

Water quality — Determination of ammonium nitrogen — Method by flow analysis (CFA and FIA) and spectrometric detection

The European Standard EN ISO 11732:2005 has the status of a British Standard

ICS 13.060.50

National foreword

This British Standard is the official English language version of EN ISO 11732:2005. It is identical with ISO 11732:2005. It supersedes BS EN ISO 11732:1997 which is withdrawn.

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 international/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.

Cross-references

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

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

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

Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to v, a blank page, pages 1 to 18, an inside back cover and a back cover.

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

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 17 February 2005

© BSI 17 February 2005

ISBN 0 580 45490 8

English version

Water quality - Determination of ammonium nitrogen - Method
by flow analysis (CFA and FIA) and spectrometric detection
(ISO 11732:2005)

Qualité de l'eau - Dosage de l'azote ammoniacal - Méthode
par analyse en flux (CFA et FIA) et détection
spectrométrique (ISO 11732:2005)

Wasserbeschaffenheit - Bestimmung von
Ammoniumstickstoff - Verfahren mittels Fließanalytik (CFA
und FIA) und spektrometrischer Detektion (ISO
11732:2005)

This European Standard was approved by CEN on 3 January 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of 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.



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

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

Foreword

This document (EN ISO 11732:2005) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with 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 August 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.

This document supersedes EN ISO 11732:1997.

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.

Endorsement notice

The text of ISO 11732:2005 has been approved by CEN as EN ISO 11732:2005 without any modifications.

INTERNATIONAL STANDARD

ISO
11732

Second edition
2005-02-01

Water quality — Determination of ammonium nitrogen — Method by flow analysis (CFA and FIA) and spectrometric detection

*Qualité de l'eau — Dosage de l'azote ammoniacal — Méthode par
analyse en flux (CFA et FIA) et détection spectrométrique*



Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Determination of ammonium nitrogen by flow injection analysis (FIA) and spectrometric detection	1
4 Determination of ammonium nitrogen by continuous flow analysis (CFA) and spectrometric detection	7
5 Calculation	10
6 Precision	10
7 Test report	11
Annex A (informative) Examples of flow analysis systems	12
Annex B (informative) Precision data	16
Bibliography	18

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 11732 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

This second edition cancels and replaces the first edition (ISO 11732:1997), which has been technically revised.

Introduction

Methods using flow analysis are automating wet chemical procedures and are therefore particularly suitable for the processing of large sample series at a high analysis frequency (up to 100 samples per hour).

It is differentiated between flow injection analysis (FIA)^{[1],[2]} and continuous flow analysis (CFA)^[3]. Both methods consist of the automatic dosage of the sample introduced into a flow system (manifold) in which the sample analytes react with the reagent solutions on their way through the manifold. The sample preparation may be integrated into the manifold. The reaction product is measured in a flow detector.

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