INTERNATIONAL STANDARD

ISO 20179

First edition
2005-10-01

Water quality — Determination of microcystins — Method using solid phase extraction (SPE) and high performance liquid chromatography (HPLC) with ultraviolet (UV) detection

Qualité de l'eau — Dosage des microcystines — Méthode utilisant l'extraction en phase solide (SPE) et la chromatographie en phase liquide à haute performance (CLHP) avec détection dans l'ultraviolet (UV)

Reference number
ISO 20179:2005(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 20179 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

Introduction

The user should be aware that particular problems could require the specification of additional conditions.

Water quality — Determination of microcystins — Method using solid phase extraction (SPE) and high performance liquid chromatography (HPLC) with ultraviolet (UV) detection

WARNING — The method requires use of microcystin-containing solutions. Microcystins are highly hepatotoxic to humans. Laboratory wastes of microcystins shall be collected separately and disposed as highly toxic chemical waste. Long-term decontamination with concentrated sodium hypochlorite (NaClO) solution is also possible.

Persons using this International 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 safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this standard be carried out by suitably trained staff.

1 Scope

This International Standard specifies a method for the determination and quantification of microcystins in raw water (containing biomass) and treated water, such as tap water. The method described is validated for MCYST-RR, MCYST-YR, and MCYST-LR. It is also applicable for the determination of several structure variants[1] of these microcystins, but an unambiguous identification cannot be made due to the lack of commercially available standards and due to co-elution.

The threshold value of 1 µg/l of MCYST-LR in water, proposed by the World Health Organization, can be followed after microcystin enrichment using solid phase extraction (SPE).

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 5667-4, *Water quality — Sampling — Part 4: Guidance on sampling from lakes, natural and man-made*

ISO 5667-5, *Water quality — Sampling — Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems*

3 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

APCI atmospheric pressure chemical ionization

MCYST microcystin

MCYST-LR microcystin containing leucine (L) and arginine (R)