



SLOVENSKI STANDARD SIST EN ISO 15234:2012

01-januar-2012

Barve in laki - Preskušanje prevlek in melamin pen, ki izpuhtevajo formaldehid - Določitev stabilnega stanja koncentracije formaldehida v majhni preskusni komori (ISO 15234:1999)

Paints and varnishes - Testing of formaldehyde-emitting coatings and melamine foams - Determination of the steady-state concentration of formaldehyde in a small test chamber (ISO 15234:1999)

Beschichtungsstoffe - Prüfung von Formaldehyd emittierenden Beschichtungen und Melamin-Schaumstoffen - Bestimmung der Ausgleichskonzentration an Formaldehyd in einem kleinen Prüfraum (ISO 15234:1999)

Peintures et vernis - Essais des revêtements et mousses mélamines qui émettent du formaldéhyde - Détermination de la concentration à l'équilibre du formaldéhyde dans une petite chambre d'essai (ISO 15234:1999)

Ta slovenski standard je istoveten z: EN ISO 15234:2010

ICS:

87.040

Barve in laki

Paints and varnishes

SIST EN ISO 15234:2012

en,fr,de

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EUROPEAN STANDARD

EN ISO 15234

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2010

ICS 87.040

English Version

Paints and varnishes - Testing of formaldehyde-emitting coatings and melamine foams - Determination of the steady-state concentration of formaldehyde in a small test chamber
(ISO 15234:1999)

Peintures et vernis - Essais des revêtements et mousses mélamines qui émettent du formaldéhyde - Détermination de la concentration à l'équilibre du formaldéhyde dans une petite chambre d'essai (ISO 15234:1999)

Beschichtungsstoffe - Prüfung von Formaldehyd emittierenden Beschichtungen und Melaminschaumstoffen - Bestimmung der Ausgleichskonzentration an Formaldehyd in einem kleinen Prüfraum (ISO 15234:1999)

This European Standard was approved by CEN on 16 October 2010.

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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.

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

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Foreword

The text of ISO 15234:1999 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15234:2010 by Technical Committee CEN/TC 139 "Paints and varnishes" 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 May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.

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

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Endorsement notice
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The text of ISO 15234:1999 has been approved by CEN as a EN ISO 15234:2010 without any modification.

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INTERNATIONAL
STANDARD

ISO
15234

First edition
1999-02-15

**Paints and varnishes — Testing of
formaldehyde-emitting coatings and
melamine foams — Determination of the
steady-state concentration of formaldehyde
in a small test chamber**

iTeh STANDARD PREVIEW

Peintures et vernis — Essais des revêtements et mousses mélamines qui émettent du formaldéhyde — Détermination de la concentration à l'équilibre du formaldéhyde dans une petite chambre d'essai

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Reference number
ISO 15234:1999(E)

ISO 15234:1999(E)**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.

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.

International Standard ISO 15234 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

Annexes A and B form an integral part of this International Standard. Annex C is for information only.

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Paints and varnishes — Testing of formaldehyde-emitting coatings and melamine foams — Determination of the steady-state concentration of formaldehyde in a small test chamber

1 Scope

This International Standard specifies a test method for determining the equilibrium concentration of formaldehyde from formaldehyde-emitting coatings and melamine foams in a small test chamber.

It describes the determination of the equilibrium concentration of formaldehyde that is established in air at 23 °C and 50 % relative humidity. The test closely simulates practical conditions and can be performed on a laboratory scale. Good correlation is obtained with values obtained on samples of the same material in a 40 m³ test chamber. The method, which is simple to perform, is therefore suitable for the preliminary determination of limits that have to be adhered to.

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2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3270:1984, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test method*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 equilibrium concentration

c_{eq}

the concentration of formaldehyde in the air in the test chamber that is reached when several successive values of the concentration determined at one-hour intervals differ by less than 0,02 mg/m³

3.2 air-replacement rate

n

the number of air changes per hour in the test chamber, given by

$$n = \frac{V_t}{t \times V}$$

where

V_t is the volume, in cubic metres, of air passed through the test chamber during the test;

t is the duration, in hours, of the test;

V is the volume, in cubic metres, of the test chamber

3.3 relative specimen area

a

the area of formaldehyde-emitting surface per unit volume of the test chamber, given, in square metres per cubic metre (i.e. m^{-1}), by

$$a = \frac{A}{V}$$

where

A is the area of the specimen, in square metres (see annexes A and B);

V is the volume, in cubic metres, of the test chamber

3.4 steady-state ratio

n/a

the ratio of the air-replacement rate n to the relative specimen area a , given, in metres per hour, by

$$n/a = \frac{V_t}{t \times A}$$

where

V_t is the volume, in cubic metres, of air passed through the test chamber during the test;

t is the duration, in hours, of the test;

A is the area, in square metres, of the specimen

3.5 formaldehyde concentration

c

the concentration, in milligrams per cubic metre, of formaldehyde at a given steady-state ratio n/a over the period of time concerned, given by

$$c = \frac{m}{V_t}$$

where

m is the mass, in milligrams, of formaldehyde;

V_t is the volume, in cubic metres, of air passed through the test chamber during the test

NOTE The value determined for c can be converted into ppm by dividing by the density of formaldehyde, i.e. by 1,22 g/l at a temperature of 23 °C and an atmospheric pressure of 101,3 kPa.

4 Principle

Test specimens are conditioned at (23 ± 1) °C and (50 ± 3) % relative humidity and exposed under specified conditions in a small test chamber (desiccator).

The desiccator is set up in an air-conditioned room so that air from the room can be passed first through the desiccator and then into a water trap where formaldehyde (HCHO) is absorbed. The water in the water trap is changed at regular intervals, and the formaldehyde concentration c is determined photometrically by the acetylacetone method or another suitable method. The test is continued until the value measured for c no longer changes (see 3.1). The equilibrium concentration c_{eq} in the air in the test chamber is then considered to be attained.

5 Choice of method for determination of formaldehyde

The acetylacetone method has been chosen as the preferred method. Other methods of determination, e.g. a fluorimetric method, may be used instead of the photometric method with acetylacetone, provided they can be shown to give equivalent results. (See also annex C, clause C.7.)

6 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

6.1 Air-conditioned room or similar facility, maintained at a temperature of (23 ± 1) °C and a relative humidity of (50 ± 3) %.

6.2 Apparatus (see figure 1) consisting of

- two gas-metering pumps, rate of pumping at least 100 l/h, pressure head dependent on pressure requirements,
- bubble counter;
- 1 000 ml bottle with modified wash-bottle insert;
- test chamber, volume 20 l, such as a desiccator, with lid containing a wire cage for the specimens;
- hygrometer;
- two 30 ml wash-bottles with Muenke fitting, or other suitable absorption vessels;
- 500 ml wash-bottle filled with silica gel to act as a drying tower;
- flowmeter, measuring range 0 l/h to 100 l/h; with fine-control valve;
- integrating flowmeter, operating range 1 l/h to 220 l/h.