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Ambient air quality - Standard method for determination of arsenic, cadmium, lead and nickel in atmospheric deposition

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English Version

Ambient air quality - Standard method for determination of arsenic, cadmium, lead and nickel in atmospheric deposition

Qualité de l'air ambiant - Méthode normalisée pour la détermination des dépôts d'arsenic, de cadmium, de nickel et de plomb

Luftbeschaffenheit - Messverfahren zur Bestimmung von Arsen, Kadmium, Blei und Nickel in atmosphärischer Deposition

This European Standard was approved by CEN on 17 October 2009.

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Foreword

This document (EN 15841:2009) has been prepared by Technical Committee CEN/TC 264 "Air quality", 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.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.

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For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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1 Scope

This European Standard specifies three methods for the determination of deposition of arsenic (As), cadmium (Cd) nickel (Ni) and lead (Pb), that can be used in the framework of the European Council Directive on Ambient Air Quality Assessment and Management [1] and the 4th Air Quality Daughter Directive [2]. This European Standard specifies performance requirements with which the method has to comply in order to meet the data quality objectives given in the Directives. The performance characteristics of the method were determined in comparative field validation tests carried out at four European locations [3].

This European Standard specifies methods for sampling wet-only and bulk deposition of As, Cd, Ni and Pb, sample treatment and analysis by graphite furnace atomic absorption spectrometry (GF-AAS) or by inductively coupled plasma mass spectrometry (ICP-MS).

The method is applicable for deposition measurements in

- a) rural and remote areas;
- b) industrial areas;
- c) urban areas.

The standard is validated for the working ranges listed in Table 1.

Table 1 — Validated working ranges for the methods

	Lower limit ($\mu\text{g}/\text{m}^2$ day)	Upper limit ($\mu\text{g}/\text{m}^2$ day)
As	0,05	2
Cd	0,01	1
Ni	0,05	25
Pb	0,1	65

NOTE The ranges given are based upon the values measured in the field validation test. The upper and lower limits are the observed minimum and maximum values measured during the field validation tests. The actual lower limits of the working ranges depend on the variability of the laboratory blank and the precipitation amount range in bulk and wet-only.

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 14902:2005, *Ambient air quality – Standard method for the measurement of Pb, Cd, As and Ni in the PM₁₀ fraction of suspended particulate matter*

EN ISO 20988:2007, *Air quality – Guidelines for estimating measurement uncertainty (ISO 20988:2007)*

ISO 5725-2, *Accuracy (trueness and precision) of measurement method and results – Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

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