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**Water quality — Determination of  
mercury — Method using atomic  
fluorescence spectrometry**

*Qualité de l'eau — Dosage du mercure — Méthode par spectrométrie de  
fluorescence atomique*



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## 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 17852 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

This International Standard is the equivalent of European Standard EN 13506. The preservation procedure with potassium dichromate solution, described in EN 13506 was replaced by a combined on site preservation and digestion procedure with the potassium bromide - potassium bromate reagent (see 5.4)

## Introduction

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.

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

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# Water quality — Determination of mercury — Method using atomic fluorescence spectrometry

**WARNING** — 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 International Standard are carried out by suitably qualified staff.

## 1 Scope

This International Standard specifies a method for the determination of mercury in drinking, surface, ground and rain water using atomic fluorescence spectrometry.

**NOTE** This International Standard may be 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 ( $x_{DL}$ ) will be dependent on the selected operating conditions and calibration range. With high purity reagents, a  $x_{DL}$  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

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, *Water for analytical laboratory use — Specification and test methods*

ISO 5667-1, *Water quality — Sampling — Part 1: Guidance on the design of sampling programmes and sampling techniques*

ISO 5667-2, *Water quality — Sampling — Part 2: Guidance on sampling techniques*

ISO 5667-3, *Water quality — Sampling — Part 3: Guidance on the preservation and handling of water samples*