

**Indoor air —**

**Part 11:**

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

~~Second edition~~

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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](http://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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 264, *Air quality*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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

The main changes are as follows:

- ~~—~~ detailed ~~description~~ **descriptions** for the preparation of samples of board and solid samples like paints, varnishes and impregnating primers have added;
- ~~—~~ the wet layer thickness instead of the dry film thickness for preparing liquid samples have been recommended;
- ~~—~~ sample preparation instructions have been added to determine the cut edge emissions and emissions from under floor heating.

## ISO/FDIS 16000-11:2023(E)

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](http://www.iso.org/members.html).

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## Introduction

The determination of volatile organic compounds (VOCs) emitted from building products and furnishing 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.

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

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

~~1 Scope~~

~~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.~~

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

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.

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## Indoor air —

### **Part 11:**

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

### **1 Scope**

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

### **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 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

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

### **3 Terms and definitions**

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

ISO and IEC maintain terminology 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 product* (3.1) or *liquid product* (3.2)

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~~

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

### 9.14.1 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 ~~(11)~~.