

INTERNATIONAL STANDARD

ISO
11174

First edition
1996-04-15

Workplace air — Determination of particulate cadmium and cadmium compounds — Flame and electrothermal atomic absorption spectrometric method

*Air des lieux de travail — Dosage du cadmium particulaire et des composés
particulaires du cadmium — Méthode par spectrométrie d'absorption
atomique dans la flamme et méthode par spectrométrie d'absorption
atomique avec atomisation électrothermique*



Reference number
ISO 11174:1996(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 11174 was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 2, *Workplace atmospheres*.

Annexes A and B of this International Standard are for information only.

© ISO 1996

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Workplace air — Determination of particulate cadmium and cadmium compounds — Flame and electrothermal atomic absorption spectrometric method

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

1 Scope

This International Standard specifies a method for the determination of the mass concentration of particulate cadmium and cadmium compounds in workplace air, using either flame or electrothermal atomic absorption spectrometry.

The sample digestion procedure specified in 8.2.2 has been validated (see reference [2] in annex B) for a selection of cadmium compounds and pigments and glass enamels containing cadmium.

The analytical method has been validated (see reference [2] in annex B) for the determination of masses of 10 ng to 600 ng of cadmium per sample using electrothermal atomic absorption spectrometry, and 0,15 µg to 96 µg of cadmium per sample using flame atomic absorption spectrometry. The concentration range for cadmium 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 sampling of the inhalable or respirable fraction of airborne particles, as defined in ISO 7708, and to fixed-location sampling.

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.