

STN	Zdravie a bezpečnosť pri zváraní a príbuzných procesoch Odber vzoriek častíc rozptýlených vo vzduchu a plynov v dýchacej zóne operátora Časť 1: Odber vzoriek častíc rozptýlených vo vzduchu (ISO 10882-1: 2024)	STN EN ISO 10882-1 05 0606
------------	---	--

Health and safety in welding and allied processes - Sampling of airborne particles and gases in the operator`s breathing zone - Part 1: Sampling of airborne particles (ISO 10882-1:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/24

Obsahuje: EN ISO 10882-1:2024, ISO 10882-1:2024

Oznámením tejto normy sa ruší
STN EN ISO 10882-1 (05 0606) z apríla 2012

138902

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

EN ISO 10882-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2024

ICS 13.100; 25.160.01

Supersedes EN ISO 10882-1:2011

English Version

Health and safety in welding and allied processes -
Sampling of airborne particles and gases in the operator's
breathing zone - Part 1: Sampling of airborne particles
(ISO 10882-1:2024)

Hygiène et sécurité en soudage et techniques connexes
- Échantillonnage des particules en suspension et des
gaz dans la zone respiratoire des opérateurs - Partie 1:
Échantillonnage des particules en suspension (ISO
10882-1:2024)

Arbeits- und Gesundheitsschutz beim Schweißen und
bei verwandten Verfahren - Probenahme von
partikelförmigen Stoffen und Gasen im Atembereich
des Schweißers - Teil 1: Probenahme von
partikelförmigen Stoffen (ISO 10882-1:2024)

This European Standard was approved by CEN on 3 September 2023.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 10882-1:2024 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 10882-1:2024) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" the secretariat of which is held by AFNOR.

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 November 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

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

This document supersedes EN ISO 10882-1:2011.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 10882-1:2024 has been approved by CEN as EN ISO 10882-1:2024 without any modification.



International Standard

ISO 10882-1

Health and safety in welding and allied processes — Sampling of airborne particles and gases in the operator's breathing zone —

Part 1: Sampling of airborne particles

*Hygiène et sécurité en soudage et techniques connexes —
Échantillonnage des particules en suspension et des gaz dans la
zone respiratoire des opérateurs —*

Partie 1: Échantillonnage des particules en suspension

**Third edition
2024-04**

ISO 10882-1:2024(en)**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

ISO 10882-1:2024(en)**Contents**

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 General definitions.....	2
3.2 Sampling definitions.....	3
3.3 Welding terms.....	5
3.4 Statistical terms.....	6
4 Principle	6
5 Requirement	7
6 Equipment	7
6.1 Sampling equipment.....	7
6.2 Weighing equipment, if required.....	8
7 Assessment strategy	9
8 Measurement strategy	9
8.1 General.....	9
8.2 Personal exposure measurement.....	9
8.3 Fixed-point measurements.....	9
8.4 Selection of measurement conditions and measurement pattern.....	10
8.4.1 General.....	10
8.4.2 Screening measurements of time-weighted average concentration and worst-case measurements.....	10
8.4.3 Measurements for comparison with limit values and periodic measurements.....	10
9 Procedure	11
9.1 Preliminary considerations.....	11
9.1.1 Selection of exposure metric(s).....	11
9.1.2 Selection and use of samplers.....	11
9.1.3 Selection of sampling period.....	11
9.1.4 Consideration of temperature and pressure effects.....	12
9.2 Preparation for sampling.....	12
9.2.1 Cleaning of samplers.....	12
9.2.2 Loading collection substrates into samplers.....	12
9.2.3 Setting of flow rate.....	12
9.3 Sampling position.....	13
9.3.1 Personal sampling position.....	13
9.3.2 Fixed-point sampling position.....	13
9.4 Sampling.....	13
9.5 Transportation.....	14
9.6 Analysis.....	14
9.6.1 Gravimetric analysis of samples.....	14
9.6.2 Chemical analysis of samples.....	14
9.7 Expression of results.....	15
9.7.1 Concentration of airborne particles and/or chemical agent(s) of interest.....	15
9.7.2 Calculation of the time-weighted average concentration.....	15
9.7.3 Temperature and pressure correction for the indicated sampling flow rate.....	15
10 Exposure assessment	16
11 Recording of sampling data and presentation of results	16
Annex A (normative) Gravimetric analysis	17

ISO 10882-1:2024(en)

Annex B (informative) Examples of arrangements for mounting samplers	19
Annex C (informative) An example of a report	28
Annex D (informative) Blank report form	31
Bibliography	34

ISO 10882-1:2024(en)

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 44, *Welding and allied processes*, Subcommittee SC 9, *Health and safety*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 10882-1:2011), which has been technically revised.

The main changes are as follows:

- references to other documents have been updated;
- in [8.2](#) and [9.3.1.1](#), alternative personal sampling position(s) for air-fed welder's helmets and sampling methods with more than one collection device have been added.

A list of all parts in the ISO 10882 series can be found on the ISO website.

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. Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

ISO 10882-1:2024(en)**Introduction**

The health of workers in many industries is at risk through exposure by inhalation to airborne particles generated by welding and allied processes (welding fumes) and other airborne particles generated by welding-related operations, such as grinding. Industrial hygienists and other public health professionals need to determine the effectiveness of measures taken to control workers' exposure to these harmful substances and this is generally achieved by making personal exposure measurements.

This document is intended to be of benefit to agencies concerned with health and safety at work, industrial hygienists and other public health professionals, industrial users of welding and allied processes and their workers, and analytical laboratories.

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

Health and safety in welding and allied processes — Sampling of airborne particles and gases in the operator's breathing zone —

Part 1: Sampling of airborne particles

1 Scope

This document specifies a procedure for sampling airborne particles in the breathing zone of a person who performs welding and allied processes (the operator). It also provides details of relevant standards that specify required characteristics, performance requirements and test methods for workplace air measurement, and augments guidance provided in EN 689 on assessment strategy and measurement strategy.

This document also specifies a procedure for making gravimetric measurements of personal exposure to airborne particles generated by welding and allied processes (welding fumes) and other airborne particles generated by welding-related operations.

Additionally, it provides references to suitable methods of chemical analysis specified in other standards to determine personal exposure to specific chemical agents present in welding fumes and other airborne particles generated by welding-related operations.

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

ISO 15767, *Workplace atmospheres — Controlling and characterizing uncertainty in weighing collected aerosols*

ISO 18158:2016, *Workplace air — Terminology*

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

EN 13205-1, *Workplace exposure — Assessment of sampler performance for measurement of airborne particle concentrations — Part 1: General requirement*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN