

Hygrothermal performance of building materials and products — Determination of hygric expansion coefficient

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 16, an inside back cover and a back cover.

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Hygrothermal performance of building materials and products - Determination of hygric expansion coefficient

Performance hygrothermique des matériaux et produits pour le bâtiment - Détermination du coefficient d'expansion hydrique

Wärme- und feuchtetechnisches Verhalten von Baustoffen und Bauprodukten - Bestimmung des hygrischen Dehnkoeffizienten

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 89, Thermal performance of buildings and building components, the Secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by July 2000, and conflicting national standards shall be withdrawn at the latest by December 2001.

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.

This document is one of a series of standards on general test methods for the thermal and moisture related properties of building materials and products.

Introduction

Many building materials exhibit expansion/contraction characteristics resulting from changes in moisture content.

This standard specifies a method of measuring the hygric expansion coefficient as a function of moisture content. This coefficient can be used in calculations of material deformations or stresses due to changes in moisture content.

Material specifications may impose additional requirements related to the test, e.g. dimensions or numbers of test specimens.

This standard is intended to be used as the reference by harmonised product specifications, as far as products do not have properties which make application of this standard difficult.

1 Scope

This standard specifies a procedure for determining the hygric expansion or contraction behaviour of building materials as a function of moisture content. It is applicable for mineral, porous hygroscopic materials. For other materials showing moisture-induced deformations, the procedure described can be applied in a suitable way taking into account their specific moisture behaviour.

This standard is relevant to material states when reversible expansion/contraction processes may be assumed, but not to states governed by irreversible processes such as shrinkage after material production or after initial drying.

2 Normative references

This 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 below. For dated references, subsequent amendments to or revisions of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- EN ISO 9346 Thermal insulation - Mass transfer - Physical quantities and definitions (ISO 9346:1987)
- EN ISO 12570 Hygrothermal performance of building materials and products - Determination of moisture content by drying at elevated temperature (ISO/FDIS 12570:1999)
- EN ISO 12571 Hygrothermal performance of building materials and products - Determination of hygroscopic sorption properties (ISO/FDIS 12571:1999)
- prEN ISO 12572:2000 Hygrothermal performance of building materials and products - Determination of water vapour transmission properties (ISO/DIS 12572:1997)

3 Definitions, symbols and units

3.1 Definitions

For the purposes of this standard, the terms and definitions given in EN ISO 9346 and the following apply.

3.1.1

free water saturation

maximum water uptake under normal pressure conditions (without overpressure or vacuum)