



**SLOVENSKI STANDARD**  
**oSIST prEN 1815:2024**  
**01-junij-2024**

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**Netekstilne, modularne mehansko spojene talne obloge (MMF) in laminatne talne obloge - Ocenitev elektrostatskega obnašanja**

Resilient, Modular mechanical locked floor coverings (MMF) and laminate floor coverings  
- Assessment of static electrical propensity

Elastische, modulare mechanisch verriegelnde Bodenbeläge (MMF) und Laminat-Bodenbeläge - Beurteilung des elektrostatischen Verhaltens

Revêtements de sol résilients, modulaires à verrouillage mécanique (MMF) et stratifiés - Évaluation à la propension à l'accumulation de charges électrostatiques

**Ta slovenski standard je istoveten z: prEN 1815**

[oSIST prEN 1815:2024](#)

**ICS:**

97.150      Talne obloge      Floor coverings

**oSIST prEN 1815:2024**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 1815**

April 2024

ICS 97.150

Will supersede EN 1815:2016

English Version

## Resilient, Modular mechanical locked floor coverings (MMF) and laminate floor coverings - Assessment of static electrical propensity

Revêtements de sol résilients et stratifiés - Evaluation  
de la propension à l'accumulation de charges  
électrostatiques

Elastische, Modulare mechanisch verriegelnde  
Bodenbeläge (MMF) und Laminatfußbeläge -  
Beurteilung des elektrostatischen Verhaltens

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 134.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

| <b>Contents</b>  | <b>Page</b> |
|--|-------------|
| European foreword .....  | 3           |
| <b>1 Scope</b> .....   | <b>4</b>    |
| <b>2 Normative references</b> .....  | <b>4</b>    |
| <b>3 Terms and definitions</b> .....   | <b>4</b>    |
| <b>4 Principle</b> .....   | <b>5</b>    |
| <b>4.1 Method A</b> .....  | <b>5</b>    |
| <b>4.2 Method B</b> .....  | <b>5</b>    |
| <b>5 Apparatus</b> .....   | <b>5</b>    |
| <b>5.1 Conditioned room (Method A)</b> .....                                   | <b>5</b>    |
| <b>5.2 Substructure for resilient and MMF floor coverings (Method A)</b> ..... | <b>5</b>    |
| <b>5.3 Substructure for laminate floor coverings (Method A)</b> .....          | <b>5</b>    |
| <b>5.4 Test sandals</b> .....  | <b>5</b>    |
| <b>5.5 EPDM sole material</b> .....  | <b>6</b>    |
| <b>5.6 Means of cleaning the sandals</b> .....                                 | <b>6</b>    |
| <b>5.7 Ionizing source</b> .....   | <b>6</b>    |
| <b>5.8 Body voltage measuring system</b> .....                                 | <b>7</b>    |
| <b>6 Preparation of test pieces (Method A)</b> .....                           | <b>8</b>    |
| <b>7 Conditioning</b> .....  | <b>8</b>    |
| <b>8 Test procedure</b> .....  | <b>9</b>    |
| <b>8.2 Method A: test procedure in laboratory conditions</b> .....             | <b>9</b>    |
| <b>8.3 Method B: test procedure <i>in situ</i></b> .....                       | <b>9</b>    |
| <b>9 Calculation and expression of results</b> .....                           | <b>9</b>    |
| <b>10 Test report</b> .....  | <b>11</b>   |
| <b>11 Precision</b> .....  | <b>11</b>   |
| <b>Annex A (normative) Specification of the sandals</b> .....                  | <b>12</b>   |
| <b>A.1 General</b> .....   | <b>12</b>   |
| <b>A.2 Lasts</b> .....   | <b>12</b>   |
| <b>A.3 Materials</b> .....   | <b>12</b>   |
| <b>A.4 Construction procedure</b> .....  | <b>12</b>   |
| <b>A.5 Selected details of sandal construction for the shoemaker</b> .....     | <b>15</b>   |
| <b>Annex B (informative) Precision of the method</b> .....                     | <b>18</b>   |

## European foreword

This document (prEN 1815:2024) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile, laminate and modular mechanical locked floor coverings”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1815:2016.

prEN 1815:2024 includes the following significant technical changes with respect to EN 1815:2016:

- correction of the technical parameter of the EPDM sole in 5.5;
- the test principle description in Clause 4 was divided in method A and B;
- a description of a conditioning room was added as 5.1;
- correction of the normative references in Clause 2 related to the new technical parameter;
- Clause 6, “Preparation of test pieces for method A” was integrated.
- 8.2.2 “Discharging” was modified;
- the Annex A with the description of the test sandals was added and Figure A.1 was replaced.

