

Water quality - Guidance on field and laboratory procedures for quantitative analysis and identification of macroinvertebrates from inland surface waters

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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ICS 13.060.10

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English Version

Water quality - Guidance on field and laboratory
procedures for quantitative analysis and identification of
macroinvertebrates from inland surface waters

Qualité de l'eau - Guide sur les procédures de terrain et
de laboratoire pour l'analyse quantitative et
l'identification des macro-invertébrés des eaux de
surface continentales

Wasserbeschaffenheit - Anleitung zu Feld- und
Laborverfahren zur quantitativen Analyse und
Bestimmung von Makroinvertebraten aus
Binnenoberflächengewässern

This European Standard was approved by CEN on 14 December 2018.

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European foreword

This document (EN 17136:2019) has been prepared by Technical Committee CEN/TC 230 “Water analysis”, 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of an identical text or by endorsement, at the latest by August 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

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Introduction

WARNING — Working in or around water is inherently dangerous. Care should be taken when working with different and generally toxic preservatives. This standard does not purport to address the safety problems associated with its use. It is the responsibility of the user to adopt appropriate health and safety practices in compliance with national regulatory conditions.

Macroinvertebrates are important in water quality assessment and form one of the biological quality elements in the EC Water Framework Directive (WFD 2000/60/EC). Macroinvertebrates are a very diverse group of organisms for which an efficient and effective procedure for analysis is not always obvious. Their large size range, very different appearances and the diverse range of habitats they live in produce specific problems for collecting and analysis. This standard aims to provide a general procedure for the quantitative analysis of macroinvertebrate samples for the WFD in particular and scientific studies in general. It is not intended to give a full and exact overview of all possible methods. Although specific situations and investigation objectives may require adjustments to the outlined procedure the general principles given in this guideline should still be valid.

1 Scope

This document gives guidance on the quantitative estimation of abundance and identification of macroinvertebrates in samples taken from inland waters. The procedure deals with pre-treatment (cleaning), sub-sampling, sorting, and final identification of organisms from preserved and unpreserved samples originating from natural habitats or artificial substrates and their transport to the laboratory. Specific guidance is given for preservation for DNA-analysis.

2 Normative references

There are no normative references in this document.

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

3.1

fixation

protection from disintegration of the morphological structure of organisms

3.2

macroinvertebrate

invertebrate that is easily visible without magnification ($> 0,5$ mm) and generally belongs to the group of organisms that live for at least one life stage on or in the bottom substrate or vegetation of inland surface waters

3.3

matrix

components of a sample other than the macroinvertebrates

3.4

preservation

process that protects organic substances from decay

4 Principle

The identification and quantification of macroinvertebrates comprises both field and laboratory procedures. After an optional pre-treatment of rinsing and sieving in the field, macroinvertebrate samples are transported to the laboratory where the samples are further processed. Macroinvertebrates are taken out of the matrix material by a sample dependent technique, quantified and sorted in functional groups for identification using a microscope or DNA-analysis. Several techniques exist to clean (remove unwanted matrix material) the sample and sort the organisms. The most suitable technique should be selected by visual inspection of the individual sample. Dependent on the objective of the analysis samples can be preserved in the field or cooled and processed unpreserved.