

Water quality - Determination of selected phenoxyalkanoic herbicides, including bentazones and hydroxybenzotrioles by gas chromatography and mass spectrometry after solid phase extraction and derivatization (ISO 15913:2000)

Wasserbeschaffenheit - Bestimmung ausgewählter Phenoxyalkancarbonsäure-Herbiziden, einschließlich Bentazon und Hydroxybenzotriolen mittels Gaschromatographie und massenspektrometrischer Detektion nach Fest-Flüssig-Extraktion und Derivatisierung (ISO 15913:2000)

Qualité de l'eau - Dosage de certains herbicides phénoxyalcanoïques, y compris bentazones et hydroxybenzotrioles, par chromatographie en phase gazeuse et spectrométrie de masse après extraction en phase solide et dérivatisation (ISO 15913:2000)

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13.060.50	Účinná látka [látka] • } [článek]	Examination of water for chemical substances
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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO 15913

March 2003

ICS 13.060.50

English version

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This European Standard was approved by CEN on 9 January 2003.

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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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovak Republic, 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

EN ISO 15913:2003 (E)**Foreword**

The text of ISO 15913:2000 has been prepared by Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15913:2003 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 September 2003, and conflicting national standards shall be withdrawn at the latest by September 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 15913:2000 has been approved by CEN as EN ISO 15913:2003 without any modifications.

NOTE Normative references to International Standards are listed in Annex ZA (normative).

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Annex ZA (normative)

Normative references to international publications with their relevant European publications

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).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 5667-1	1980	Water quality - Sampling - Part 1: Guidance on the design of sampling programmes	EN 25667-1	1993
ISO 5667-2	1991	Water quality - Sampling - Part 2: Guidance on sampling techniques	EN 25667-2	1993
ISO 5667-3	1994	Water quality - Sampling - Part 3: Guidance on the preservation and handling of samples	EN ISO 5667-3	1995

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
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ISO 15913:2000(E)**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 15913 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

Annexes A, B, C and D of this International Standard are for information only.

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WARNING — Diazomethane is explosive, extremely toxic and severely irritating, causing pulmonary oedema when inhaled in high concentrations. Long-term, low-level exposure may lead to sensitization, resulting in asthma-like symptoms. Also, diazomethane and several of its chemical precursors have been cited as carcinogens.

1 Scope

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This International Standard specifies a method for the determination of phenoxyalkanoic acids in ground and drinking water in mass concentrations ≥ 50 ng/l (detailed information is given in Table A.1 of annex A). Examples of phenoxyalkanoic acids which can be determined by this method are given in Table 1.

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This method may be applicable to compounds not mentioned in Table 1 or to other types of water. However, it is necessary to verify the applicability of this method for these special cases (see annex B).

Table 1 — Plant treatment agents determined by this method

Name	Molecular formula	Relative molecular mass	CAS registry No.
(2,4-Dichlorophenoxy) acetic acid	C ₈ H ₆ Cl ₂ O ₃	221,0	94-75-7
Mecoprop	C ₁₀ H ₁₁ ClO ₃	214,65	93-65-2
Dichlorprop	C ₉ H ₈ Cl ₂ O ₃	235,06	120-36-5
MCPA	C ₉ H ₉ ClO ₃	200,6	94-74-6
MCPB	C ₁₁ H ₁₃ ClO ₃	228,67	94-81-5
(2,4,5-Trichlorophenoxy)acetic acid	C ₈ H ₅ Cl ₃ O ₃	255,5	93-76-5
Bentazone	C ₁₀ H ₁₂ N ₂ O ₃ S	240,3	25057-89-0
Bromoxynil	C ₇ H ₃ Br ₂ NO	276,9	1689-84-5
4-(2,4-Dichlorophenoxy)-butanoic acid	C ₁₀ H ₁₀ Cl ₂ O ₃	249,1	94-82-6
Fenoprop	C ₉ H ₇ Cl ₃ O ₃	269,51	93-72-1

ISO 15913:2000(E)**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 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*.

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

3 Term, definition, abbreviations and subscripts**3.1 Term and definition**

For the purposes of this International Standard, the following term and definition applies.

3.1.1**phenoxyalkanoic herbicides**

herbicides which undergo derivatization with diazomethane and which may subsequently be determined by gas chromatography

EXAMPLE Typical phenoxyalkanoic herbicides include alkylhalogenated phenoxy acids, hydroxybenzonnitriles and bentazone.

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3.2 Abbreviations

2,4-D	(2,4-dichlorophenoxy) acetic acid
2,4-DB	4-(2,4-dichlorophenoxy) butanoic acid
2,4-DP	dichlorprop
MCPP	mecoprop
2,4,5-T	(2,4,5-trichlorophenoxy) acetic acid
2,4-TP	fenoprop

3.3 Subscripts

c	calibration step using an external standard
g	overall procedure
<i>i</i>	identity of the substance <i>i</i>
is	internal standard
<i>j</i>	consecutive figure <i>j</i> for pairs of values
sam	sample
sol	solvent