SLOVENSKI STANDARD
SIST EN 17668:2022

01-november-2022

Lepila za talne obloge - Priprava za nanašanje lepila - Preskusna metoda za ugotavljanje ustrezne vlažnosti mineralnih podlag

Adhesives for floor coverings - Preparation of adhesive application - Test methods for the determination of corresponding humidity of mineral substrates

Klebstoffe für Bodenbeläge - Vorbereitung der Klebstoffanwendung - Prüfverfahren zur Bestimmung der korrespondierenden Luftfeuchte von mineralischen Untergründen

Adhésifs pour revêtements de sol - Préparation de l’application d'adhésif - Méthodes d’essai pour la détermination de la teneur en humidité relative d'équilibre dans les supports minéraux

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83.180	Lepila	Adhesives
97.150	Talne obloge	Floor coverings

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English Version

Adhesives for floor coverings - Preparation of adhesive application - Test methods for the determination of corresponding humidity of mineral substrates

Adhésifs pour revêtements de sol - Préparation de l'application d'adhésif - Méthodes d'essai pour la détermination de la teneur en humidité relative d'équilibre dans les supports minéraux

Klebstoffe für Bodenbeläge - Vorbereitung der Klebstoffanwendung - Prüfverfahren zur Bestimmung der korrespondierenden Luftfeuchte von mineralischen Untergründen

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

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European foreword

This document (EN 17668:2022) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

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of an identical text or by endorsement, at the latest by March 2023, and conflicting national standards shall be withdrawn at the latest by March 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

This document describes test methods for measuring humidity in, at or from a mineral substrate. Using these test methods will assist a floor layer in determining whether a floor is suitable to accept a levelling compound and/or an adhesive and a floor covering. High humidity can lead to the decomposition of moisture-sensitive levelling compounds and/or the decomposition or disruption and subsequent weakening of flooring adhesives used for installation. This results in a complete failure of the construction or in a reduction in adhesive strength and a negative impact on indoor air quality due to increased overall VOC emissions and bad odour. Using these test methods, a floor layer will be able to decide on the time at which the levelling compound and/or adhesive can be applied in order to help to avoid potential, humidity related problems. They provide data to determine whether the load-bearing, mineral substrate is ready for covering.

This document supplements the national standards already described for determining the moisture conditions of mineral substrates.

The material independent information regarding the moisture activity is one of the advantages of these measurement methods. They provide reliable data to help to establish the readiness for installation, especially for mineral substrates containing additives.

SAFETY WARNING — Persons using this document should be familiar with normal practice. The document cannot address all safety problems that can be associated with its application. It is the responsibility of the user to define measures for health and safety at work and ensure that these correspond with the European and national regulations.

1 Scope

This document specifies test methods to measure humidity of any kind of mineral substrate prior to the installation of levelling compounds and/or floor coverings or parquet floors bonded with adhesives. The methods are independent of the mineral substrate chemical composition or materials and applicable with commercially available equipment.

This document is not applicable to loose lay installations.

The measurement of the moisture content of mineral substrates according to EN 13813 is described in EN 1264-4.

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 923:2015, *Adhesives — Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2015 and the following 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 https://www.electropedia.org/

3.1
moisture
presence of water in trace amounts

3.2
humidity
water vapour partial pressure present in air

3.3
relative humidity
RH
ratio of the partial pressure of water vapour to the equilibrium vapour pressure of water at a given temperature

Note 1 to entry: It is usually expressed as a percentage.

3.4
corresponding relative humidity
CRH
relative humidity in percent, which is present in the air close to a sample of the material at equilibrium

Note 1 to entry: The corresponding relative humidity is expressed in % RH or as the absolute number as water activity.

3.5
hygrometer sample method
method to measure humidity of a mineral substrate by measuring the relative humidity in a container (e. g. polyethylene bag or flask) directly at a sample of the mineral substrate

3.6
hygrometer box method
method to measure humidity of a mineral substrate by measuring the relative humidity in a pocket of air entrapped between an impervious thermally insulated housing and the mineral base

3.7
hygrometer sleeve method
method to measure humidity of a mineral substrate by measuring the humidity inside predrilled boreholes within a sleeve with an opening at defined depth

Note 1 to entry: Depth definitions are only available if concrete is the mineral substrate.

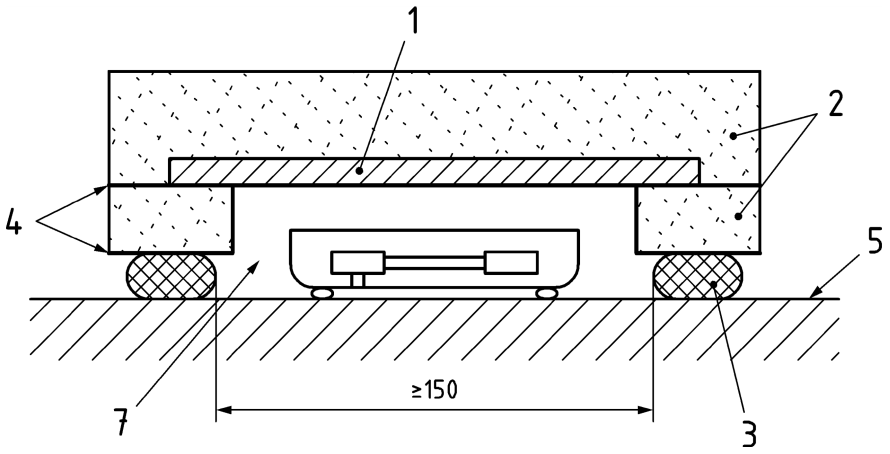
3.8
calibration
comparison of the value measured by an instrument with a well-defined reference value, traceable and of an accuracy at least one class better than that of the measuring instrument

Note 1 to entry: A calibration covering the whole working range of the measuring instrument provides a basis for an adjustment of the values measured by the instrument.