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**prEN 1815:2024 (E)****1 Scope**

This document specifies a method for determining the body voltage (BV) generated when a person wearing standardized footwear walks on a resilient, modular mechanical locked floor coverings (MMF) or laminate floor covering. The test method can be used under laboratory conditions as well as *in situ*.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1)*

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 48-4, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 9407, *Footwear sizing — Mondopoint system of sizing and marking*

ISO 4649, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

EN IEC 61340-4-1, *Electrostatics — Part 4-1: Standard test methods for specific applications — Electrical resistance of floor coverings and installed floors (IEC 61340-4-1)*

**3 Terms and definitions**

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

**3.1****static electrical propensity**

tendency for charge to be generated by a person walking on the floor covering

**3.2****earthed**

connected to a reference earth

Note 1 to entry: Part of the Earth is considered as conductive, the electric potential of which is conventionally taken as zero.

## 4 Principle

### 4.1 Method A

A floor covering is evaluated for static electrical propensity by means of a walking test with an operator using a pair of standard sandals, walking over the floor covering situated over a grounded metal base plate (resilient and MMF floor coverings) or over a PE-foam/PE-foil situated over a grounded metal base plate (laminated floor coverings).

### 4.2 Method B

A floor covering is evaluated for static electrical propensity by means of a walking test with an operator using a pair of standard sandals, walking over the floor covering in *in situ* conditions.

## 5 Apparatus

### 5.1 Conditioned room (Method A)

Environmental conditions for conditioning before testing and the test provided in a room or a chamber with following specifications:

a temperature of  $(23 \pm 2)$  °C and relative humidity of  $(25 \pm 5)$  %.

### 5.2 Substructure for resilient and MMF floor coverings (Method A)

An earthed metal base plate shall be used, e.g. a stainless-steel plate of approximately  $(100 \times 200)$  cm and approximately 1 mm thick.

### 5.3 Substructure for laminated floor coverings (Method A)

#### 5.3.1 Laminated floor coverings without attached sound absorbing material

A PE foam sheet of approximately  $(220 \times 120)$  cm and  $(3 \pm 0,5)$  mm thick, with a vertical resistance  $\geq 10^{13} \Omega$  (measured at 500 V DC according to EN 61340-4-1) shall be used. This PE foam sheet is laid on a grounded metal base plate, as specified in 5.2.

NOTE In case of underlay material is not available in one piece, it is appropriate to use tape to create a sufficient area from the origin foam roll material.

#### 5.3.2 Laminated floor coverings with attached sound absorbing material

A water vapour barrier PE foil of approximately  $(220 \times 120)$  cm and  $(0,2 \pm 0,1)$  mm thick is laid on a earthed metal base plate, as specified in 5.2.

### 5.4 Test sandals

The test sandals (see Annex A) shall be reserved exclusively for use in this test method. The test sandals shall be open sandals of European size 42 (Mondopoint size 270/100) and with straps mounted to fit various foot sizes. An EPDM sole material (5.5) shall be used. The resistance between the metal plate and the operator standing on it wearing the sandals with the soles shall be  $(10^8 \text{ to } 10^9) \Omega$  to be measured at a voltage of 100 V

NOTE For guidance on the possible effect of the operator's clothing and other factors on test results, see informative Annex B.

**prEN 1815:2024 (E)****5.5 EPDM sole material****5.5.1 Composition**

The EPDM sole material shall be prepared according to the recipe given in Table 1.

**Table 1 — Recipe of the EPDM sole material**

| Composition           | Parts by mass |
|-----------------------|---------------|
| EPDM                  | 100           |
| Na-Al-Silicate        | 60,0          |
| Triethylenglykolester | 1,5           |
| Pigment               | 1,0           |
| Peroxide 40 %         | 2,0           |

Treatment: vulcanization at 170 °C for 10 min.

**5.5.2 Physical Properties**

The physical properties of the dark blue EPDM sole material shall meet the requirements provided in Table 2.

