



SLOVENSKI STANDARD

SIST EN 1815:1999

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Resilient and textile floor coverings - Assessment of static electrical propensity

Elastische und textile Bodenbeläge - Beurteilung des elektrostatischen Verhaltens

Revetements de sol résilients et textiles - Evaluation de la propension a l'accumulation de charges électrostatiques

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Ta slovenski standard je istoveten z: **EN 1815:1997**

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ICS:

59.080.60	Tekstilne talne obloge	Textile floor coverings
97.150	Netekstilne talne obloge	Non-textile floor coverings

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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1815

November 1997

ICS 59.080.60; 97.150

Descriptors: floor coverings, tests, electrostatic discharge tests, footwear

English version

Resilient and textile floor coverings - Assessment of static
electrical propensity

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

Elastische und textile Bodenbeläge - Beurteilung des
elektrostatischen Verhaltens

This European Standard was approved by CEN on 16 October 1997.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 134 "Resilient and textile floor coverings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This Standard specifies a method for determining the body voltage generated when a person wearing standardized footwear walks on a resilient or a textile floor covering. The test method can be used under laboratory conditions as well as in-situ.

2 Definitions

For the purposes of this standard, the following definition applies:

static electrical propensity: The static electrical charge generated by a person walking on a floor.

3 Principle

A resilient or a textile 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 base plate.

4 Conditioning

Condition the test piece at a temperature of (23 ± 2) °C and relative humidity of (25 ± 2) % for a minimum of 7 days and maintain these conditions during testing. When the test is carried out in-situ record the ambient temperature and relative humidity.

