

**Vee kvaliteet. Proovivõtt. Osa 13: Juhised proovivõtuks reoveesetest**

**Water quality - Sampling - Part 13: Guidance on sampling of sludges (ISO 5667-13:2011)**

## EESTI STANDARDI EESSÕNA

See Eesti standard EVS-EN ISO 5667-13:2011 sisaldab Euroopa standardi EN ISO 5667-13:2011 ingliskeelset teksti.

Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.

Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.05.2011.

Standard on kättesaadav Eesti Standardikeskusest.

## NATIONAL FOREWORD

This Estonian standard EVS-EN ISO 5667-13:2011 consists of the English text of the European standard EN ISO 5667-13:2011.

This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.

Date of Availability of the European standard is 01.05.2011.

The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 13.030.30, 13.060.45

### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:  
Aru 10, 10317 Tallinn, Estonia; [www.evs.ee](http://www.evs.ee); phone 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

**Water quality - Sampling - Part 13: Guidance on sampling of  
sludges (ISO 5667-13:2011)**

Qualité de l'eau - Échantillonnage - Partie 13: Lignes  
directrices pour l'échantillonnage de boues (ISO 5667-  
13:2011)

Wasserbeschaffenheit - Probenahme - Teil 13: Anleitung  
zur Probenahme von Schlämmen (ISO 5667-13:2011)

This European Standard was approved by CEN on 30 April 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Foreword

This document (EN ISO 5667-13:2011) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with Technical Committee CEN/TC 308 "Characterization of sludges" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2011, and conflicting national standards shall be withdrawn at the latest by November 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 5667-13:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

### Endorsement notice

The text of ISO 5667-13:2011 has been approved by CEN as a EN ISO 5667-13:2011 without any modification.

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Developing a sampling plan</b> .....	<b>3</b>
4.1 Sampling objectives .....	3
4.2 Variability considerations .....	4
<b>5 Sampling equipment and containers</b> .....	<b>4</b>
5.1 General .....	4
5.2 Sampling equipment .....	4
5.3 Containers and sample preservation .....	4
<b>6 Sampling procedure</b> .....	<b>5</b>
6.1 Sampling regime .....	5
6.2 Replicate sampling .....	7
6.3 Methodology .....	8
6.4 Sample homogenization and sub-sampling for sludge cakes (quartering) .....	11
<b>7 Sample storage</b> .....	<b>12</b>
7.1 General .....	12
7.2 Storage .....	13
<b>8 Safety</b> .....	<b>13</b>
<b>9 Labelling and reporting</b> .....	<b>13</b>
<b>Annex A (informative) Support on the selection of equipment</b> .....	<b>14</b>
<b>Annex B (informative) Vacuum sampling devices</b> .....	<b>18</b>
<b>Annex C (informative) Apparatus for sampling from pipes under pressure</b> .....	<b>20</b>
<b>Annex D (informative) Minimum number of samples in a composite sample — Calculation example</b> .....	<b>22</b>
<b>Bibliography</b> .....	<b>24</b>

## Introduction

This part of ISO 5667 should be read in conjunction with ISO 5667-1 and ISO 5667-15. The general terminology used is in accordance with the various parts of ISO 6107.

Sampling and the determination of the physical and chemical properties of sludges and related solids are normally carried out for a specific purpose. The sampling methods given are suitable for general use but do not exclude modification in the light of any special factor known to the analyst receiving the samples or any operational reason dictating the need for sampling. Personnel taking samples should be fully aware of safety requirements before sampling occurs.

The importance of using a valid sampling technique cannot be overemphasized if the subsequent analysis is to be worthwhile. It is important that the personnel taking and analysing the sample be fully aware of its nature and the purpose for which the analysis is required before embarking on any work programme. Full cooperation with the laboratory analysing the samples ensures that the most effective application of the sampling occasion can be made. For example, the use of method-specific sample preservation techniques assists in the accurate determination of results.

This part of ISO 5667 is applicable to sampling motivated by different objectives, some of which are to:

- a) provide data for the operation of activated sludge plants;
- b) provide data for the operation of sludge treatment facilities;
- c) determine the concentration of pollutants in wastewater sludges for disposal to landfill;
- d) test whether prescribed substance limits are contravened when sludge is used in agriculture;
- e) provide information on process control in potable and wastewater treatment, including:
  - 1) addition or withdrawal of solids,
  - 2) addition or withdrawal of liquid;
- f) provide information for legally enforceable aspects of the disposal of sewage and waterworks sludges;
- g) facilitate special investigations into the performance of new equipment and processes;
- h) optimize costs, e.g. for the transport of sludges for treatment or disposal.

When designing a sludge sampling programme, it is essential that the objectives of the study be kept in mind, so that the information gained corresponds to that required. In addition, the data should not be distorted by the use of inappropriate techniques, e.g. inadequate sample storage temperatures or the sampling of unrepresentative parts of a sludge-treatment plant.

# Water quality — Sampling —

## Part 13:

## Guidance on sampling of sludges

**WARNING** — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

### 1 Scope

This part of ISO 5667 gives guidance on the sampling of sludges from wastewater treatment works, water treatment works and industrial processes. It is applicable to all types of sludge arising from these works and also to sludges of similar characteristics, e.g. septic tank sludges. Guidance is also given on the design of sampling programmes and techniques for the collection of samples.

### 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.

ISO 5667-1, *Water quality — Sampling — Part 1: Guidance on the design of sampling programmes and sampling techniques*

ISO 5667-10:1992, *Water quality — Sampling — Part 10: Guidance on sampling of waste waters*

ISO 5667-12, *Water quality — Sampling — Part 12: Guidance on sampling of bottom sediments*

ISO 5667-14, *Water quality — Sampling — Part 14: Guidance on quality assurance of environmental water sampling and handling*

ISO 5667-15:2009, *Water quality — Sampling — Part 15: Guidance on the preservation and handling of sludge and sediment samples*

ISO 6107 (all parts), *Water quality — Vocabulary*

ISO/TR 8363, *Measurement of liquid flow in open channels — General guidelines for selection of method*

ISO 18283, *Hard coal and coke — Manual sampling*

CEN/TR 13097, *Characterization of sludges — Good practice for sludge utilisation in agriculture*