# SLOVENSKI STANDARD
# oSIST prEN ISO 16000-11:2023

**01-maj-2023**

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**Notranji zrak - 11. del: Določevanje emisije hlapnih organskih spojin iz gradbenih proizvodov in opreme - Vzorčenje, shranjevanje vzorcev in priprava preskusnih vzorcev (ISO/DIS 16000-11:2023)**

Indoor air - Part 11: Determination of the emission of volatile organic compounds from building products and furnishing - Sampling, storage of samples and preparation of test specimens (ISO/DIS 16000-11:2023)



Innenraumluftverunreinigungen - Teil 11: Bestimmung der Emission von flüchtigen organischen Verbindungen aus Bauprodukten und Einrichtungsgegenständen - Probenahme, Lagerung der Proben und Vorbereitung der Prüfstücke (ISO/DIS 16000-11:2023)



Air intérieur - Partie 11: Dosage de l'émission de composés organiques volatils de produits de construction et d'objets d'équipement - Échantillonnage, conservation des échantillons et préparation d'échantillons pour essai (ISO/DIS 16000-11:2023)

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13.040.20 Kakovost okoljskega zraka Ambient atmospheres

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# Indoor air —

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

ICS: 13.040.20



This document is circulated as received from the committee secretariat.

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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 6, *Indoor air*.



This second edition cancels and replaces the first edition (ISO 16000-11:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— More detailed description for the preparation of samples of board and solid samples like paints, varnishes and impregnating primers.

— Recommending the wet layer thickness instead of the dry film thickness for preparing liquid samples.

— Preparing samples for determing the cut edge emissions and emissions from under floor heating.

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.

# Introduction

The determination of volatile organic compounds (VOCs) emitted from building products using emission test chambers in conjunction with the standardised sampling, storage of samples and preparation of test specimens has objectives such as:

— to provide manufacturers, builders, and end users with emission data useful for the evaluation of the impact of building products on the indoor air quality;

— to promote the development of improved products.

The method can in principle be used for most building products used indoors.

# Indoor air —

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

## 1 Scope

Studies of the emission of volatile organic compounds from unused building products or furnishing in test chambers or cells require proper handling of the product prior to testing, and during the testing period.

This document defines three types of building products or furnishing: solid, liquid and combined. For each type, specifications are given for the sampling procedures, transport conditions, storage, and substrate used that can affect emissions of volatile organic compounds. For individual products, the preparation of a test specimen for each type is prescribed.

NOTE Depending on the non-homogeneity of the product, it can be necessary to make measurements on different test specimens to determine the specific emission rate.



## 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.

EN 196-1, *Methods of testing cement — Part 1: Determination of strength*

EN 1937, *Test method for hydraulic setting floor smoothing and/or levelling compounds — Standard mixing procedures*

EN 13892-1, *Methods of test for screed materials — Part 1: Sampling, making and curing specimens for test*

ISO 16000-9, *Indoor air — Part 9: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test chamber method*

ISO 16000-10, *Indoor air — Part 10: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test cell method*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

**3.1**
**solid product**
⟨building product or furnishing⟩ resilient or rigid product whose properties meet user-specifications directly without a transition phase, e.g. curing or drying

EXAMPLE 1 Examples of resilient products are several insulation products, flexible flooring and wall coverings.

EXAMPLE 2 Examples of rigid products are tiles, parquets, laminated floorings, wall construction products, such as chip- and gypsum boards, wood panels, ceiling materials, acoustic panels, and doors etc.

**3.2**
**liquid product**
⟨building product or furnishing⟩ product whose properties meet the user-specifications after a transition phase, e.g. curing or drying

EXAMPLE Examples of liquid products are paints, varnishes, oils, waxes, levelling compounds, plasters, mortars, concrete, adhesives, sealants, caulks, putties, and surface coatings.

Note 1 to entry: Liquid products can have a wide range of viscosity and are supplied to the user in containers, such as cans, tubes, bottles, and sacks and are applied on the site.

Note 2 to entry: Some liquid products need the addition of water before they can be applied.

**3.3**
**combined product**
⟨building product or furnishing⟩ combined product formed on-site by the combination of more than one solid or liquid product



EXAMPLE Examples are glued applications such as floor and wall coverings that are fixed on the site on surfaces using adhesives.

Note 1 to entry: When liquid products as paints, oils and waxes are spread on an absorbing surface such as wood and gypsum board etc, the systems are considered to be combined.



## 4 Symbols and abbreviated terms

The symbol and the abbreviated terms used in this document are given below.

VOC volatile organic compound

## 5 Sampling the product and transport and storage of sample

### 5.1 Sampling of the product to be tested

Product samples collected at the point of manufacture shall be taken as soon as possible after the normal manufacturing process. The dates of sample manufacture and sample collection shall be recorded. Product samples can also be collected from retail stores.

NOTE An example of a sampling report is given in EN 16516[1].

### 5.2 Sample packaging and transport

Samples shall be thoroughly protected from chemical contamination or any physical exposure, e.g. heat, light and humidity.

The product shall arrive in the laboratory within 14 days of sampling. If it takes longer than this, the time shall be recorded in the test report.

For solid products, this can usually be achieved by wrapping each specimen separately in aluminium foil and in a polyethylene bag or alternatively, in aluminised packaging lined with polyethylene or clear polyvinyl fluoride film. Liquid products shall be shipped in unopened cans, tubes, etc.

NOTE Transportation of collected samples can affect the emission characteristics of the product. The possible effects of temperature and humidity are of particular concern.

### 5.3 Sample description

The sample shall be labelled with the details of the type of product, week of manufacture (if known) and/or any identification numbers, e.g. batch numbers (see also ISO 16000-9, Clause 15, and ISO 16000-10).

### 5.4 Storage of the sample prior to starting the testing

In many cases, it can be necessary to store the sample in the laboratory before starting the test. The sample shall be kept in its package, see 5.2, and stored at normal indoor conditions during any period of storage.

Storage may affect the emission properties due to ageing of the sample. It is recommended to minimise the storage time of the sample prior to preparation of the test specimen.

Testing shall begin within eight weeks of sampling provided that the sample remains in the specified packaging while stored at the laboratory. Wet-applied products that are shipped in a sealed container (e.g. can, cartridge) shall be tested within four months of sampling.



## 6 Preparation of test specimens

The dimensions of the test specimen depend on the selected test scenario and chamber size.

The preparation of test specimens of different product classes is prescribed in the annexes. The period of time between the unpacking and preparation of the test specimen shall be as short as possible and shall be recorded. After the completion of the test specimen, it shall immediately be put in the emission test chamber, or in the emission test cell. This time shall be regarded as the starting time of the emission test, i.e. $t = t_0$.

NOTE 1 Some products (e.g. paint products) might require preconditioning prior to placing into a test chamber or emission cell.

NOTE 2 This document may not cover all types of construction materials and furnishings. Additional test methods for products are described in[9],[10],[11] and[12].