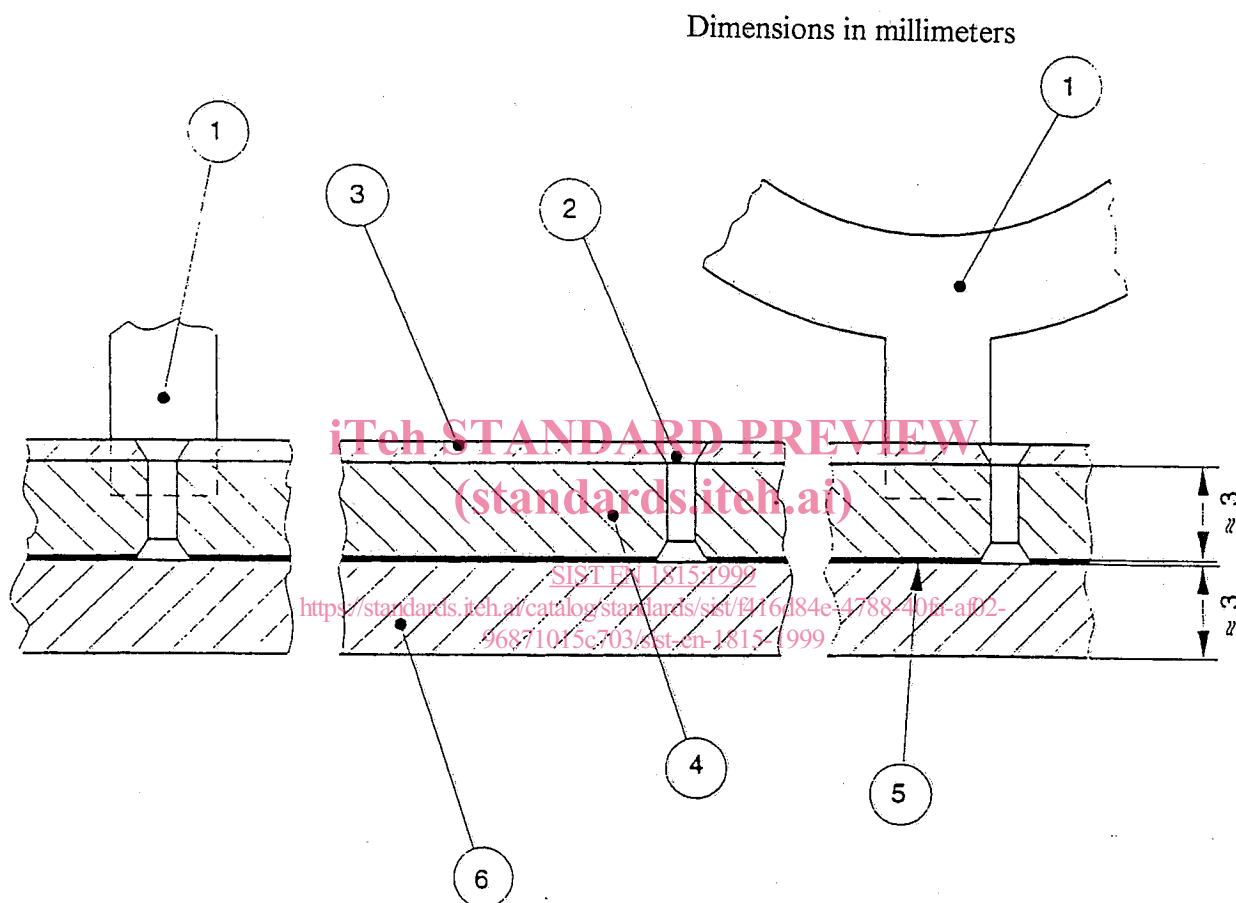
5 Apparatus

5.1 Grounded metal base plate, e.g. aluminium, of approximate dimensions (100 x 200) cm and 1 mm thick.

5.2 Rubber mat, of approximate dimensions (220 x 120) cm and with a thickness of $(4,5 \pm 0,5)$ mm, having a vertical resistance $\geq 10^{13}$ ohms in relation to a surface area of 1 cm^2 , measured at 500 V of direct current (DC).

5.3 Test sandals (see figure 1), reserved for use in this test method. The test sandals¹⁾ are open sandals of European size 42 with no heels and with straps mounted to fit various foot sizes. Two sole materials shall be used, conductive rubber and polyvinyl chloride. The resistance between the metal plate and the person standing on it wearing the sandals with the conductive soles shall be $(10^8 \text{ to } 10^9) \Omega$ for rubber and $(10^{11} \text{ to } 10^{12}) \Omega$ for polyvinyl chloride.

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



1. Straps
2. Hollow rivets
3. Sock lining
4. Insole; e.g. leather
5. Adhesive
6. Outsole of specified material

Figure 1: Test sandals

¹⁾ The test sandals complete with the specified sole materials are supplied for polyvinylchloride by TNO Centre for Textiles, 2600 JH Delft, The Netherlands and for rubber by BAM, Bundesamt für Materialprüfung, 12200 Berlin, Germany. This information is given for the convenience of users of the standard and does not constitute an endorsement by CEN of the product. Equivalent products may be used if they can be shown to lead to the same results.

5.4 Means of cleaning the sandals

5.4.1 *Abrasive paper; P280.*

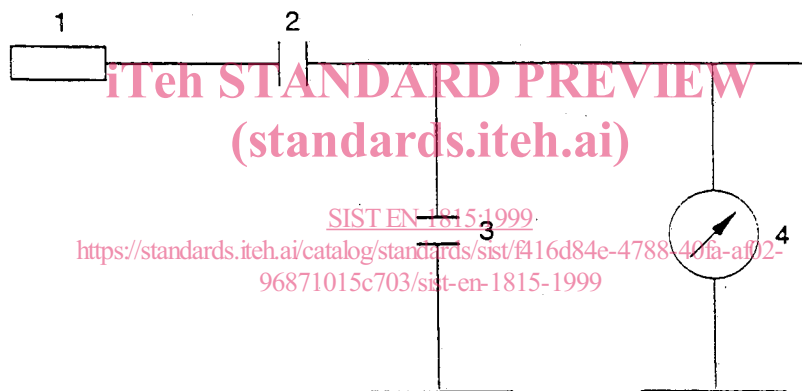
5.4.2 *Scoured cotton cloth, free from finish or detergent.*

5.4.3 *Denaturated ethanol.*

5.5 **Ionizing source** for discharging the test piece and rubber mat.

