

REOVEEPUHASTID. OSA 14: DESINFITSEERIMINE

Wastewater treatment plants - Part 14: Disinfection

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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EUROPEAN STANDARD

**EN 12255-14**

NORME EUROPÉENNE

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Supersedes EN 12255-14:2003

English Version

## Wastewater treatment plants - Part 14: Disinfection

Stations d'épuration - Partie 14: Désinfection

Kläranlagen - Teil 14: Desinfektion

This European Standard was approved by CEN on 28 May 2023.

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## European foreword

This document (EN 12255-14:2023) has been prepared by Technical Committee CEN/TC 165 “Wastewater 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of an identical text or by endorsement, at the latest by January 2024, and conflicting national standards shall be withdrawn at the latest by January 2024.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 12255-14:2003.

It is the 14<sup>th</sup> 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.

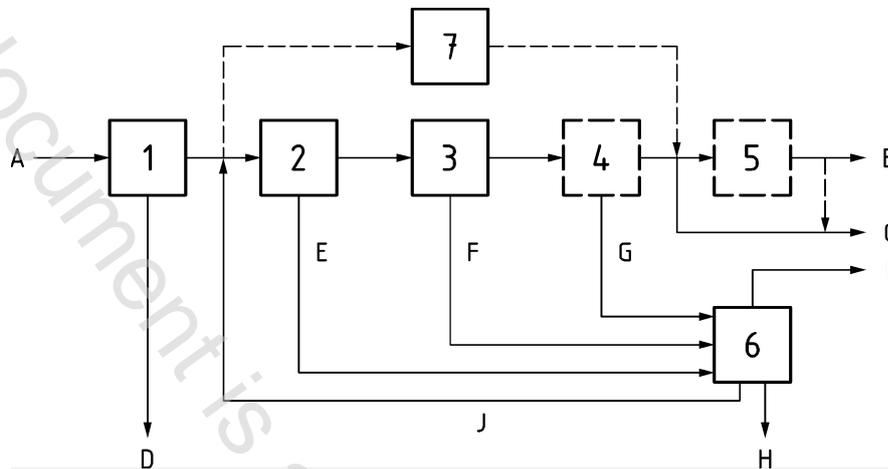
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According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland,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

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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 below in Figure 1:



### Key

- |   |  |
|---|--|
| 1 | preliminary treatment  |
| 2 | 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**

Detailed information additional to that contained in this document can be obtained by referring to the Bibliography.

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 and the EN 16932 series:

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

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## 1 Scope

This document specifies design principles and performance requirements for disinfection of effluents (excluding sludge) at wastewater treatment plants serving more than 50 PT.

NOTE Sludge disinfection is described in EN 12255-8.

## 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 12255-5, *Wastewater treatment plants - Part 5: Lagooning processes*

EN 12255-10, *Wastewater treatment plants - Part 10: Safety principles*

EN 12255-12, *Wastewater treatment plants - Part 12: Control and automation*

EN 12255-15, *Wastewater treatment plants - Part 15: Measurement of the oxygen transfer in clean water in aeration tanks of activated sludge plants*

EN 16323, *Glossary of wastewater engineering terms*

ISO 15727, *UV-C devices — Measurement of the output of a UV-C lamp*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12255-1, EN 16323, and the following 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

#### **residual concentration**

concentration of a substance in the final effluent of a treatment stage

### 3.2

#### **UV dose**

product of UV irradiance and specific exposure time along the pathway of an infinitesimal small water volume

Note 1 to entry: UV dose is expressed in millijoules per square centimetre (mJ/cm<sup>2</sup>).

### 3.3

#### **UV intensity**

quotient of the energy of the UV radiation received on the surface of an infinitesimal small area divided by the size of the area

Note 1 to entry: The unit of UV intensity is W/m<sup>2</sup>, measured in accordance with ISO 15727.