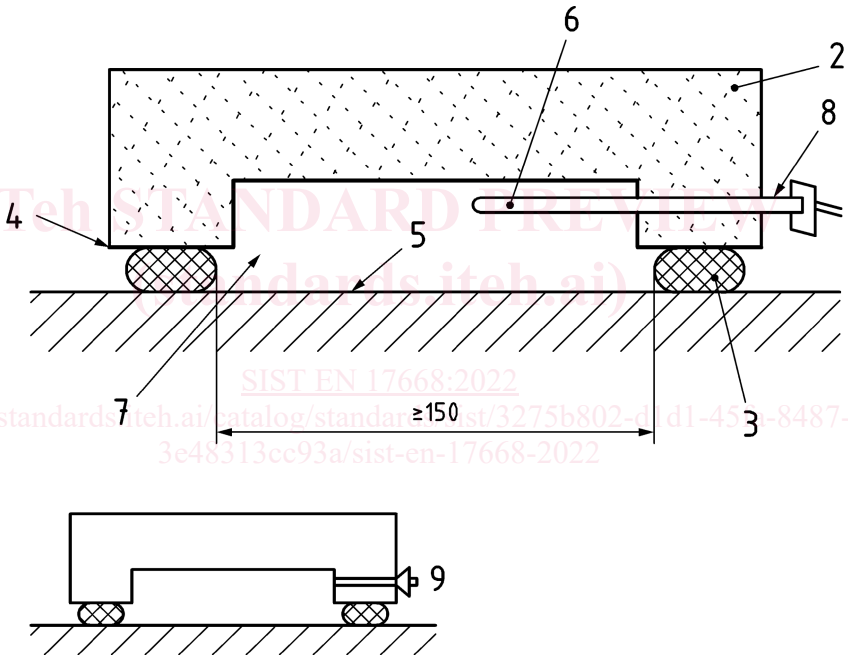
4 Apparatus

4.1 Hygrometer. An instrument capable of measuring the temperature and relative humidity shall be used (see Figure 1). The instrument and sensors shall be suited for use in the field. After calibration, the instrument shall measure relative humidity to an accuracy of ± 3 % between 10 % RH to 90 % RH and temperature to an accuracy ± 0,1 °C.

Dimensions in millimetres



a) Typical apparatus using hygrometer



b) Typical apparatus using RH probe

Key

1 window
2 insulation
3 butyl sealant
4 vapour barrier
5 floor
6 humidity measuring tip
7 air pocket
8 RH probe
9 plug

Figure 1 — Typical apparatus for the hygrometer box method (see [3])

Light weight and small size measurement sensors are preferred to avoid measurement error related to temperature changes during measurement. Moisture transfer through measurement sensor from the borehole to surroundings shall be eliminated. Sensor response time shall be applicable for the purpose. Measurement accuracy is normally lower than accuracy of sensor due to the measurement error sources during measurement.

The instrument manufacturer should define the required values for reliable measurement.

4.2 Insulated impermeable box, which can be sealed to the floor surface to create an enclosed pocket of air which is isolated from fluctuations in humidity and temperature from outside air (examples of suitable equipment are shown in Figure 1).

It is essential that the insulated box is sealed to the floor using a preformed butyl sealant tape (4.3) and that readings can be taken while the apparatus is in position on the floor without breaking the seal and releasing the trapped pocket of air.

Other forms of apparatus may be suitable but the width of the quadratic area should not be less than 150 mm and it is essential that the principles of thermal insulation and vapour barrier are followed, so that an insulated vapour-proof space is created.

Suitable vapour barrier materials are sheet metal, glass, 2 mm thick clear acrylic sheet, or 2 mm thick PVC-U, and the apparatus should have a maximum heat transmission value of 1,0 W/(m^2·K).

4.3 Preformed butyl sealant tape.

4.4 Adhesive tape.

4.5 Protective mats, rubber or polyethylene.

4.6 Hammer, chisel, bowl and spoon.

4.7 Rotary hammer drill and carbide drill, bit of appropriate diameter.

4.8 Vacuum cleaner with appropriate nozzle.

4.9 Measurement sleeve, plastic tube with the same outer diameter than the borehole of appropriate length (see Figure 4). Sensor manufacturers may also offer prefabricated measurement sleeves with additional properties to help installation in practise.

4.10 Water vapour impermeable sealant or putty.

4.11 Balance, with accuracy of ± 1 g.

4.12 Container for sampling: Polyethylene freezer bag with adhesive tape or suitable flask with volume of 100 ml to 300 ml.

4.13 Calipers, for measuring the depth of the borehole with an accuracy of ± 1 mm.

5 Test procedures

5.1 Principle

A mineral substrate is never completely dry. Water in the coarse pores of mineral substrate is relatively mobile and can cause damage, whereas water in the fine pores is relatively immobile and harmless to subsequently applied floor coverings.