inert waste, and the influence of the by-products of degradation on the mobility and availability of other compounds and elements. At a simple conceptual level, a landfill can be viewed as a reactor vessel in which solid, water and gaseous inputs are subject to a variety of processes which produce solid, liquid and gaseous waste products. The reactor model for landfill processes is shown schematically in Figure 1, with the inputs, processes and outputs summarized briefly below.

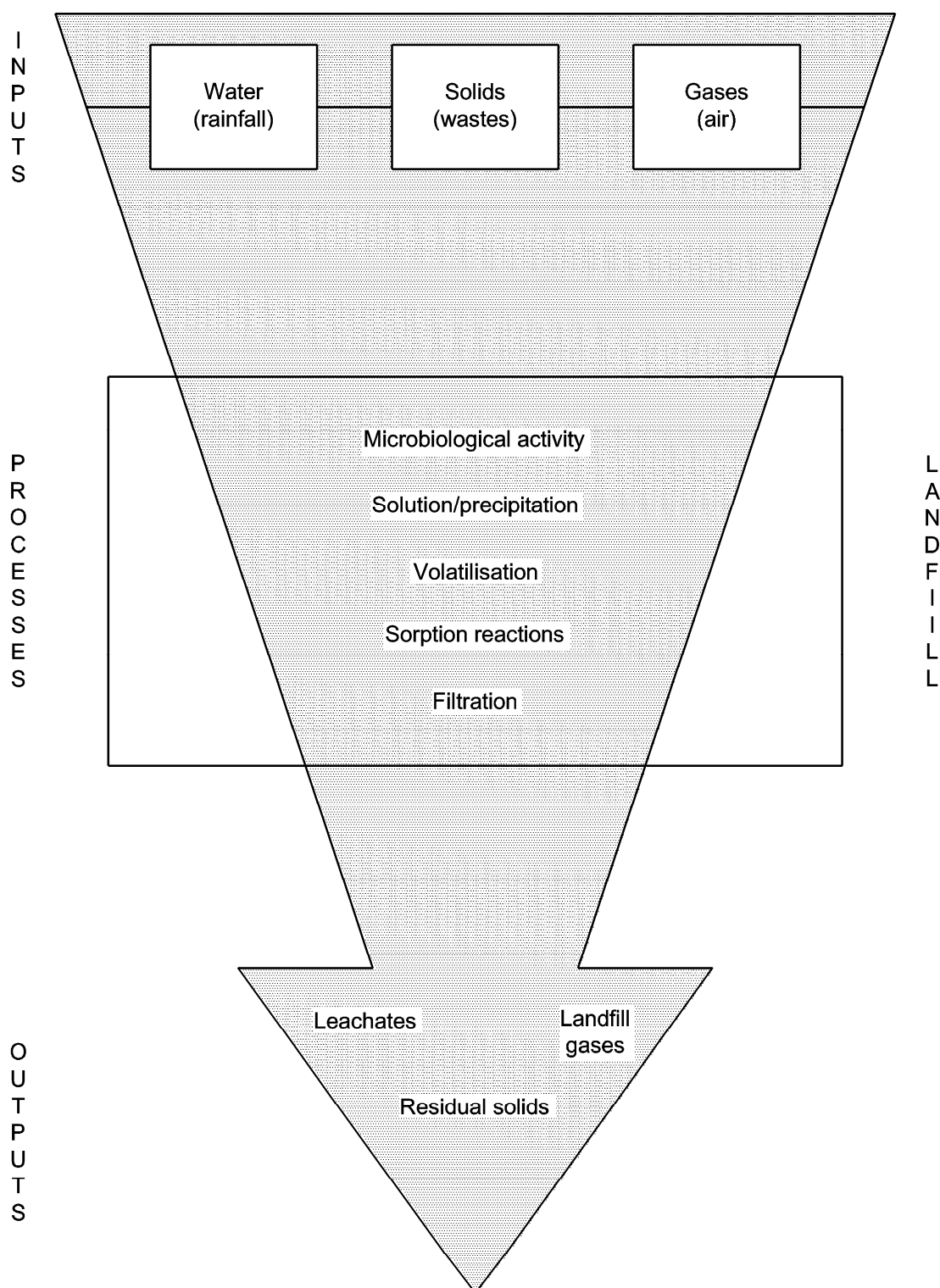


Figure 1 - Schematic representation of landfill processes