SLOVENSKI STANDARD
SIST EN ISO 16000-5:2007

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Notranji zrak - 5. del: Strategija vzorčenja hlapnih organskih spojin (VOC) (ISO 16000-5:2007)

Indoor air - Part 5: Sampling strategy for volatile organic compounds (VOCs) (ISO 16000 -5:2007)

Innenraumluftverunreinigungen - Teil 5: Probenahmestrategie für flüchtige organische Verbindungen (VOC) (ISO 16000-5:2007)

Air intérieur - Partie 5: Stratégie d'échantillonnage pour les composés organiques volatils (COV) (ISO 16000-5:2007)

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Indoor air - Part 5: Sampling strategy for volatile organic compounds (VOCs) (ISO 16000-5:2007)

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Innenraumluftverunreinigungen - Teil 5: Probenahmestrategie für flüchtige organische Verbindungen (VOC) (ISO 16000-5:2007)

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Foreword

This document (EN ISO 16000-5:2007) has been prepared by Technical Committee ISO/TC 146 "Air quality" in collaboration with Technical Committee CEN/TC 264 "Air quality", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

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

Endorsement notice

The text of ISO 16000-5:2007 has been approved by CEN as EN ISO 16000-5:2007 without any modifications.

INTERNATIONAL STANDARD

ISO 16000-5

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Indoor air —

Part 5: Sampling strategy for volatile organic compounds (VOCs)

Air intérieur —
Partie 5: Stratégie d'échantillonnage pour les composés organiques volatils (COV)

Reference number
ISO 16000-5:2007(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 16000-5 was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 6, *Indoor air* and by Technical Committee CEN/TC 264, *Air quality* in collaboration.

ISO 16000 consists of the following parts, under the general title *Indoor air*:

— *Part 1: General aspects of sampling strategy*

— *Part 2: Sampling strategy for formaldehyde*

— *Part 3: Determination of formaldehyde and other carbonyl compounds — Active sampling method*

— *Part 4: Determination of formaldehyde — Diffusive sampling method*

— *Part 5: Sampling strategy for volatile organic compounds (VOCs)*

— *Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS/FID*

— *Part 7: Sampling strategy for determination of airborne asbestos fibre concentrations*

— *Part 8: Determination of local mean ages of air in buildings for characterizing ventilation conditions*

— *Part 9: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test chamber method*

— *Part 10: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test cell method*

— *Part 11: Determination of the emission of volatile organic compounds from building products and furnishing — Sampling, storage of samples and preparation of test specimens*

— *Part 12: Sampling strategy for polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polycyclic aromatic hydrocarbons (PAHs)*

— *Part 13: Determination of total (gas and particle-phase) polychlorinated dioxin-like biphenyls and polychlorinated dibenzo-p-dioxins/dibenzofurans — Collection on sorbent-backed filters*

— *Part 15: Sampling strategy for nitrogen dioxide (NO_2)*

— *Part 16: Detection and enumeration of moulds — Sampling by filtration*

— *Part 17: Detection and enumeration of moulds — Culture-based method*

The following parts are under preparation:

— *Part 14: Determination of total (gas and particle-phase) polychlorinated dioxin-like biphenyls and polychlorinated dibenzo-p-dioxins/dibenzofurans — Extraction, clean-up and analysis by high-resolution gas chromatography/mass spectrometry*

— *Part 18: Detection and enumeration of moulds — Sampling of moulds by impaction*

Furthermore, ISO 16017-1 and ISO 16017-2 deal with VOC measurements.

Introduction

In ISO 16000-1, general requirements relating to the measurement of indoor air pollutants and the important conditions to be observed before or during the sampling of individual pollutants or groups of pollutants are described.

This part of ISO 16000 describes basic aspects to be considered when working out a sampling strategy for the measurements of volatile organic compounds (VOCs) in indoor air. It is intended to be a link between

— ISO 16000-1, *Indoor air, General aspects of sampling strategy*,

— the analytical procedures described in ISO 16000-6, *Indoor air, Determination of volatile organic compounds in indoor air and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS/FID*, and

— the more generic ISO 16017-1, *Indoor, ambient and workplace air — Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography — Part 1: Pumped sampling and* ISO 16017-2, *Indoor, ambient and workplace air — Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography — Part 2: Diffusive sampling*.

This part of ISO 16000 presupposes knowledge of ISO 16000-1.

The sampling strategy procedure described in this part of ISO 16000 is based on Guideline VDI 4300 Part 6 [1].

Indoor air —

Part 5:
Sampling strategy for volatile organic compounds (VOCs)

1 Scope

This part of ISO 16000 is intended as an aid to planning volatile organic compound (VOC) indoor pollution measurements. In the case of indoor air measurements, the careful planning of sampling and the entire measurement strategy are of particular significance since the result of the measurement may have far-reaching consequences, for example, with regard to the need for remedial action or the success of such an action.

An inappropriate measurement strategy may contribute to the complete uncertainty of the measurement result in a larger extent than the measurement procedure itself.

This part of ISO 16000 uses the definition for indoor environment defined in ISO 16000-1.

2 Normative references

The following referenced documents are indispensable for the application 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 16000-1:2004, *Indoor air — General aspects of sampling strategy*

ISO 16000-6, *Indoor air — Part 6: Determination of volatile organic compounds in indoor air and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS/FID*

ISO 16000-8, *Indoor air — Part 8: Determination of local mean ages of air in buildings for characterizing ventilation conditions*

ISO 16017-1, *Indoor, ambient and workplace air — Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography — Part 1: Pumped sampling*

ISO 16017-2, *Indoor, ambient and workplace air — Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography — Part 2: Diffusive sampling*

3 Definition of volatile organic compounds (VOCs)

Numerous organic compounds are present in indoor environments. Depending on volatility, these are present in the gas phase or are bound to suspended particulate matter or deposited dust. A working group of the World Health Organization WHO [2] classified organic compounds based on boiling point (see Table 1).