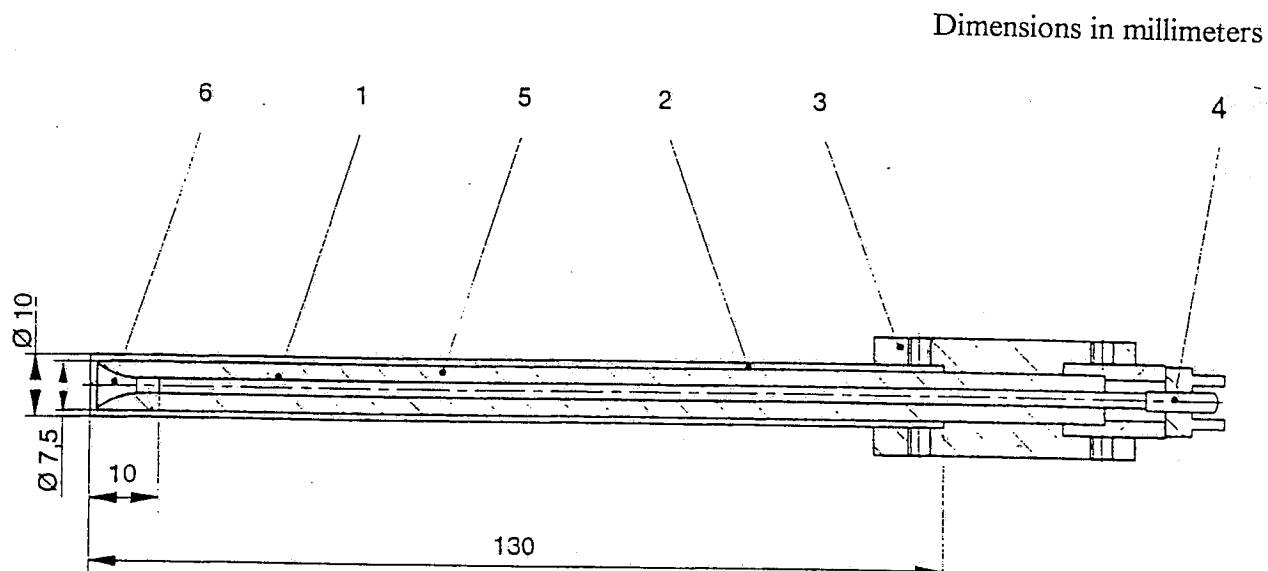
5.6 **Body voltage measuring system**, (see figure 2) consisting of a DC static voltmeter, an autographic recorder and a hand electrode (see figure 3) meeting the following requirements:

- 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 $(- 20 \text{ to } + 20) \text{ kV}$.



- Hand electrode
- Hand electrode capacitance, $C_1 = 10 \text{ pF}$
- Divider capacitance, C_2
- Static voltmeter and recorder

Figure 2: Measuring system



1. Cable core
2. Metal tubing
3. Polytetrafluoroethylene (PTFE) sleeve
4. BNC plug
5. Coaxial cable
6. Polyethylene bung

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Figure 3: Typical hand electrode

5.7 Thermometer and hygrometer, with an accuracy of $\pm 1\%$, for example a calibrated wet and dry bulb thermometer (psychrometer) with a scale reading to $0,1^{\circ}\text{C}$.

6 Test procedure

6.1 Cleaning of test sandals

Before each test series and after each individual test, clean the soles with cotton cloth and ethanol. To roughen the surface, use the abrasive paper and clean again with a clean piece of cloth and ethanol. The test shall start after a minimum drying time of 5 min.

6.2 Method A, test procedure in laboratory conditions

6.2.1 Preparation

Place the grounded metal base plate on the floor in the conditioned test room (see clause 4).

If it is specified that the floor covering to be tested is to be stuck down on to a surface having a resistance to earth of $> 10^9 \Omega$, place the rubber mat on the grounded metal base plate. Place the test piece on the rubber mat, taking care that the test piece is not in contact with the metal base plate.

If it is specified that the floor covering is to be stuck down on to concrete or on any surface having a resistance to earth $\leq 10^9 \Omega$, do not use the rubber mat but place the test piece directly on the metal plate.

6.2.2 Discharging

Discharge the rubber mat, when used, and the test piece before each individual test using the ionizing source to eliminate any residual static charge.

6.2.3 Walking test

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Place the sandals on the test piece. Step into the sandals and fasten them. Take the hand electrode, already connected with the static measuring device, and earth the person in order to start from zero voltage.

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With the hand electrode in the hand walk on the test piece with regular paces at a rate of two steps per second; forwards and backwards but always with the body facing the same direction. Avoid scuffing or pivoting.

At each step lift the sandals to between 50 mm and 80 mm above the test piece. Lift and lower the sandal sole in a plane parallel to the test piece. Cover as much of the test piece as possible and continue walking until the peak voltage ceases to rise, but for not more than 60 s. Take off the sandals while still on the test piece.

Perform the test with both sole materials three times each.

6.3 Method B, test procedure in-situ

Record the ambient temperature and relative humidity and the condition of the floor covering and, if relevant, any treatment prior to testing (eg. cleaning, washing etc.).

Place the sandals on the area of floor covering to be tested and perform the test as in 6.2.3.