



BSI Standards Publication

Water quality — Determination of selenium

Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)

National foreword

This Published Document is the UK implementation of ISO/TS 17379-1:2013.

The UK participation in its preparation was entrusted to Technical Committee EH/3/2, Physical chemical and biochemical methods.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

ISBN 978 0 580 70966 1

ICS 13.060.50

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2013.

Amendments issued since publication

Date	Text affected
------	---------------

TECHNICAL SPECIFICATION

ISO/TS 17379-1

First edition
2013-07-15

Water quality — Determination of selenium —

Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)

Qualité de l'eau — Dosage du sélénium —

*Partie 1: Méthode par spectrométrie de fluorescence atomique à
génération d'hydrures (HG-AFS)*



Reference number
ISO/TS 17379-1:2013(E)

AVA Documents
Document Sharing Hub
© ISO 2013



COPYRIGHT PROTECTED DOCUMENT

© ISO 2013

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Principle	2
4 Interferences	2
5 Reagents and standards	3
6 Apparatus	6
7 Sampling and sample preparation	7
7.1 Sampling techniques.....	7
7.2 Pre-reduction.....	7
8 Instrumental set-up	8
9 Procedure	8
10 Calibration and data analysis	9
10.1 General requirements.....	9
10.2 Calculation using the calibration curve.....	9
11 Expression of results	9
12 Test report	10
Annex A (informative) Additional information	11
Annex B (informative) Figures	12
Annex C (informative) Performance data	15

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

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. Details of any patent rights identified during the development of the standard will be in the Introduction and/or on the ISO list of patent declarations received, www.iso.org/patents.

Any trade name used in this document is information given for the convenience of users of this document and does not constitute an endorsement. Equivalent products can be used if they can be shown to lead to the same results.

The committee responsible for this document is ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

ISO/TS 17379 consists of the following parts, under the general title *Water quality — Determination of selenium*:

- *Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)*
- *Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)*

Introduction

This part of ISO/TS 17379 is intended for use by analysts experienced with the handling of trace elements at very low concentrations.

Inorganic selenium normally occurs in two oxidation states; Se(VI) and Se(IV). It is essential to convert all selenium species to the Se(IV) state prior to generating the hydrides. Selenium(VI) does not form a hydride.

In natural water sources, selenium compounds generally occur in very small quantities, typically less than 1 µg/l. Higher concentrations can be found, e.g. in industrial waste water. Selenium occurs naturally in organic and inorganic compounds and can have oxidation states -II, 0, IV, and VI.

In order to fully decompose all of the selenium compounds, a digestion procedure is necessary. Digestion can only be omitted if it is certain that the selenium in the sample can form a covalent hydride without the necessity of a pre-oxidation digestion step.

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

