INTERNATIONAL STANDARD

ISO 16588

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Water quality — Determination of six complexing agents — Gas-chromatographic method

Qualité de l'eau — Dosage de six agents complexants — Méthode par chromatographie en phase gazeuse

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16588 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

Annex A of this International Standard is for information only.

Introduction

It is essential that the test described in this International Standard be carried out by suitably qualified staff.

It should be investigated whether and to what extent particular problems will require the specification of additional conditions.

Water quality — Determination of six complexing agents — Gas-chromatographic method

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.

1 Scope

This International Standard specifies a method for the determination of the water-soluble organic complexing agents listed in Table 1 in the concentration range from 0,5 μg/l to 200 μg/l, if a sample volume between 50 ml and 100 ml is used. The concentration range may change if diluted solutions are analysed. The method is applicable to drinking, ground, surface and waste water.

Table 1 — Complexing agents determinable by this method

No.	Name	Composition	Molecular mass	CAS number[a]
1	EDTA — ethylenedinitrilotetraacetic acid	$C_{10}H_{16}O_8N_2$	292,25	60-00-4
2	NTA — nitrilotriacetic acid	$C_6H_9O_6N$	191,14	139-13-9
3	DTPA — diethylenetrinitrilopentaacetic acid	$C_{14}H_{23}O_{10}N_3$	393,35	67-43-6
4	MGDA — methylglycinediacetic acid	$C_7H_{11}O_6N$	205,17	29578-05-0
5	β-ADA — β-alaninediacetic acid	$C_7H_{11}O_6N$	205,17	6245-75-6
6	1,3-PDTA — 1,3-propylenedinitrilotetraacetic acid	$C_{11}H_{18}O_8N_2$	306,27	1939-36-2

[a] CAS: Chemical Abstracts System

In waste water analysis, it is recommended that a smaller sample volume, e.g. 5 ml or 10 ml, be used in order to reduce matrix effects.

The adsorption of the six complexing agents on solid materials is negligibly low.

Other complexing agents of similar composition may also be determined using this method, provided they behave similarly during sample pretreatment, derivatization and gas chromatography. This shall be checked in each individual case.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 5667-1:1980, *Water quality — Sampling — Part 1: Guidance on the design of sampling programmes*

ISO 5667-2:1991, *Water quality — Sampling — Part 2: Guidance on sampling techniques*