



SLOVENSKI STANDARD
kSIST FprEN ISO 12460-4:2015
01-december-2015

Lesne plošče - Ugotavljanje sproščanja formaldehida - 4. del: Metoda z eksikatorjem (ISO/FDIS 12460-4:2015)

Wood-based panels - Determination of formaldehyde release - Part 4: Desiccator method (ISO/FDIS 12460-4:2015)

Holzwerkstoffe - Bestimmung der Formaldehydabgabe - Teil 4: Exsikkator-Verfahren (ISO/FDIS 12460-4:2015)

Panneaux à base de bois - Détermination du dégagement de formaldéhyde - Partie 4: Méthode au dessiccateur (ISO/FDIS 12460-4:2015)

Ta slovenski standard je istoveten z: FprEN ISO 12460-4

ICS:

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| 79.060.01 | Lesne plošče na splošno | Wood-based panels in general |
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| kSIST FprEN ISO 12460-4:2015 | en,de |
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FINAL
DRAFT

INTERNATIONAL
STANDARD

ISO/FDIS
12460-4

ISO/TC 89

Secretariat: DIN

Voting begins on:
2015-09-24

Voting terminates on:
2015-11-24

Wood-based panels — Determination of formaldehyde release —

Part 4: Desiccator method

*Panneaux à base de bois — Détermination du dégagement de
formaldéhyde —*

Partie 4: Méthode au dessiccateur

Please see the administrative notes on page iii

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Reference number
ISO/FDIS 12460-4:2015(E)

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ISO/CEN PARALLEL PROCESSING

This final draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement. The final draft was established on the basis of comments received during a parallel enquiry on the draft.

This final draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel two-month approval vote in ISO and formal vote in CEN.

Positive votes shall not be accompanied by comments.

Negative votes shall be accompanied by the relevant technical reasons.



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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 89, *Wood-based panels*.

This second edition cancels and replaces the first edition (ISO 12460-4:2008), which has been technically revised with the following changes:

- a) introduction was deleted;
- b) reference to JANS 16 was deleted in the scope;
- c) provisions for low emitting boards were added in [5.6](#).

It also incorporates the Amendment ISO 12460-4:2008/AMD 1:2011.

ISO 12460 consists of the following parts, under the general title *Wood-based panels — Determination of formaldehyde release*:

- *Part 1: Formaldehyde emission by the 1-cubic-metre chamber method*
- *Part 3: Gas analysis method*
- *Part 4: Desiccator method*
- *Part 5: Extraction method (called perforator method)*

Wood-based panels — Determination of formaldehyde release —

Part 4: Desiccator method

1 Scope

This part of ISO 12460 specifies a desiccator method for the determination of the quantity of formaldehyde emitted from particleboard, fibreboard, plywood, oriented strand board (OSB), and wooden laminated flooring.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16999, *Wood-based panels — Sampling and cutting of test pieces*

3 Principle

Emission of formaldehyde is determined by placing test pieces of known surface area in a desiccator at a controlled temperature and measuring the quantity of emitted formaldehyde absorbed in a specified volume of water during 24 h.

4 Reagents

Use only reagents of recognized analytical grade, unless otherwise specified, and distilled or demineralized water or water of equivalent purity.

4.1 Acetylacetone-ammonium acetate solution.

Dissolve 150 g ammonium acetate ($C_2H_3O_2NH_4$) in 800 ml water in a 1 000 ml one-mark volumetric flask (5.9). Add 3 ml glacial acetic acid ($C_2H_4O_2$) and 2 ml acetylacetone (pentane-2,4-dione, $C_5H_8O_2$) and mix thoroughly into the solution. Make up to the mark with water. During storage, protect the solution from light. Discard the solution 3 days after preparation.

4.2 Iodine standard solution, $c(I_2) = 0,05$ mol/l.

Standardize the solution before use.

4.3 Sodium thiosulfate standard solution, $c(Na_2S_2O_3) = 0,1$ mol/l.

Standardize the solution before use.

4.4 Sodium hydroxide standard solution, $c(NaOH) = 1$ mol/l.

Standardize the solution before use.

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4.5 Sulfuric acid standard solution, $c(\text{H}_2\text{SO}_4) = 1 \text{ mol/l}$.

Standardize the solution before use.

4.6 Starch solution, 1 % mass fraction.

5 Apparatus

The usual laboratory apparatus and, in particular, the following:

5.1 Glass desiccators, with an enclosed volume of $(11 \pm 2) \text{ l}$ capable of enclosing a support (5.2).

5.2 Wire grid or support, of diameter $(240 \pm 15) \text{ mm}$ of stainless steel wire such that the distance between parallel pieces of wire is not less than 15 mm (see Figure 1).

5.3 Glass crystallizing dish, circular of inside diameter $(115 \pm 1) \text{ mm}$ and depth $(60 \pm 2) \text{ mm}$.

5.4 Sample holder, of stainless steel wire, to hold the test pieces upright in the desiccator (see Figure 2).

5.5 Temperature-measuring device, e.g. a thermocouple, capable of measuring temperature with an error limit of $\pm 0,1 \text{ }^\circ\text{C}$, placed inside a desiccator (5.1) located adjacent to the desiccator(s) containing the test pieces.

5.6 Spectrophotometer, capable of measuring absorbance at 412 nm. The use of cells of pathlength at least 50 mm is recommended and is required for low emitting boards. Fluorimetric determination can also be used to gain more sensitivity.

5.7 Water bath, capable of maintaining a temperature of $(65 \pm 2) \text{ }^\circ\text{C}$.

5.8 Volumetric flasks, six, of capacity 100 ml.

5.9 Volumetric flasks, two, of capacity 1 000 ml.

5.10 Bulb pipettes, of capacities 5 ml, 10 ml, 15 ml, 20 ml, 25 ml, 50 ml, and 100 ml or suitable auto pipette.

5.11 Microburette or auto dispenser.

5.12 Flasks with stoppers, of capacity 100 ml.

5.13 Balance, capable of measuring to 0,001 g.

6 Test pieces

6.1 Sampling

Sampling and cutting of the test pieces shall be carried out in accordance with ISO 16999.