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National Standards Authority of Ireland

STANDARD

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WATER QUALITY - GUIDANCE STANDARD FOR THE IDENTIFICATION, ENUMERATION AND INTERPRETATION OF BENTHIC DIATOM SAMPLES FROM RUNNING WATERS

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EUROPEAN STANDARD

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English version

Water quality - Guidance standard for the identification, enumeration and interpretation of benthic diatom samples from running waters

Qualité de l'eau - Guide pour l'identification et le dénombrement des échantillons de diatomées benthiques de rivières, et leur interprétation

Wasserbeschaffenheit - Anleitung zur Bestimmung, Zählung und Interpretation von benthischen Kieselalgen in Fließgewässern

This European Standard was approved by CEN on 21 May 2004.

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Foreword

This document (EN 14407:2004) 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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

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

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Introduction

WARNING — Persons using this standard should be familiar with normal laboratory practice. This 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.

Diatoms are an important component of aquatic ecosystems and constitute a water quality monitoring tool where the primary objective is either a measure of general water quality or specific components of water quality (e.g. eutrophication, acidification). The requirement for the monitoring of such processes is inherent in the Urban Wastewater Treatment Directive (91/271/EEC) and the Water Framework Directive (2000/60/EC) in addition to other EU Directives and international agreements. This standard covers aspects of identification and enumeration of the relative abundance of diatom taxa on prepared slides and of data interpretation relevant to assessment of water quality.

The use of diatoms as indicators of the quality of river waters is widely accepted both in Europe and the USA. The methodology is based on the fact that all diatom species have optima with respect to their tolerance (or preference) for environmental conditions such as nutrients, organic pollution, pH etc. Polluted waters will tend to support an increased abundance of those species whose optima correspond with the levels of the pollutant in question.

Methods using diatoms to assess water quality have been developed in several European countries (recent work is summarised in the proceedings of three symposia (references [1] to [3]).

According to the precise usage to which this 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. It should be noted that some indices and national methodologies have particular requirements whilst this document embraces the full range of valid options. Under such circumstances, the requirements of a particular index should take priority.

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