

Water quality — Determination of mercury by atomic fluorescence spectrometry

The European Standard EN 13506:2001 has the status of a British Standard

ICS 13.060.50

National foreword

This British Standard is the official English language version of EN 13506:2001. The UK participation in its preparation was entrusted by Technical Committee EH/3, Water quality, to Subcommittee EH/3/2, Physical, chemical and biochemical methods, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Additional information

BS EN 13506 is one of a series of standards on water quality, others of which have been or will be published as sections of BS 6068. This standard has therefore been given the secondary identifier BS 6068-2.74. The various sections of BS 6068 are comprised within Parts 1 to 7, which together with Part 0 are listed below:

- Part 0: *Introduction*;
- Part 1: *Glossary*;
- Part 2: *Physical, chemical and biochemical methods*;
- Part 3: *Radiological methods*;
- Part 4: *Microbiological methods*;
- Part 5: *Biological methods*;
- Part 6: *Sampling*;
- Part 7: *Precision and accuracy*.

NOTE The tests described in this British Standard should only be carried out by suitably qualified persons with an appropriate level of chemical expertise. Standard chemical procedures should be followed throughout.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Health and Environment Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 25 January 2002

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 16, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

English version

Water quality - Determination of mercury by atomic fluorescence spectrometry

Qualité de l'eau - Dosage du mercure par spectrométrie de fluorescence atomique

Wasserbeschaffenheit - Bestimmung von Quecksilber mittels Atomfluoreszenzspektrometrie

This European Standard was approved by CEN on 4 October 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
1 Scope	4
2 Normative references	4
3 Principle	5
4 Interferences.....	5
5 Reagents and Standards.....	5
6 Apparatus and instrumentation.....	7
7 Sample collection, preservation and storage	8
8 Sample preparation procedure.....	9
9 Instrumental set up	9
10 Procedure	9
11 Data analysis and calculations.....	10
12 Test report	11
13 Precision data.....	12
Annex A (informative) Additional Information.....	13
Annex B (informative) Schematic Block Diagram	14
Annex C (informative) Availability of Reagents etc.	15
Bibliography	16

Foreword

This European Standard 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 May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

Annexes designated "informative" are only given for information. In this standard, annexes A, B and C are informative.

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 safety and health practices and to ensure compliance with any national regulatory conditions.

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

Introduction

It is absolutely essential that tests conducted to this standard are carried out by suitably qualified staff.

In natural water sources, mercury compounds generally occur in very small concentrations of less than 0,1 µg/l. Higher concentrations may be found, for example, in industrial waste water.

Both inorganic and organic compounds of mercury may be present. Mercury can also accumulate in sediment and sludge.

In order to fully decompose all of the mercury compounds, a digestion procedure is necessary. Digestion can be omitted only if it is certain that the mercury concentration can be measured without this pre-treatment.

1 Scope

This European Standard specifies a method for the determination of mercury in drinking, surface, ground and rain water.

NOTE It is permissible, that this standard is also applied to industrial and municipal waste water after an additional digestion step under appropriate conditions.

The potential linear dynamic range is approximately 1 ng/l to 100 µg/l. In practice, the working range is often from 10 ng/l to 10 µg/l.

Samples containing mercury at concentrations higher than the working range can be analysed following appropriate dilution of the sample.

The method detection limit (MDL) will be dependent on the selected operating conditions and calibration range. With high purity reagents a MDL of less than 1 ng/l is obtainable.

The relative standard deviation is typically less than 5 % for concentrations greater than twenty times the method detection limit.

The sensitivity of this method is dependent on the selected operating conditions.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 25667-1, *Water quality - Sampling - Part 1: Guidance on the design of sampling programmes (ISO 5667-1:1980)*.

EN 25667-2, *Water quality - Sampling - Part 2: Guidance on sampling techniques (ISO 5667-2:1991)*.

EN ISO 5667-3, *Water quality - Sampling - Part 3: Guidance on the preservation and handling of samples (ISO 5667-3:1994)*.

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*.