



SLOVENSKI STANDARD

SIST ISO 16000-3:2026

01-oktober-2026

Nadomešča:
SIST ISO 16000-3:2023

Notranji zrak - 3. del: Določanje formaldehida in drugih karbonilnih spojin v notranjem zraku in zraku v preskusnih komorah - Metoda aktivnega vzorčenja

Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method

Air intérieur - Partie 3: Dosage du formaldéhyde et d'autres composés carbonylés dans l'air intérieur et dans l'air des chambres d'essai - Méthode par échantillonnage actif

Ta slovenski standard je istoveten z: ISO 16000-3:2026

ICS:

13.040.20 Kakovost okoljskega zraka Ambient atmospheres

SIST ISO 16000-3:2026

en,fr,de

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International Standard

ISO 16000-3

Indoor air —

Part 3:

Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air — Active sampling method

Air intérieur —

*Partie 3: Dosage du formaldéhyde et d'autres composés
carbonylés dans l'air intérieur et dans l'air des chambres d'essai
— Méthode par échantillonnage actif*

**Fourth edition
2026-09**

ISO 16000-3:2026(en)

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Published in Switzerland

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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 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).

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This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 6, *Indoor air*.

This fourth edition cancels and replaces the third edition (ISO 16000-3:2022), which has been technically revised.

The main change is as follows: [Annex A](#) has been added which provides a suitable method for the determination of acrolein.

A list of all parts in the ISO 16000 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.

ISO 16000-3:2026(en)

Introduction

This document is intended to be used for characterizing indoor air following the sampling strategy specified in ISO 16000-2 [1]. This document applies to 14 aldehydes and ketones. Formaldehyde is the simplest carbonyl compound, with one carbon, one oxygen and two hydrogen atoms. In its monomolecular state, formaldehyde is a colourless, pungent and reactive gas. Formaldehyde has been used in the production of urea-formaldehyde resins, adhesives and insulating foams. Emissions from particle (chip) board and wall insulation are the major sources of formaldehyde in indoor air. As formaldehyde has a high toxic potential, [2] determining its level accurately is key for air quality.

When formaldehyde is collected by passing air through a reactive medium that converts the compound to a derivative of lower vapour pressure is more efficiently retained by the sampler and its level can be easily analysed.

ISO 16017-1 [3], ISO 16017-2 [4], ISO 12219-1 [5] and ISO 12219-5 [6] describe analytical methods for a broader spectrum of volatile organic compounds (VOCs) and can be used if other groups besides carbonyl compounds are to be analyzed.

Instead of systematic International Union of Pure and Applied Chemistry (IUPAC) nomenclature, traditional names are used in this document. Some equivalent names are:

- acetaldehyde for ethanal;
- acetone for 2-propanone;
- butyraldehyde for butanal;
- capronaldehyde for hexanal;
- formaldehyde for methanal;
- isovaleraldehyde for 3-methylbutanal;
- propionaldehyde for propanal;
- m-tolualdehyde for 3-methylbenzaldehyde;
- o-tolualdehyde for 2-methylbenzaldehyde;
- p-tolualdehyde for 4-methylbenzaldehyde;
- valeraldehyde for pentanal.

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Indoor air —

Part 3:

Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air — Active sampling method

1 Scope

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

This document specifies a sampling method to determine the quantity of formaldehyde (HCHO) in the air with the range of approximately $1 \mu\text{g}/\text{m}^3$ to $1 \text{ mg}/\text{m}^3$ in a time-weighted average (TWA) sample, for long-term (1 h to 24 h) and short-term (5 min to 60 min) sampling. This method involves the collection of compounds from air on to adsorbent cartridges coated with 2,4-dinitrophenylhydrazine (DNPH) and subsequent analysis of the hydrazones formed by high performance liquid chromatography (HPLC) with detection by ultraviolet absorption [\[7\]\[8\]](#).

This document can also be applied for the determination of at least 12 other aromatic as well as saturated and unsaturated aliphatic carbonyl compounds (aldehydes and ketones), with modification, such as:

- acetaldehyde;
- acetone;
- benzaldehyde;
- butyraldehyde;
- capronaldehyde;
- 2,5-dimethylbenzaldehyde;
- formaldehyde;
- isovaleraldehyde;
- propionaldehyde;
- m-tolualdehyde;
- o-tolualdehyde;
- p-tolualdehyde;
- valeraldehyde.

This document does not apply to longer chained or unsaturated carbonyl compounds such as acrolein. An alternative sampling method using sorbent tubes and analysis by thermal desorption using gas chromatography with mass spectrometry (GC-MS) is given in [Annex A](#).