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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

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ISO 24343-3 was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

ISO 24343 consists of the following parts, under the general title *Resilient and laminate floor coverings — Determination of indentation and residual indentation*:

- *Part 1: Residual indentation*
- *Part 2: Short-term residual indentation of resilient floor covering*
- *Part 3: Indentation of resilient semi-flexible/vinyl composition tiles*



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

## Part 3: Indentation of resilient semi-flexible/vinyl composition tiles

### 1 Scope

This part of ISO 24343 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 Terms and definitions

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

#### 2.1

##### **indentation**

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

#### 2.2

##### **thickness**

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

### 3 Principle

Tests pieces are subjected to static loading at room temperature, the thickness being measured before and during loading at specified dwell periods.

### 4 Apparatus

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

NOTE This is optional.

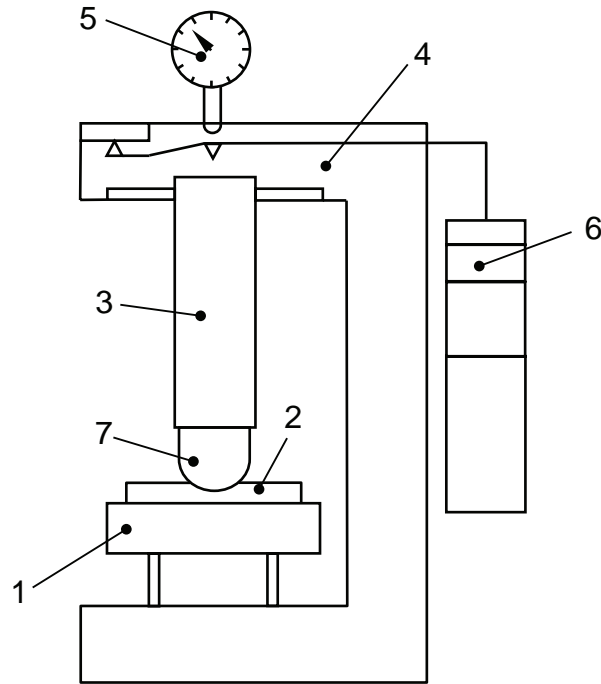
**4.2 Indenter**, a straight, steel cylinder of diameter as specified below with a hemispherical tip.

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

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

**4.5 Device**, by means of which a force 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 force.

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



**Key**

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

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

**4.6 Apparatus**, for measuring the thickness of the test piece to 0,01 mm.

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

**4.7 Stopwatch**, or other timing device.

**5 Atmosphere for conditioning and testing**

Unless stated otherwise in the product specification, condition the test pieces at a temperature of  $(23 \pm 2,0)$  °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 as described in 4.1 for a minimum of 1 h.

**6 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.

**7 Test procedure**

**7.1** Condition the test piece as specified in Clause 5.

**7.2** 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 4.5.

**7.3** Place the test piece on the platform and centre the marked place of measurement directly under the indenting tip.

**7.4** Place the indenter on the marked spot and adjust the comparator to zero. Gently apply the total force specified in 4.3 and start the stopwatch within 2 s.

**7.5** 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.

**7.6** After a further  $(540 \pm 2)$  s, record the depth of indentation,  $t_2$ , of the test piece.

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

## 8 Calculation and expression of results

**8.1** Record the one minute indentation,  $t_1$ , for each test piece.

**8.2** Record the ten minute indentation,  $t_2$ , for each test piece.

**8.3** Calculate the mean value for both the one minute and the ten minute indentations and express the result to the nearest 0,01 mm.

## 9 Precision statement

A round robin test shall be conducted to determine the precision of this test method.

## 10 Test report

The test report shall contain the following information:

- a) a statement that the tests were performed in accordance with this part of ISO 24343, i.e. ISO 24343-3;
- b) complete identification of the product tested, including type, source, colour, and manufacturer's reference numbers;
- c) history of the sample;
- d) the individual and mean values for the one minute indentation to the nearest 0,01 mm;
- e) the individual and mean values for the ten minute indentation to the nearest 0,01 mm;
- f) any deviation from this part of ISO 24343 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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