

SVENSK STANDARD

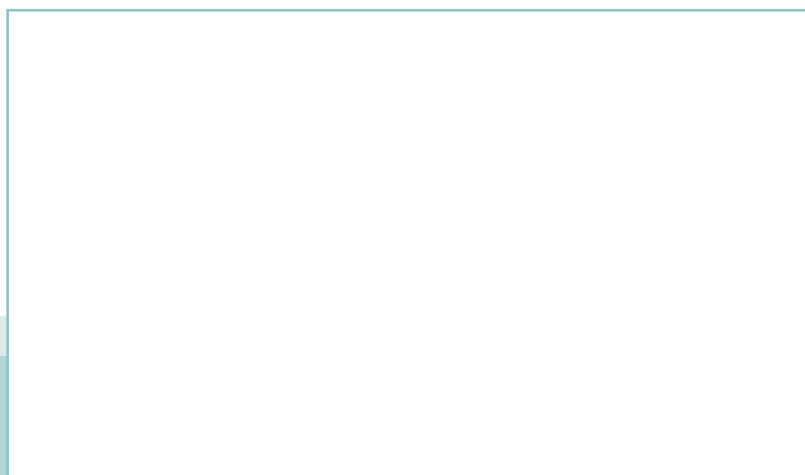
SS-EN ISO 5667-13:2011



Fastställt/Approved: 2011-06-08
Publicerad/Published: 2011-09-14
Utgåva/Edition: 2
Språk/Language: engelska/English
ICS: 13.060.01; 13.060.30; 13.060.45

Vattenundersökningar – Provtagning – Del 13: Riktlinjer för provtagning av slam (ISO 5667-13:2011)

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



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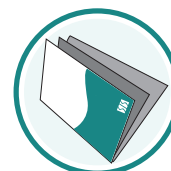
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Europastandarden EN ISO 5667-13:2011 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 5667-13:2011.

Denna standard ersätter SS-EN ISO 5667-13, utgåva 1.

The European Standard EN ISO 5667-13:2011 has the status of a Swedish Standard. This document contains the official version of EN ISO 5667-13:2011.

This standard supersedes the Swedish Standard SS-EN ISO 5667-13, edition 1.

**Förhållandet till övriga delar under samma huvudtitel - Utdrag ur Förord i ISO 5667-13:2011/
Relations to other parts under the same general title - Extract from the Foreword of
ISO 5667-13:2011**

ISO 5667 consists of the following parts, under the general title *Water quality – Sampling*:

- *Part 1: Guidance on the design of sampling programmes and sampling techniques*
- *Part 3: Preservation and handling of water samples*
- *Part 4: Guidance on sampling from lakes, natural and man-made*
- *Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems*
- *Part 6: Guidance on sampling of rivers and streams*
- *Part 7: Guidance on sampling of water and steam in boiler plants*
- *Part 8: Guidance on the sampling of wet deposition*
- *Part 9: Guidance on sampling from marine waters*
- *Part 10: Guidance on sampling of waste waters*
- *Part 11: Guidance on sampling of groundwaters*
- *Part 12: Guidance on sampling of bottom sediments*
- *Part 13: Guidance on sampling of sludges*
- *Part 14: Guidance on quality assurance of environmental water sampling and handling*
- *Part 15: Guidance on the preservation and handling of sludge and sediment samples*
- *Part 16: Guidance on biotesting of samples*
- *Part 17: Guidance on sampling of bulk suspended solids*
- *Part 19: Guidance on sampling of marine sediments*
- *Part 20: Guidance on the use of sampling data for decision making — Compliance with thresholds and classification systems*
- *Part 21: Guidance on sampling of drinking water distributed by tankers or means other than distribution pipes*
- *Part 22: Guidance on the design and installation of groundwater monitoring points*
- *Part 23: Guidance on passive sampling*

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Denna standard är framtagen av kommittén för Karaktärisering av avfall, mark och slam, SIS/TK 535 och Kemiska vattenundersökningar, SIS/TK 424.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 5667-13

May 2011

ICS 13.060.45; 13.060.30

Supersedes EN ISO 5667-13:1997

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.

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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.

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6107 and the following apply.

3.1 batch
unit of production produced in a single plant using uniform production parameters — or a number of such units, when stored together — and that can be identified for the purposes of recall and re-treatment or disposal should tests show that to be necessary

3.2 composite sample
two or more samples or sub-samples, mixed together in appropriate known proportions (either discretely or continuously), from which the average value of a desired characteristic can be obtained

NOTE 1 The proportions are usually based on time or flow measurements.

NOTE 2 Adapted from ISO 6107-2:2006, 29.

3.3 critical control point
point, step or procedure at which control can be applied and is essential to prevent or eliminate a hazard or reduce it to an acceptable level

3.4 draw-off head
height of sludge above the extraction point providing hydraulic pressure available for withdrawal of sludge when removal is dependent upon gravity flow

3.5 flow-related sampling
samples taken at varying time intervals governed by material flow

NOTE “Flow-related sampling” usually applies to liquid sludges; for further guidance, see ISO 5667-10.

3.6 grab sample
discrete sample taken randomly (with regard to time and/or location) from a body of sludge

NOTE Adapted from ISO 6107-2:2006, 128.

3.7 heap
pile of dewatered sludge of approximately equal dimensions

3.8 liquid sludge
sludge flowing under the effect of gravity or pressure below a certain threshold

[CEN/TR 15463:2007^[7]]

3.9 long pile
pile of dewatered sludge with length greater than width

3.10 open channel
pipe or conduit where the liquid surface is at atmospheric pressure

3.11**proportional sampling**

technique for obtaining a sample from flowing sludge in which the frequency of collection (in the case of discrete sampling), or the sample flow rate (in the case of continuous sampling), is directly proportional to the flow rate of the sampled sludge

[ISO 6107-2:2006, 91]

3.12**quality control point**

point, step or procedure at which control can be applied and is important or even critical for acceptable quality, but not necessarily for safety

3.13**sampling performance**

precision of sampling assessed by quality control methods, e.g. repeated sampling, field blanks, field controls, intersampler comparisons, and sampling at reference stations

3.14**sludge**

mixture of water and solids separated from various types of water as a result of natural or artificial processes

NOTE Adapted from ISO 6107-1:2004, 67.

3.15**sludge cake**

sludge generated from dewatering devices

EXAMPLE Filter press, centrifuge.

[EN 1085:2007^[5], 9490]

3.16**static belt**

stationary conveyor where material is conveyed on a belt

3.17**stockpile**

storage of treated sludge until it is utilized or disposed of

4 Developing a sampling plan

4.1 Sampling objectives

Definition of the objectives of the sampling programme is an essential step towards defining the type and quality of information that is to be obtained through sampling.

The type of sampling that is undertaken depends upon whether the objective of the sampling programme is monitoring for process control or for effluent quality. Typically, a sampling programme targets the critical control points and quality control points in conjunction with in-line process instrumentation. Consult CEN/TR 13097 for details of hazard analysis critical control point, an approach to identifying critical control points and quality control points.

A sampling programme might include:

- influent monitoring;
- in-process monitoring;
- effluent monitoring;
- equipment inspection and testing.