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PREDBEŽNÁ SLOVENSKÁ TECHNICKÁ NORMA

Máj 2019

STN	**Kvalita vody Stanovenie selénu Časť 2: Metóda atómovej absorpčnej spektrometrie (hydridový postup)**	**STN P ISO/TS 17379-2** 75 7434

Water quality. Determination of selenium. Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)

Qualité de l'eau. Dosage du sélénium. Partie 2: Méthode par spectrométrie d'absorption atomique à génération d'hydrures (HG-AAS)

Wasserqualität. Bestimmung von Selen. Teil 2: Verfahren unter Verwendung der Atomabsorptionsspektrometrie (HG-AAS)

Táto predbežná norma obsahuje anglickú verziu ISO/TS 17379-2: 2013.

This prestandard includes the English version of ISO/TS 17379-2: 2013.

Táto predbežná STN je určená na overenie. Pripomienky bolo možné zasielať ÚNMS SR do júna 2015.

Nahradenie predchádzajúcich noriem

Táto norma nahrádza STN ISO 9965 z novembra 1996 v celom rozsahu.

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Anotácia

ISO/TS 17379-2: 2013 špecifikuje metódu na stanovenie selénu. Metóda platí pre pitnú vodu, povrchovú vodu, podzemnú vodu a dažďovú vodu. Dynamický rozsah ISO/TS 17379-2: 2013 je približne od 0,5 µg / l do 20 µg / l. Vzorky obsahujúce selén vo vyšších koncentráciách ako uvedený rozsah použitia sa môžu analyzovať po príslušnom zriedení. Je nepravdepodobné, že by metóda detegovala zlúčeniny s organicky viazaným selénom.

Citlivosť tejto metódy závisí od zvolených prevádzkových podmienok.

Vo všetkých prípadoch je dôležité používať činidlá s vysokou čistotou s minimálnym obsahom selénu.

Normatívne referenčné dokumenty

Nasledujúce dokumenty, celé alebo ich časti, sú v tomto dokumente normatívnymi odkazmi a sú nevyhnutné pri jeho používaní. Pri datovaných odkazoch sa použije len citované vydanie. Pri nedatovaných odkazoch sa použije najnovšie vydanie citovaného dokumentu (vrátane všetkých zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN možno získať na webovej stránke www.unms.sk.

ISO 3696 zavedená v STN EN ISO 3696 Kvalita vody na analytické účely. Špecifikácia a skúšobné metódy (ISO 3696) (68 4051)

ISO 5667-1 zavedená v STN EN ISO 5667-1 Kvalita vody. Odber vzoriek. Časť 1: Pokyny na návrhy programov odberu vzoriek a techniky odberu vzoriek (ISO 5667-1) (75 7051)

ISO 5667-3 zavedená v STN EN ISO 5667-3 Kvalita vody. Odber vzoriek. Časť 3: Konzervácia vzoriek vody a manipulácia s nimi (ISO 5667-3) (75 7051)

ISO 5667-5 zavedená v STN ISO 5667-5 Kvalita vody. Odber vzoriek. Časť 5: Pokyny na odber vzoriek pitnej vody z úpravní vôd a z distribučnej siete (75 7051)

ISO 5667-6 zavedená v STN EN ISO 5667-6 Kvalita vody. Odber vzoriek. Časť 6: Pokyny na odber vzoriek z riek a potokov (ISO 5667-6) (75 7051)

ISO 5667-8 zavedená v STN ISO 5667-8 Kvalita vody. Odber vzoriek. Časť 8: Pokyny na odber vzoriek zrážok (75 7051)

ISO 5667-11 zavedená v STN ISO 5667-11 Kvalita vody. Odber vzoriek. Časť 11: Pokyny na odber vzoriek podzemných vôd (75 7051)

ISO 8466-1 zavedená v STN ISO 8466-1 Kvalita vody. Kalibrácia a hodnotenie analytických metód a určenie ich charakteristík. 1. časť: Štatistické hodnotenie lineárnej kalibračnej funkcie (75 7031)

ISO 8466-2 zavedená v STN ISO 8466-2 Kvalita vody. Kalibrácia a hodnotenie analytických metód a určenie ich charakteristík. Časť 2: Kalibračná stratégia nelineárnych kalibračných funkcií druhého stupňa (75 7031)

ISO 15587-1 zavedená v STN EN ISO 15587-1 Kvalita vody. Mineralizácia na stanovenie vybratých prvkov vo vode. Časť 1: Mineralizácia lúčavkou kráľovskou (ISO 15587-1) (75 7476)

Vypracovanie normy

Spracovateľ: Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

Technická komisia: TK 27 Kvalita a ochrana vody

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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.

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 document 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 and does not constitute an endorsement.

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

This first edition of ISO/TS 17379-2 cancels and replaces ISO 9965:1993, which has been technically revised.

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 may be found, e.g. in industrial waste water. Selenium occurs naturally in organic and inorganic compounds and may 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.

TECHNICAL SPECIFICATION **ISO/TS 17379-2:2013(E)**

Water quality — Determination of selenium —

Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)

WARNING — Persons using this document should be familiar with normal laboratory practice. This document 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.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably trained and experienced staff.

1 Scope

This part of ISO/TS 17379 specifies a method for the determination of selenium. The method is applicable to drinking water, surface water, ground water, and rain water. The dynamic range of this part of ISO/TS 17379 is approximately 0,5 µg/l to 20 µg/l. Samples containing selenium at higher concentrations than the application range can be analysed following appropriate dilution. The method is unlikely to detect organoselenium compounds.

The sensitivity of this method is dependent on the selected operating conditions.

It is important to use high purity reagents in all cases with minimum levels of selenium.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

ISO 5667-3, *Water quality — Sampling — Part 3: Preservation and handling of water samples*

ISO 5667-5, *Water quality — Sampling — Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems*

ISO 5667-6, *Water quality — Sampling — Part 6: Guidance on sampling of rivers and streams*

ISO 5667-8, *Water quality — Sampling — Part 8: Guidance on the sampling of wet deposition*

ISO 5667-11, *Water quality — Sampling — Part 11: Guidance on sampling of groundwaters*

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

ISO 8466-2, *Water quality — Calibration and evaluation of analytical methods and estimation of performance characteristics — Part 2: Calibration strategy for non-linear second order calibration functions*

ISO 15587-1, *Water quality — Digestion for the determination of selected elements in water — Part 1: Aqua regia digestion*

