Vee kvaliteet. Valitud taimetöötlusvahendite sisalduse määramine. Meetod, kus kasutatakse üliefektiivset vedelikkromatograafiat koos UV detekteerimisega pärast tahke aine vedelikuga ekstraheerimist

Water quality - Determination of selected plant treatment agents - Method using high performance liquid chromatography with UV detection after solid-liquid extraction

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 11369:1999 sisaldab Euroopa standardi EN ISO 11369:1997 ingliskeelset teksti. Käesolev dokument on jõustatud 12.12.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 11369:1999 consists of the English text of the European standard EN ISO 11369:1997. This document is endorsed on 12.12.1999 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: Standard kirjeldab meetodit orgaaniliste taimetöötlusvahendite sisalduse määramiseks joogi- ja põhjavees, kasutades üliefektiivset vedelikkromatograafiat (HPLC) koos UV detekteerimisega pärast tahke aine vedelikuga ekstraheerimist. Selles standardis kirjeldatud meetod on kohaldatav valitud taimetöötlusvahendite ja mõnede nende degradatsioonisaaduste (metaboliitide) määramiseks joogivees, mille kohta on kehtestatud aruandlusnorm umbes 0,1 µg/l.	**Scope:**

ICS 13.060.50

Võtmesõnad: fütofarmatseutilised ained, keemiline analüüs, kvaliteet, sisalduse määramine, suure jõudlusega vedelikkromatograafia, veereostus, veetestid, vesi

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 11369

August 1997

ICS 13.060.01

Descriptors: Water analysis, plant treatment agents.

English version

Water quality

Determination of selected plant treatment agents

Method using high performance liquid chromatography with UV detection after solid-liquid extraction

(ISO 11369 : 1997)

Qualité de l'eau – Dosage de certains agents de traitement des plantes – Méthode par chromatographie en phase liquide à haute performance (CLHP) avec détection UV après extraction solide-liquide (ISO 11369 : 1997)

Wasserbeschaffenheit – Bestimmung ausgewählter Pflanzenbehandlungsmittel – Verfahren mit der Hochauflösungs-Flüssigkeitschromatographie mit UV-Detektion nach Fest-Flüssig-Extraktion (ISO 11369 : 1997)

This European Standard was approved by CEN on 1997-07-13.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 11369 : 1997 Water quality – Determination of selected plant treatment agents – Method using high performance liquid chromatography with UV detection after solid-liquid extraction,

which was prepared by ISO/TC 147 'Water quality' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 230 'Water analysis', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by February 1998 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11369 : 1997 was approved by CEN as a European Standard without any modification.

Contents

1 Scope

This International Standard describes a method for the determination of organic plant treatment agents in drinking and ground water using high performance liquid chromatography (HPLC) with UV detection after solid-liquid extraction.

The method described in this International Standard is applicable to the determination of selected plant treatment agents and some of their main degradation products (metabolites) in drinking water with a validated reporting limit of about 0,1 µg/l. Limited additional data indicate that it can be extended to 0,05 µg/l (see table 1 for examples). The method may be extended to include additional substances and ground water, provided the method is validated for each individual case.

The selection of the plant treatment agents and main degradation products in table 1 has been made according to the knowledge at the time of the interlaboratory trial (1992). Data for some other substances are given in annex A.

Table 1 — Plant treatment agents to which this International Standard applies

Name	Molecular formula	Molar mass	CAS No.[1]	Substance family[2]
Atrazine	$C_8H_{14}ClN_5$	215,7	001912-24-9	T
Chlorotoluron	$C_{10}H_{13}ClN_2O$	212,7	015545-48-9	H
Cyanazine**	$C_9H_{13}ClN_6$	240,7	021725-46-2	T
Desethylatrazine *	$C_6H_9ClN_5$	186,6	006190-65-4	T
Diuron	$C_9H_{10}Cl_2N_2O$	233,1	000330-54-1	H
Hexazinone**	$C_{12}H_{20}N_4O_2$	252,3	051235-04-2	T
Isoproturon	$C_{12}H_{18}N_2O$	206,3	034123-59-6	H
Linuron	$C_9H_{10}Cl_2N_2O_2$	249,1	000330-55-2	H
Metazachlor	$C_{14}H_{16}ClN_2O_3$	277,8	067129-08-2	A
Methabenzthiazuron	$C_{10}H_{11}N_3OS$	221,3	018691-97-9	H
Metobromuron**	$C_9H_{11}BrN_2O_2$	259,1	003060-89-7	H
Metolachlor	$C_{15}H_{22}ClNO_2$	283,8	051218-45-2	A
Metoxuron**	$C_{10}H_{13}ClN_2O_2$	228,7	19937-59-8	H
Monolinuron	$C_9H_{11}ClN_2O_2$	214,6	1746-81-2	H
Sebutylazine**	$C_9H_{15}ClN_5$	228,7	00728-69-3	T
Simazine	$C_7H_{12}ClN_5$	201,7	000122-34-9	T
Terbutylazine	$C_9H_{16}ClN_5$	229,7	005915-41-3	T

1) CAS No.: Chemical abstracts number
2) Substance family: T: Triazine; H: Phenylurea herbicide; A: substituted anilide
*: Main degradation product of atrazine
**: Not included in the performance data

2 Interferences

2.1 Interferences with the enrichment

The commercially available RP (reversed phase)-C18 materials are often of varying quality. Considerable batch-to-batch differences regarding quality and selectivity of this material even from one manufacturer are possible. The recovery may vary with the concentration. Co-extractants eluted from the sorbent material can affect the blank and the recovery. Therefore the calibration and analysis are performed on exactly the same batch of sorbent. Also any UV-absorbing material occurring in the water which passes through the procedure and has a retention time similar to the standard will interfere. Suspended matter in the water sample may clog the packing. In this case the water sample is filtered through a glass fibre filter prior to the enrichment.

2.2 Interferences with the HPLC measurement

Substances which absorb at the wavelengths of detection and have retention times similar to those of the compounds to be investigated will interfere with the determination. This shall especially be taken into account when examining samples other than ground- and drinking water.

3 Normative references

The following standards contain provisions which, through reference to this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possiblity of applying the most recent editions of the standards indicated below. Members of IEC and ISO 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*

ISO 8466-1: 1990, *Water quality — Calibration and evaluation of analytical methods and estimation of performance characteristics — Part 1: Statistical evaluation of the linear calibration function.*

ISO/TR 13530:—[1)], *Water quality - General guidance to analytical quality control for water analysis*

4 Principle

The plant treatment substances in the water sample are extracted by solid-liquid extraction on RP-C18 material (RP = reversed phase), eluted with a solvent and then separated, identified and quantified by high performance liquid chromatography (HPLC) using UV detection.

5 Reagents

5.1 General requirements

Water, solvents and reagents shall be of sufficient purity (e.g. residue grade or HPLC grade) as far as available and shall not contain any measurable UV absorbing substances interfering with the compounds of interest.

5.2 Nitrogen, high purity, for drying solvents and, if need be, for concentration by evaporation of the eluates.

5.3 Helium, high purity , for degassing HPLC solvents (see also 6.13)

1) To be published.