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**Resilient and laminate floor  
coverings — Determination  
of indentation and residual  
indentation —**

**Part 2:  
Short-term indentation and residual  
indentation of resilient floor covering**

*Revêtements de sol résilients et stratifiés — Détermination du  
poinçonnement et du poinçonnement rémanent —*

*Partie 2: Poinçonnement et poinçonnement rémanent de courte durée  
des revêtements de sol résilients*

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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](http://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](http://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 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

This second edition cancels and replaces the first edition (ISO 24343-2:2011), which has been technically revised.

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

- [Clause 2](#) has been added;
- former Clause 9 (“Precision statement”) has been removed;
- some minor technical and editorial changes have been made for clarity.

A list of all parts in the ISO 24343 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).

# Resilient and laminate floor coverings — Determination of indentation and residual indentation —

## Part 2: Short-term indentation and residual indentation of resilient floor covering

### 1 Scope

This document describes a method for determining the short-term indentation and residual indentation produced in a resilient floor covering after the application and removal of a constant load.

### 2 Normative references

There are no normative references in this document.

### 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 <http://www.electropedia.org/>

#### 3.1

##### **indentation**

difference between the initial thickness and the thickness measured after removal of the load

#### 3.2

##### **residual indentation**

difference between the initial thickness and the thickness measured after removal of the load and a specified recovery period

#### 3.3

##### **thickness**

distance between two parallel plates where the floor covering is inserted under a specific load

### 4 Principle

Test pieces are subjected to static loading, the thickness being measured before loading, after removal of the load and after a specified recovery period.

### 5 Apparatus

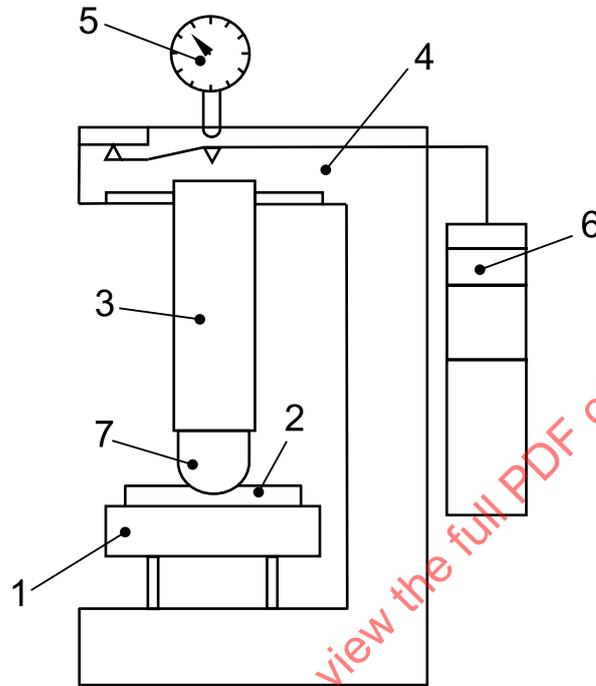
**5.1 Indenter**, consisting of a straight, steel cylinder with the following characteristics:

- diameter of the indenter:  $(19,05 \pm 0,01)$  mm;
- hemispherical foot;

— weight of the indenter:  $(0,45 \pm 0,05)$  kg.

**5.2 Rigid, horizontal platform**, of minimum diameter 35 mm.

**5.3 Device** by means of which a mass of  $22,7 \pm 0,227$  kg can be smoothly applied. The frame shall not deform by more than 0,05 mm measured in the direction of the axis under the maximum mass. An example of a device to apply force on an indenter is given in [Figure 1](#).



**Key**

- |                             |               |
|-----------------------------|---------------|
| 1 rigid horizontal platform | 5 comparator  |
| 2 test piece                | 6 dead weight |
| 3 annular weight            | 7 indenter    |
| 4 lever arm                 |               |

**Figure 1** – Example of a device to apply force on an indenter

**5.4 Comparator** for measuring the depth of indentation to  $\pm 0,01$  mm.

**5.5 Apparatus for measuring the thickness of the test piece** to 0,01 mm, with the following characteristics:

- diameter of the flat foot:  $(3,50 \pm 0,02)$  mm;
- mass applied  $(0,085 \pm 0,003)$  kg.

**5.6 Stopwatch** or other timing device with an accuracy of  $\pm 0,2$  s.

**6 Atmosphere for conditioning and testing**

Condition the test pieces at a temperature of  $(23 \pm 2)$  °C and a relative humidity of  $(50 \pm 5)$  % for a minimum of 24 h. Maintain these conditions when carrying out the test.

## 7 Sampling and selection of specimens

Take a representative sample from the available material. Take three test pieces with dimensions at least 50 mm by 50 mm cut from a roll or different tiles or planks.

## 8 Test procedure

8.1 Condition the test piece as specified in [Clause 6](#).

8.2 Mark the place of measurement and measure the initial thickness of the test piece,  $t_0$ , at its centre to 0,01 mm, using the appropriate mass specified in [5.5](#).

8.3 Zero comparator on base (horizontal platform).

8.4 Place the test pieces on the platform.

8.5 Place the indenter on the marked spot, gently apply the total force specified in [5.3](#) and start the stopwatch within 2 s.

8.6 Record the depth of indentation after  $(15 \pm 1)$  s to 0,01 mm as  $t_1$ .

8.7 Record the depth of indentation after  $(300 \pm 2)$  s to 0,01 mm as  $t_2$  and remove the force and the test piece from the platform.

8.8 Wait another  $(150 \pm 1)$  min and measure the residual indentation (final thickness of the test piece),  $t_3$ , at the marked position, using the appropriate apparatus ([5.5](#)).

8.9 Repeat the test on the remaining test pieces. Calculate the mean value from the measurements taken and express the result to 0,01 mm.

## 9 Calculation and expression of results

- Calculate the indentation at  $(15 \pm 1)$  s,  $I_{15} = t_0 - t_1$ , for each test piece.
- Calculate the indentation at  $(300 \pm 2)$  s,  $I_{300} = t_0 - t_2$ , for each test piece.
- Calculate the residual indentation,  $I_{res} = t_0 - t_3$ , for each test piece.

## 10 Test report

The test report shall contain the following information:

- a statement that the tests were performed in accordance with this document, i.e. ISO 24343-2:2018;
- complete identification of the product tested, including type, source, colour and manufacturer's reference numbers;
- history of the sample;
- the mean value for the initial thickness,  $t_0$ , to the nearest 0,01 mm;
- the mean value for the depth of indentation at 15 s,  $I_{15}$ , to the nearest 0,01 mm;
- the mean value for the depth of indentation at 300 s,  $I_{300}$ , to the nearest 0,01 mm;
- the mean value for residual indentation at 150 min,  $I_{res}$ , to the nearest 0,01 mm;

- h) any deviation from this document which could have affected the results.

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