

STN	Pracovné ovzdušie Stanovenie olova a zlúčenín olova Metódy plameňovej a elektrotermickej atómovej absorpčnej spektrometrie	STN ISO 8518 83 3815
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Workplace air

Determination of particulate lead and lead compounds

Flame and electrothermal atomic absorption spectrometric methods

Air des lieux de travail

Dosage du plomb particulaire et des composés particuliers du plomb

Méthode par spectrométrie d'absorption atomique dans la flamme et méthode par spectrométrie d'absorption avec atomisation électrothermique

Luft am Arbeitsplatz

Bestimmung von teilchenförmigem Blei und Bleikomponenten

Flammen- oder elektrothermisches atomabsorptionsspektrometrisches Verfahren

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 8518: 2022 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International standard ISO 8518: 2022 and has the status of the official version.

Nahradenie predchádzajúcich dokumentov

Táto slovenská technická norma nahrádza STN ISO 8518 z marca 2004 v celom rozsahu.

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Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2023

Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii.

Anotácia

Tento dokument špecifikuje metódy plameňovej a elektrotermickej atómovej absorpčnej spektrometrie na stanovenie časovo váženej priemernej hmotnostnej koncentrácie častíc olova a zlúčenín olova v pracovnom ovzduší.

Národný predhovor

Normatívne referenčné dokumenty

Na nasledujúce dokumenty sa odkazuje v texte takým spôsobom, že časť ich obsahu alebo celý obsah predstavuje požiadavky tohto dokumentu. Pri datovaných odkazoch sa používa len citované vydanie. Pri nedatovaných odkazoch sa používa najnovšie vydanie citovaného dokumentu (vrátane akýchkoľvek 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 a TNI možno získať na webovom sídle www.unms.sk.

ISO 3585 prijatá ako STN ISO 3585 Borokremičité sklo 3,3. Vlastnosti (71 4016)

ISO 3696: 1987 prijatá ako STN EN ISO 3696: 2000 Kvalita vody na analytické účely. Špecifikácia a skúšobné metódy (ISO 3696: 1987) (68 4051)

ISO 7708: 1995 prijatá ako STN ISO 7708: 2001 Ochrana ovzdušia. Definície frakcie veľkosti častíc pre odber vzoriek na zdravotné účely (83 4601)

ISO 8655-1 prijatá ako STN EN ISO 8655-1 Piestové odmerné prístroje. Časť 1: Terminológia, všeobecné požiadavky a odporúčania pre používateľov (ISO 8655-1) (70 4110)

ISO 8655-2 prijatá ako STN EN ISO 8655-2 Piestové odmerné prístroje. Časť 2: Pipety (ISO 8655-2) (70 4110)

ISO 8655-5 prijatá ako STN EN ISO 8655-5 Piestové odmerné prístroje. Časť 5: Dávkovače (ISO 8655-5) (70 4110)

ISO 8655-6 prijatá ako STN EN ISO 8655-6 Piestové odmerné prístroje. Časť 6: Gravimetrický referenčný postup merania na stanovenie objemu (ISO 8655-6) (70 4110)

ISO 13137 prijatá ako STN EN ISO 13137 Pracovné ovzdušie. Čerpadlá na osobný odber chemických a biologických látok. Požiadavky a skúšobné metódy (ISO 13137) (83 8701)

ISO 15202-2 dosiaľ neprijatá

ISO/IEC 17025 prijatá ako Všeobecné požiadavky na kompetentnosť skúšobných a kalibračných laboratórií (ISO/IEC 17025) (01 5253)

ISO 17034 prijatá ako STN EN ISO 17034 Posudzovanie zhody. Všeobecné požiadavky na odbornú spôsobilosť výrobcov referenčných materiálov (ISO 17034) (01 5266)

ISO 18158 prijatá ako STN ISO 18158 Pracovné ovzdušie. Terminológia (ISO 18158) (83 3601)

ISO 20581 dosiaľ neprijatá

súbor EN 13205 prijatý ako súbor STN EN 13205 Pracovná expozícia. Hodnotenie pracovných charakteristík zariadení na meranie koncentrácie polietavých častíc (83 3622)

Vypracovanie slovenskej technickej normy

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

Technická komisia: TK 28 Ochrana ovzdušia

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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 (see 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 (see 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.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 2, *Workplace atmospheres*.

