INTERNATIONAL STANDARD

ISO 11041

First edition
1996-04-15

Workplace air — Determination of particulate arsenic and arsenic compounds and arsenic trioxide vapour — Method by hydride generation and atomic absorption spectrometry

Air des lieux de travail — Dosage de l'arsenic particulaire, des composés particulaires de l'arsenic et des vapeurs de trioxyde d'arsenic — Méthode par production d'hydrures et spectrométrie d'absorption atomique

Reference number
ISO 11041:1996(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.

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.

International Standard ISO 11041 was prepared by Technical Committee ISO/TC 146, *Air quality,* Subcommittee SC 2, *Workplace atmospheres.*

Annex A of this International Standard is for information only.

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Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Workplace air — Determination of particulate arsenic and arsenic compounds and arsenic trioxide vapour — Method by hydride generation and atomic absorption spectrometry

WARNING — Arsenic and arsenic compounds are toxic and are recognized as human carcinogens (see reference [1] in annex A). Avoid any exposure by inhalation. Personal protection (e.g. an effective respirator) must be used in all cases where exposure to arsenic or arsenic compounds is possible.

1 Scope

This International Standard specifies a method for the determination of the mass concentration of particulate arsenic and arsenic compounds and arsenic trioxide vapour in workplace air, using either continuous-flow hydride generation or flow-injection-analysis hydride generation and atomic absorption spectrometry. The method is not suitable for determination of arsenic in the form of metal arsenides which decompose in the presence of water or acid (see 10.1).

The method is applicable to the determination of masses of approximately 100 ng to 125 µg of arsenic per sample, for analysis of test solutions prepared using sample solution aliquots in the recommended range (see 9.3.2). The concentration range for arsenic in air, for which this procedure is applicable, is determined in part by the sampling procedure selected by the user.

The method is applicable to personal and fixed-location sampling.

A number of transition metals may interfere with the determination of arsenic by hydride generation and atomic absorption spectrometry (see 10.3)

2 Normative references

The following standards contain provisions which, through reference in 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 possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 648:1977, *Laboratory glassware — One-mark pipettes.*

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 3585:1991, *Borosilicate glass 3.3 — Properties.*

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

ISO 6955:1982, *Analytical spectroscopic methods — Flame emission, atomic absorption and atomic fluorescence — Vocabulary.*

ISO 7708:1995, *Air quality — Particle size fraction definitions for health-related sampling.*

ISO 8655-1:—[1)], *Piston and/or plunger operated volumetric apparatus (POVA) — Part 1: Definitions.*

ISO 8655-2:—[1)], *Piston and/or plunger operated volumetric apparatus (POVA) — Part 2: Operating considerations.*

1) To be published.