SLOVENSKI STANDARD
SIST EN 1081:1999

01-marec-1999

Netekstilne talne obloge - Ugotavljanje električne upornosti

Resilient floor coverings - Determination of the electrical resistance

Elastische Bodenbeläge - Bestimmung des elektrischen Widerstandes

Revetements de sol résilients - Détermination de la résistance électrique

Ta slovenski standard je istoveten z: **EN 1081:1998**

ICS:

97.150 Netekstilne talne obloge Non-textile floor coverings

SIST EN 1081:1999 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1081

January 1998

ICS 97.150

Descriptors: floor coverings, tests, determination, electrical resistance

English version

Resilient floor coverings - Determination of the electrical resistance

Revêtements de sol résilients - Détermination de la résistance électrique

Elastische Bodenbeläge - Bestimmung des elektrischen Widerstandes

This European Standard was approved by CEN on 23 November 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.

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

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

Ref. No. EN 1081:1998 E

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of an identical text or by endorsement, at the latest by July 1998, and conflicting national standards shall be withdrawn at the latest by July 1998.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.

1 Scope

This European Standard specifies the determination for the vertical resistance of a floor covering, one determination for the surface resistance of a floor covering and one determination for the resistance to earth of a floor covering after installation.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

IEC 93:1980 Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials

ISO 48 Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)

3 Definitions

For the purposes of this standard the following definitions apply.

3.1 vertical resistance R_1: The electrical resistance measured between a tripod electrode (see figure 1) on the surface of a test piece and an electrode attached to the underside of the test piece (see figure 2).

3.2 resistance to earth R_2: The electrical resistance measured between a loaded tripod electrode on the surface of a laid floor covering and earth.

3.3 surface resistance R_3: The electrical resistance measured between two tripod electrodes (see figure 4) set up at a fixed distance of 100 mm apart on a laid floor covering (see figure 3).

4 Sampling

Take a representative sample from the whole of the available material. In the case of rolls, take approximately a third of the test pieces from the area close to the edges, the distance between the outer edge of the sample and the nearest edge of the roll being between 50 mm and 100 mm.

5 Apparatus and reagents

5.1 Tripod electrode (see figure 1), capable of comprising a triangular aluminium plate with an insulating layer on the upper surface and three cylindrical feet of conductive rubber on the underside at a distance of 180 mm apart.

The rubber feet shall have a hardness in accordance with ISO 48 of 50 IRHD to 70 IRHD, and the electrical resistance of each rubber foot shall be less than 10^3 Ω when tested between two metal surfaces.

NOTE: A "soft electrode" such as that described above is able to provide a more intimate contact with a smooth floor covering and in practice this type of electrode has been found to be the most satisfactory.

5.2 A load, capable of exerting a minimum force of 300 N on the tripod electrode.

NOTE: This can be achieved by using a person's body weight. In method C, one person may stand with a foot on each electrode.

5.3 Resistance meter, calibrated to determine the resistance *R* of a floor covering to an accuracy of ± 5 % in the range 10^3 Ω to 10^{10} Ω and an accuracy of ± 10 % for greater than 10^{10} Ω. For resistances less than or equal to 10^6 Ω the open circuit voltage shall be 100 V dc and for resistances greater than 10^6 Ω it shall be 500 V dc.

NOTE: A test instrument with internal resistance of 100 kΩ and a circuit conforming to IEC 93 annex 2.2 and compatible with digital instrument reading of the current, is recommended.

5.4 Test instruments, for measuring temperature with an accuracy of ± 2 °C and relative humidity with an accuracy of ± 5 %.