This third edition cancels and replaces the second edition (ISO 8518:2001), which has been technically revised.

The main changes are as follows:

- a new [Annex B](#) (informative) has been added concerning sampler wall deposits;
- references and definitions have been updated;
- additional editorial changes have been made.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The health of workers in many industries, for example, mining, metal refining, battery manufacture, construction, is at risk through exposure by inhalation of particulate lead and lead compounds. Industrial hygienists and other public health professionals need to determine the effectiveness of measures taken to control workers' exposure, and this is generally achieved by making workplace air measurements. This document provides a method for making valid exposure measurements for lead. It will be of benefit to:

- agencies concerned with health and safety at work;
- industrial hygienists and other public health professionals;
- analytical laboratories;
- industrial users and workers of metals and metalloids, etc.

During the development of this document, it has been assumed that the execution of its provisions and the interpretation of the results obtained is entrusted to appropriately qualified and experienced people.

Workplace air — Determination of particulate lead and lead compounds — Flame and electrothermal atomic absorption spectrometric methods

1 Scope

This document specifies flame and electrothermal atomic absorption spectrometric methods for the determination of the time-weighted average mass concentration of particulate lead and lead compounds in workplace air.

These methods are typically applicable to personal sampling of the inhalable fraction of airborne particles, as defined in ISO 7708, and to static (area) sampling. It can be applied to other health-related fractions as required.

The sample dissolution procedure specifies hot plate or microwave assisted digestion, or ultrasonic extraction (see [11.2](#)). The use of an alternative, more vigorous dissolution procedure is necessary when it is desired to extract lead from compounds present in the test atmosphere that are insoluble using the dissolution procedures described herein (see [Clause 5](#)).

The flame atomic absorption method is applicable to the determination of masses of approximately 1 µg to 200 µg of lead per sample, without dilution^[1]. The electrothermal atomic absorption method is applicable to the determination of masses of approximately 0,01 µg to 0,5 µg of lead per sample, without dilution^[1].

The ultrasonic extraction procedure has been validated for the determination of masses of approximately 20 µg to 100 µg of lead per sample, for laboratory-generated lead fume air filter samples^[2].

The concentration range for lead in air for which this procedure is applicable is determined in part by the sampling procedure selected by the user (see [10.1](#)).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 3585, *Borosilicate glass 3.3 — Properties*

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

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

ISO 8655-1, *Piston-operated volumetric apparatus — Part 1: Terminology, general requirements and user recommendations*

ISO 8655-2, *Piston-operated volumetric apparatus — Part 2: Pipettes*

ISO 8655-5, *Piston-operated volumetric apparatus — Part 5: Dispensers*

ISO 8655-6, *Piston-operated volumetric apparatus — Part 6: Gravimetric reference measurement procedure for the determination of volume*

ISO 13137, *Workplace atmospheres — Pumps for personal sampling of chemical agents — Requirements and test methods*

ISO 8518:2022(E)

ISO 15202-2, *Workplace air — Determination of metals and metalloids in airborne particulate matter by inductively coupled plasma atomic emission spectrometry — Part 2: Sample preparation*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 17034, *General requirements for the competence of reference material producers*

ISO 18158, *Workplace air — Terminology*

ISO 20581, *Workplace air — General requirements for the performance of procedures for the measurement of chemical agents*

EN 13205, *Workplace atmospheres — Assessment of performance of instruments for measurement of airborne particle concentrations*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN