

STN	Kvalita vody. Pokyny na rutinný odber a predúpravu vzoriek bentických rozsievok z riek a jazier.	STN EN 13946 75 7754
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Water quality - Guidance for the routine sampling and preparation of benthic diatoms from rivers and lakes

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/14

Obsahuje: EN 13946:2014

Oznámením tejto normy sa ruší
STN EN 13946 (75 7754) z apríla 2004

119338

English Version

Water quality - Guidance for the routine sampling and preparation of benthic diatoms from rivers and lakes

Qualité de l'eau - Guide pour l'échantillonnage en routine et le prétraitement des diatomées benthiques de rivières et de plans d'eau

Wasserbeschaffenheit - Anleitung zur Probenahme und Probenaufbereitung von benthischen Kieselalgen aus Fließgewässern und Seen

This European Standard was approved by CEN on 20 December 2013.

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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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 13946:2014) 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of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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.

This document supersedes EN 13946:2003.

This document contains the following technical changes in comparison with the previous edition:

- this European Standard is now also applicable for the sampling of benthic diatoms in lakes.

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

Introduction

Diatoms are an important component of aquatic ecosystems and constitute a water quality monitoring tool where the primary objective is either a measure of ecological status based on diatoms as one compartment of the ecosystem or the impact of specific components of water quality (e.g. eutrophication, acidification). The requirement for the monitoring of such processes is inherent in the Water Framework Directive (2000/60/EC) [7] and Urban Waste Water Treatment Directive (91/271/EEC) [8] in addition to other EU Directives and international agreements. This European Standard covers aspects of sampling and preparation relevant to assessment of water quality and ecological status using benthic diatoms. These sampling instructions will result in samples suitable for quantifying relative numbers of benthic diatom taxa present. If it is necessary to quantify absolute numbers of taxa, or fresh weight per unit area, modifications to the method are required, which are not within the scope of this European Standard.

The use of diatoms as indicators of river and lake quality is widely accepted both in Europe and the USA. The methodology is based on the fact that all diatom species have tolerance limits and optima with respect to their preference for environmental conditions such as nutrients, organic pollution and acidity. Polluted waters will tend to support an increased abundance of those species whose optima correspond with the levels of the pollutant in question. Conversely, certain species are intolerant of elevated levels of one or more pollutants, whilst others may occur in a wide range of water qualities.

Methods using diatoms to assess water quality have been developed in several European countries (recent work is summarized in the proceedings of three symposia [1] to [3]). The methodologies for evaluating the diatom data vary but the sampling and preparation processes are similar [5, 6].

According to the precise usage to which this European Standard is to be put it is essential for specifiers and users to mutually agree on any necessary variations or optional procedural details prior to use.

All numerical values given in this standard are approximate.

WARNING — Persons using this European Standard should be familiar with usual laboratory practice. This European Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

1 Scope

This European Standard specifies a method for the sampling and laboratory preparation of benthic diatoms for ecological status and water quality assessments. Data produced by this method are suitable for production of water quality indices based on the relative abundance of taxa.

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