Workplace exposure - Procedures for measuring metals and metalloids in airborne particles - Requirements and test methods

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13890:2009 sisaldab Euroopa standardi EN 13890:2009 ingliskeelset teksti.	This Estonian standard EVS-EN 13890:2009 consists of the English text of the European standard EN 13890:2009.
Standard on kinnitatud Eesti Standardikeskuse 30.10.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 30.10.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.09.2009.	Date of Availability of the European standard text 16.09.2009.
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Workplace exposure - Procedures for measuring metals and metalloids in airborne particles - Requirements and test methods

Exposition sur les lieux de travail - Procédures pour le mesurage des métaux et métalloïdes dans les particules en suspension dans l'air - Exigences et méthodes d'essai

Exposition am Arbeitsplatz - Messung von Metallen und Metalloiden in luftgetragenen Partikeln - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 8 August 2009.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 13890:2009) has been prepared by Technical Committee CEN/TC 137 “Assessment of workplace exposure to chemical and biological agents”, 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 March 2010, and conflicting national standards shall be withdrawn at the latest by March 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13890:2002.

The major technical changes between this European Standard and the previous edition are as follows:

a) Adaptation of the framework for assessing the performance of procedures for measuring metals and metalloids against the general requirements for the performance of procedures for measuring chemical agents in workplace atmospheres as specified in EN 482;

b) Revision of the calculation model for the uncertainty of measurement to comply with EN 482 and ENV 13005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard provides a framework for assessing the performance of procedures for measuring metals and metalloids against the general requirements for the performance of procedures for measuring chemical agents in workplace atmospheres as specified in EN 482. It enables producers and users of procedures for measuring metals and metalloids in airborne particles to adopt a consistent approach to method validation.

Although this European Standard has been written for assessing the performance of procedures for measuring metals and metalloids, it can be used as the basis for assessing the performance of procedures for measuring other chemical agents that are present as or in airborne particles, e.g. sulphuric acid mist.

1 Scope

This European Standard specifies performance requirements and test methods for the evaluation of procedures for measuring metals and metalloids in airborne particles sampled onto a suitable collection substrate, e.g. a filter.

This European Standard specifies a method for estimating the uncertainties associated with random and systematic errors and combining them to calculate the expanded uncertainty of the measuring procedure as a whole, as prescribed in EN 482.

This European Standard is applicable to measuring procedures in which sampling and analysis is carried out in separate stages, but it does not specify performance requirements for collection, transport and storage of samples, since these are dealt with in EN 13205 and ISO 15767.

This European Standard is not applicable to procedures for measuring metals or metalloids present as inorganic gases or vapours, e.g. mercury, arsenic (see EN 838 and EN 1076), or to procedures for measuring metals and metalloids in compounds that could be present as a particle/vapour mixture, e.g. arsenic trioxide.

2 Normative references

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

EN 481, *Workplace atmospheres — Size fraction definitions for measurement of airborne particles*

EN 482:2006, *Workplace atmospheres — General requirements for the performance of procedures for the measurement of chemical agents*

EN 1232:1997, *Workplace atmospheres — Pumps for personal sampling of chemical agents — Requirements and test methods*

EN 1540:1998*, Workplace atmospheres — Terminology*

EN 12919, *Workplace atmospheres — Pumps for the sampling of chemical agents with a volume flow rate of over 5 l/min — Requirements and test methods*

EN 13205[1)] *Workplace atmospheres — Assessment of performance of instruments for measurement of airborne particle concentrations*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 482:2006 and EN 1540:1998[2)] apply.

1) All references to EN 13205 in this European Standard refer to the ongoing revision of EN 13205:2001.

2) EN 1540:1998 is currently subject to revision. Until the revised EN is published the definitions given in EN 482:2006 take precedence.