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

Part 3:

**Indentation of resilient semi-flexible/  
vinyl composition tiles**

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

*Partie 3: Poinçonnement de carreaux semi-flexibles/carreaux de  
composition vinylique 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 24343-3:2011), 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 3: Indentation of resilient semi-flexible/vinyl composition tiles

### 1 Scope

This document describes a method for determining the short-term indentation resistance of resilient semi-flexible/vinyl composition tile (VCT) floor covering after the application of 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 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 at room temperature, the thickness being measured before and during loading at specified dwell periods.

### 5 Apparatus

#### 5.1 Water bath capable of maintaining a temperature of $(23 \pm 2,0)$ °C.

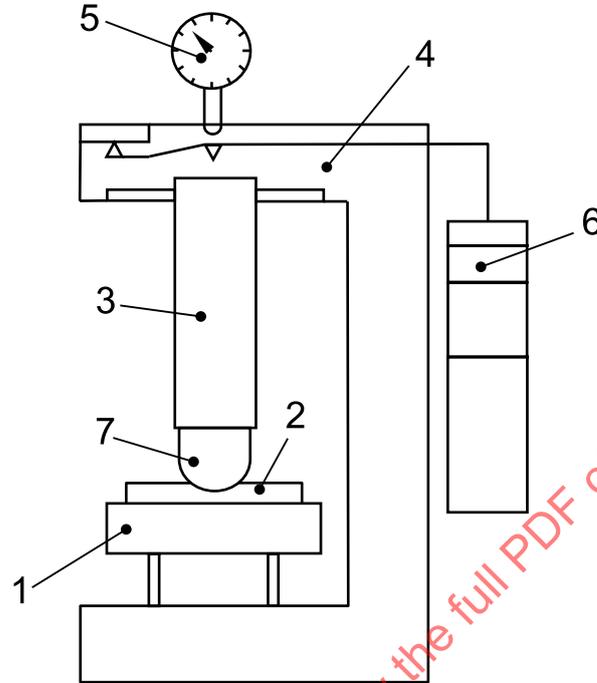
NOTE This is optional.

#### 5.2 Indenter, consisting of a straight, steel cylinder with the following characteristics:

- diameter of the indenter:  $(6,35 \pm 0,01)$  mm;
- hemispherical foot;
- weight of the indenter:  $(0,90 \pm 0,05)$  kg.

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

5.4 **Device** by means of which a mass of  $13,60 \pm 0,12$  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**

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

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

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

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

**6 Atmosphere for conditioning and testing**

Unless otherwise stated in the product specification, condition the test pieces at a temperature of  $(23 \pm 2)$  °C and a relative humidity of  $(50 \pm 5)$  % for a minimum of 1 h. Maintain these conditions when carrying out the test. Test pieces may also be conditioned by means of a water bath ([5.1](#)) for a minimum of 1 h.

## 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 different tiles or planks.

## 8 Test procedure

8.1 Condition the test pieces 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 [5.6](#).

8.3 Place the test piece on the platform.

8.4 Place the indenter on the marked spot and adjust the comparator to zero. Gently apply the mass specified in [5.4](#) and start the stopwatch within 2 s.

8.5 Record the depth of indentation,  $t_1$ , after  $(60 \pm 1)$  s to 0,01 mm while continuing to maintain the force on the test piece.

8.6 Wait another  $(540 \pm 2)$  s, resulting in a total indentation time of  $(600 \pm 3)$  s, and record the depth of indentation,  $t_2$ , of the test piece.

8.7 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  $(60 \pm 1)$  s,  $I_{60} = t_0 - t_1$ , for each test piece.
- Calculate the indentation at  $(600 \pm 3)$  s,  $I_{600} = t_0 - t_2$ , for each test piece.
- Calculate the mean values for both  $I_{60}$  and  $I_{600}$  for all test pieces,  $I_{60}$  (mean) and  $I_{600}$  (mean), to the nearest 0,01 mm.

## 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 24343-3:2018;
- complete identification of the product tested, including type, source, colour and manufacturer's reference numbers;
- history of the sample;
- the individual and mean values for the indentation at 60 s,  $I_{60}$  and  $I_{60}$ (mean), respectively, to the nearest 0,01 mm;
- the individual and mean values for the indentation at 600 s,  $I_{600}$  and  $I_{600}$ (mean), respectively, to the nearest 0,01 mm;
- any deviation from this document which could have affected the results.

## Bibliography

- [1] ASTM F 1066, *Standard Specification for Vinyl Composition Floor Tile*
- [2] ASTM F 1914, *Standard Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering*
- [3] JIS A 1454, *Test methods — Resilient floorcoverings*

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