**Table 2 — Physical properties of the dark blue EPDM sole material**

| Property  | Requirement                       | Test method      |
|---|-----------------------------------|------------------|
| Hardness (Shore A)  | 72 ± 5                            | ISO 48-4         |
| Density in g/cm <sup>3</sup> :                                | 1,11 ± 0,03                       | EN ISO 1183-1    |
| Abrasion (10N) in mm <sup>3</sup>                             | 210 ± 50                          | ISO 4649         |
| Elongation of break in %                                      | 600 ± 100                         | ISO 37           |
| Tensile strength in MPa                                       | 7,5 ± 2                           | ISO 37           |
| Electrical resistance (with 100 V at 23°C and 25 % rHum) in Ω | 10 <sup>8</sup> - 10 <sup>9</sup> | EN IEC 61340-4-1 |
| Thickness:  | 2,0 ± 0,3 mm                      | -                |

**5.6 Means of cleaning the sandals**

The following means of cleaning shall be used:

- abrasive paper, P280;
- scoured cotton cloth, free from finish or detergent;
- denatured ethanol or isopropanol.

**5.7 Ionizing source**

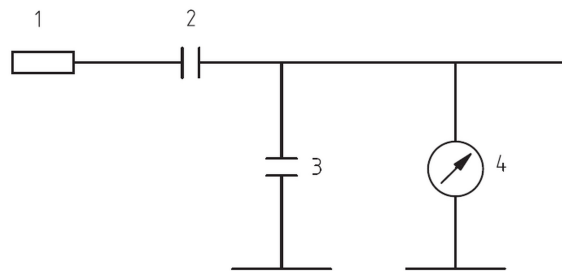
An ionizing source shall be used for discharging the test piece and the PE foam.



## 5.8 Body voltage measuring system

The body voltage measuring system (see Figure 1) consists of a DC static voltmeter, an autographic recorder and a hand electrode (see Figure 2) and shall meet the following requirements:

- input resistance of voltmeter and hand electrode system:  $\geq 10^{13} \Omega$ ;
- input capacitance of hand electrode:  $\leq 20 \text{ pF}$ ;
- response time:  $\leq 0,25 \text{ s}$ ;
- capable of measurements between  $(-20 \text{ to } +20) \text{ kV}$ .



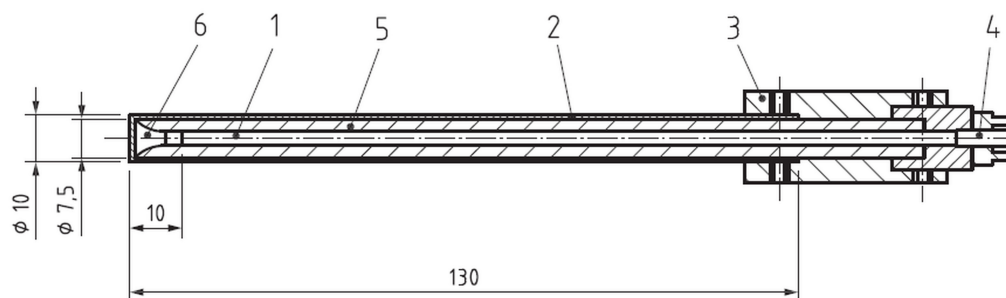
### Key

- 1 hand electrode
- 2 hand electrode capacitance ( $C1 = 10 \text{ pF}$ )
- 3 divider capacitance ( $C2$ )
- 4 static voltmeter and recorder

**Figure 1** — Scheme of measuring system

<https://standards.iteh.ai/catalog/standards/sist/846607db-bdc4-4074-96a1-14f9fle4440e/osist-pren-1815-2024>

Dimensions in mm

**Key**

- 1 cable core
- 2 metal tubing
- 3 polytetrafluoroethylene (PTFE) sleeve
- 4 BNC plug
- 5 co-axial cable
- 6 polyethylene bung

**Figure 2 — Example of a hand electrode**

## 6 Preparation of test pieces (Method A)

Prepare one test piece of approximately 1,95 m x 0,99 m for test.

In the case of panels/planks or tiles install the test piece according to the installation guideline of the manufacturer with short and length joints.

The direction of the length side joints shall be in walking direction.

Make sure that the test piece is free from sawing dust or other dirt/staining from the manufacturing process or the sample preparation.

## 7 Conditioning

Condition the test piece, the PE-foam (5.3.1), the PE-foil (5.3.2) and the sandals (5.4) at a temperature of  $(23 \pm 2)$  °C and relative humidity of  $(25 \pm 5)$  % for a minimum of 7 days and maintain these conditions during testing.

When the test is carried out *in situ*, the ambient temperature and relative humidity shall be recorded.