

REOVEEPUHASTID. OSA 13: KEEMILINE PUHASTAMINE.
REOVEE PUHASTAMINE SADESTAMISE JA
FLOKULATSIOONI TEEL

Wastewater treatment plants - Part 13: Chemical
treatment - Treatment of wastewater by
precipitation/flocculation

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 12255-13:2023 sisaldab Euroopa standardi EN 12255-13:2023 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.07.2023.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 12255-13:2023 consists of the English text of the European standard EN 12255-13:2023.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 19.07.2023.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 13.060.30

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EUROPEAN STANDARD

EN 12255-13

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2023

ICS 13.060.30

Supersedes EN 12255-13:2002

English Version

Wastewater treatment plants - Part 13: Chemical treatment - Treatment of wastewater by precipitation/flocculation

Stations d'épuration - Partie 13: Traitement chimique -
Traitement des eaux usées par
précipitation/floculation

Kläranlagen - Teil 13: Chemische Behandlung -
Abwasserbehandlung durch Fällung/Flockung

This European Standard was approved by CEN on 24 April 2023.

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European foreword

This document (EN 12255-13:2023) has been prepared by Technical Committee CEN/TC 165 “Waste water engineering”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by January 2024, and conflicting national standards shall be withdrawn at the latest by January 2024.

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

This document supersedes EN 12255-13:2002.

This is the thirteenth part prepared by Working Group CEN/TC 165/WG 40 relating to the general requirements and processes for treatment plants for a total number of inhabitants and population equivalents (PT) over 50.

The EN 12255 series with the generic title “Wastewater treatment plants” consists of the following parts:

- *Part 1: General construction principles*
- *Part 2: Storm management systems*
- *Part 3: Preliminary treatment*
- *Part 4: Primary treatment*
- *Part 5: Lagooning processes*
- *Part 6: Activated sludge process*
- *Part 7: Biological fixed-film reactors*
- *Part 8: Sludge treatment and storage*
- *Part 9: Odour control and ventilation*
- *Part 10: Safety principles*
- *Part 11: General data required*
- *Part 12: Control and automation*
- *Part 13: Chemical treatment — Treatment of wastewater by precipitation/flocculation*
- *Part 14: Disinfection*
- *Part 15: Measurement of the oxygen transfer in clean water in aeration tanks of activated sludge plants*
- *Part 16: Physical (mechanical) filtration*

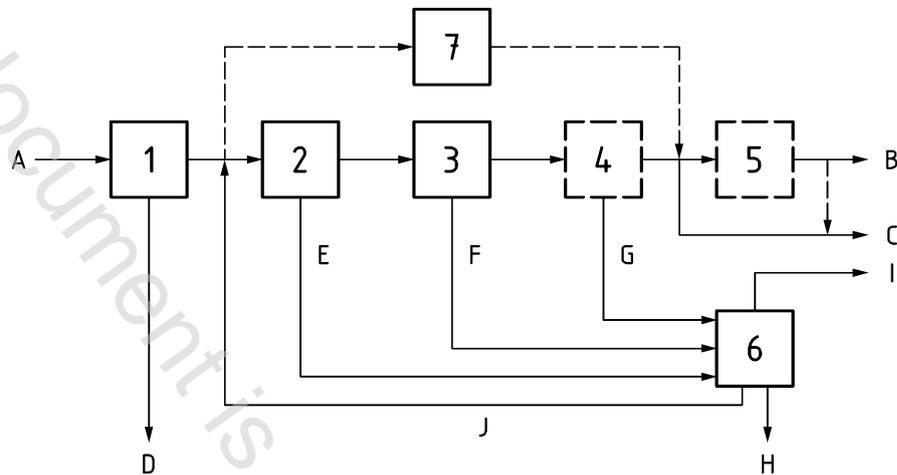
NOTE Part 2 is under preparation.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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Introduction

Differences in wastewater treatment throughout Europe have led to a variety of systems being developed. This document gives fundamental information about the systems; this document has not attempted to specify all available systems. A generic arrangement of wastewater treatment plants is illustrated in Figure 1:



Key

- 1 preliminary treatment
- 2 primary treatment
- 3 secondary treatment
- 4 tertiary treatment
- 5 additional treatment (e.g. disinfection or removal of micropollutants)
- 6 sludge treatment
- 7 lagoons (as an alternative)
- A raw wastewater
- B effluent for re-use (e.g. irrigation)
- C discharged effluent
- D screenings and grit
- E primary sludge
- F secondary sludge
- G tertiary sludge
- H stabilized sludge
- I digester gas
- J returned water from dewatering

Figure 1 — Schematic diagram of wastewater treatment plants

The primary application is for wastewater treatment plants designed for the treatment of domestic and municipal wastewater.

NOTE For requirements on pumping installations at wastewater treatment plants see EN 752, *Drain and sewer systems outside buildings* and EN 16932, *Drain and sewer systems outside buildings — Pumping systems*:

- *Part 1: General requirements;*
- *Part 2: Positive pressure systems;*
- *Part 3: Vacuum systems.*

1 Scope

This document specifies the requirements for chemical treatment of wastewater by precipitation/flocculation for removal of phosphorus and suspended solids.

The application of polymers is not described in this document.

This document has not attempted to specify all available practices.

NOTE Chemical treatment can be performed in combination with primary and more commonly with secondary treatment, but it can also be performed as separate tertiary treatment, usually in combination with filtration (see EN 12255-16). Chemical treatment can provide a potential contribution to the **circular economy** through the recovery of materials, such as phosphorus, from wastewater or sludge.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12255-1, *Wastewater treatment plants - Part 1: General construction principles*

EN 12255-11, *Wastewater treatment plants - Part 11: General data required*

EN 16932-1, *Drain and sewer systems outside buildings - Pumping systems - Part 1: General requirements*

EN 16932-2, *Drain and sewer systems outside buildings - Pumping systems - Part 2: Positive pressure systems*

3 Terms and definitions

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

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

chemical treatment

process involving the addition of chemicals to achieve a specific result

Note 1 to entry: For wastewater, typical chemical treatments comprise: coagulation/precipitation with metal salts (including lime) or organic polymers in order to remove inorganic and organic phosphorus compounds or suspended solids and colloids.

[SOURCE: ISO 6107:2021, definition 3.108 modified – Note 1 to entry added]

3.2

chemical precipitation

conversion of components dissolved in water into an undissolved form by chemical reaction with a precipitant

[SOURCE: EN 16323:2014, 2.3.5.8]