

**Water quality - Guidance on pro-rata Multi-Habitat  
sampling of benthic macro-invertebrates from wadeable  
rivers**

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ICS 13.060.70

English Version

## Water quality - Guidance on pro-rata Multi-Habitat sampling of benthic macro-invertebrates from wadeable rivers

Qualité de l'eau - Lignes directrices pour l'échantillonnage des macroinvertébrés benthiques en cours d'eau peu profonds au prorata des surfaces de recouvrement des habitats présents

Wasserbeschaffenheit - Anleitung für die pro-rata Multi-Habitat-Probenahme benthischer Makroinvertebraten in Flüssen geringer Tiefe (watbar)

This European Standard was approved by CEN on 16 March 2012.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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## Foreword

This document (EN 16150:2012) 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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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.

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## 1 Scope

This European Standard gives guidance on procedures for the pro-rata Multi-Habitat-Sampling (MHS) of benthic macro-invertebrates in wadeable rivers and streams. The term "pro-rata" reflects the intention to sample adequate proportions of riverine habitats with reference to their percentage occurrence.

The pro-rata MHS technique does not replace other techniques, but is rather, alongside other applications, a fundamental requisite of some multi-metric assessment approaches used to evaluate the ecological status of running waters. The method described in this document is one of the possible techniques among the existing pro-rata MHS techniques.

The MHS methodology is based on Rapid Bioassessment Protocols [1], the procedures of the Environment Agency for England and Wales [2], the Austrian Guidelines for the Assessment of the Saprobiological Water Quality of Rivers and Streams [3], the AQEM sampling manual [4], the AQEM & STAR site protocol [5], EN 27828, the Austrian Standards M 6232 and M 6119-2 [6], [7], the German Standard DIN 38410-1 [8] and the French Standard XP T90-333 [9].

This European Standard also describes in a detailed manner how to sample different habitats that might be suitable for sampling approaches other than Multi-Habitat-Sampling.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 27828, *Water quality — Methods of biological sampling — Guidance on handnet sampling of aquatic benthic macro-invertebrates (ISO 7828)*

## 3 Terms and definitions

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

- 3.1**  
**akal**  
fine to medium-sized gravel; grain diameter > 0,2 cm to 2 cm
- 3.2**  
**argyllal**  
silt, loam, clay
- 3.3**  
**debris**  
organic and inorganic matter deposited within the splash zone area by wave-motion and changing water levels
- 3.4**  
**hygropetric sites**  
thin water layer on solid (rocky) substrates
- 3.5**  
**investigation site**  
specific area of an investigated river reach for sampling benthic organisms