

REOVEEPUHASTID. OSA 6: AKTIIVMUDAPROTSESSID

Wastewater treatment plants - Part 6: Activated sludge process

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Wastewater treatment plants - Part 6: Activated sludge process

Stations d'épuration - Partie 6: Procédé à boues
activées

Kläranlagen - Teil 6: Belebungsverfahren

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

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European foreword

This document (EN 12255-6:2023) 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of an identical text or by endorsement, at the latest by January 2024, and conflicting national standards shall be withdrawn at the latest by January 2024.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 12255-6:2002.

This is the sixth 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.

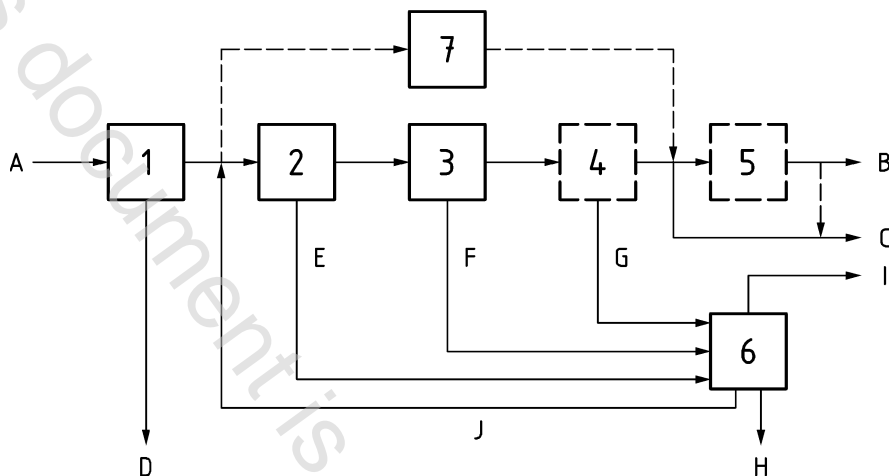
NOTE For requirements on pumping installations at wastewater treatment plants see EN 752, *Drain and sewer systems outside buildings — Sewer system management* and EN 16932 (all parts), *Drain and sewer systems outside buildings — Pumping systems*.

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.

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

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 digested 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 performance requirements for treatment of wastewater using the activated sludge process for plants over 50 PT.

The informative Annexes A to W provide design information.

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 16323, *Glossary of wastewater engineering terms*

EN 12255-1, *Wastewater treatment plants - Part 1: General construction principles*

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in 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/ui>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

enhanced biological phosphorus removal

activated sludge system for increased biological phosphorus removal by luxury uptake whereby mixed liquor or return sludge is intermittently subjected to anaerobic and aerobic conditions

3.2

internal recirculation ratio

IRR

ratio of the flow of recirculated nitrate containing wastewater to a denitrification reactor relative to the inflow

3.3

selector

first, optional reactor of an activated sludge system where incoming wastewater and return activated sludge are blended and mixed to subject the return activated sludge to a high sludge load in order to mitigate sludge bulking

Note 1 to entry: A selector can be aerobic or anaerobic; aerobic selectors are more common. An anaerobic selector can also be used to assist biological phosphorus removal.