Dimensions in millimetres

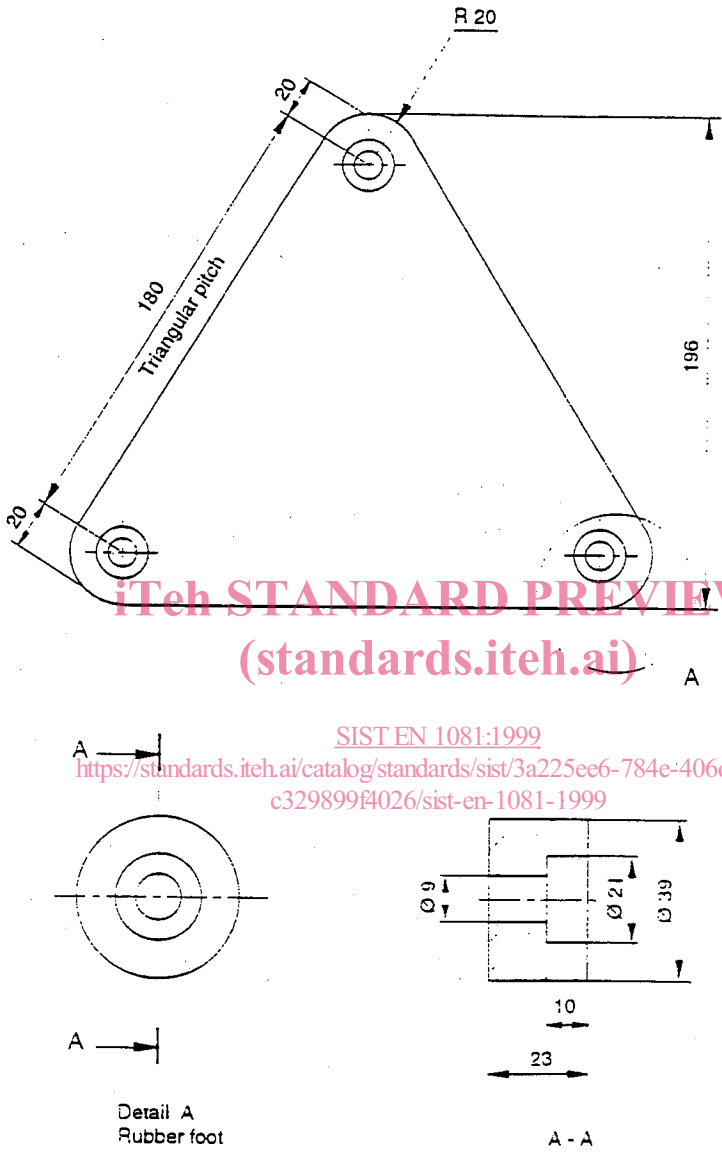

Figure 1: Tripod electrode

6 Method A - For vertical resistance, R_1

6.1 Principle

The vertical resistance between a surface electrode and an electrode attached to the underside of a test piece is measured using a defined voltage and a resistance meter.

6.2 Additional apparatus and reagents

6.2.1 Apparatus

6.2.1.1 Conductive underlay acting as a base electrode, e.g. a metal plate, of dimensions larger than the test piece.

6.2.1.2 Air-circulating oven, capable of being maintained at (40 ± 2) °C.

6.2.2 Reagents

6.2.2.1 Graphite suspension, colloidal graphite of a type that dries in air at room temperature.

6.2.2.2 Cleaning fluid, e.g. ethanol, isopropanol.

6.3 Preparation of test pieces

Take either three tiles from a batch or three test pieces of minimum side length 400 mm from a sheet. Clean the test piece with cleaning fluid. After cleaning, coat the underside of the test piece with a stabilized, diluted graphite suspension, and dry in an oven at a temperature of (40 ± 2) °C for a minimum of 96 h.

6.4 Conditioning

Condition the test pieces at a temperature of (23 ± 2) °C and relative humidity of (50 ± 5) % for a minimum of 48 h. Maintain this climate during laboratory testing.

Other climates may be used, if agreed between the parties involved.

6.5 Procedure

Place the cleaned tripod electrode on the surface of the test piece and connect it to the resistance meter. In addition, connect the base electrode to the resistance meter.

Press the tripod electrode to apply a load exerting a minimum force (F) of 300 N on the test piece and switch on the voltage.

NOTE: The smooth application of this load allows to ensure a good electrical current.

Take the resistance or current reading 10 s to 15 s after switching on. Repeat this procedure after repositioning the tripod electrode.

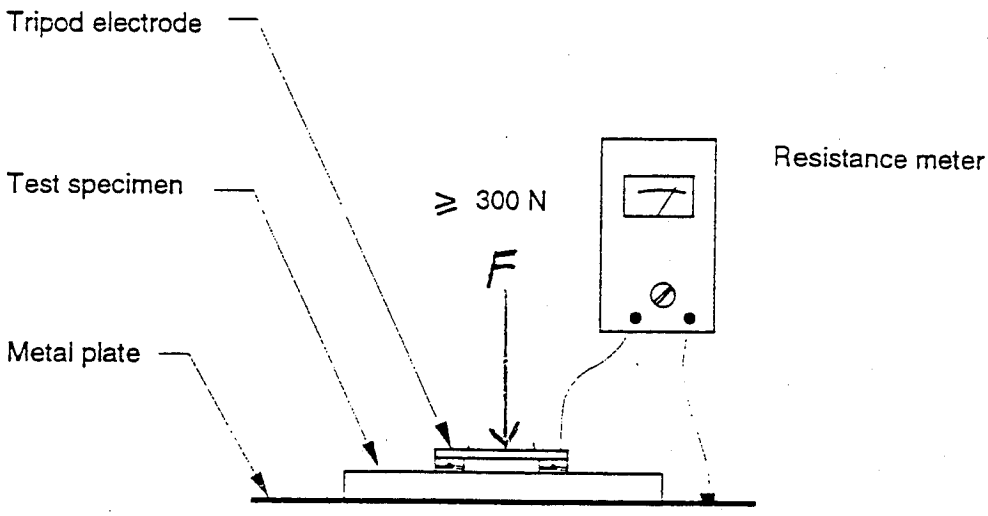

Figure 2: Testing of vertical resistance

7 Method B - For resistance to earth, R_2

7.1 Principle

The electrical resistance of a laid floor covering is measured between a surface electrode and earth.

7.2 Preparation of test pieces

Carry out the test in-situ a minimum of 48 h after laying. Before taking any measurements, remove all dirt from the floor covering in accordance with the manufacturer's instructions.

7.3 Procedure

Record the temperature and relative humidity.

Place the cleaned tripod electrode on the surface of the dry floor covering and connect it to the resistance meter. In addition, connect the earth to the resistance meter. Press the tripod electrode to apply a load exerting a minimum force of 300 N on the floor covering and switch on the voltage (see NOTE in 6.5).

Take the resistance reading to 10 s to 15 s after switching on. Repeat the procedure, if required, after repositioning the tripod electrode.