

## **Thermal insulating products for building applications - Determination of behaviour under cyclic loading**

Thermal insulating products for building applications  
- Determination of behaviour under cyclic loading

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13793:2003 sisaldab Euroopa standardi EN 13793:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.10.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13793:2003 consists of the English text of the European standard EN 13793:2003.</p> <p>This document is endorsed on 14.10.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This European Standard specifies equipment and procedures for determining behaviour of test specimens under cyclic loading conditions. It is applicable to thermal insulating products. The selection of the conditions of the test shall be derived from the specific requirements of the intended application</p>	<p><b>Scope:</b> This European Standard specifies equipment and procedures for determining behaviour of test specimens under cyclic loading conditions. It is applicable to thermal insulating products. The selection of the conditions of the test shall be derived from the specific requirements of the intended application</p>
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**ICS** 91.100.60

**Võtmesõnad:** mate, mechanical properties, plastics, properties, specification (approval), specifications, strain, strength of materials, stress, test specimens, testing, testing conditions, testing devices, thermal insulating materials, thermal insulation, thickness, upsetting

ICS 91.100.60

English version

Thermal insulating products for building applications -  
Determination of behaviour under cyclic loading

Produits isolants thermiques destinés aux applications du  
bâtiment - Détermination du comportement sous charge  
cyclique

Wärmedämmstoffe für das Bauwesen - Bestimmung des  
Verhaltens unter zyklischer Belastung

This European Standard was approved by CEN on 1 August 2003.

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 Management Centre 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 Management Centre 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
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## Foreword

This document (EN 13793:2003) has been prepared by Technical Committee CEN /TC 88, "Thermal insulating materials and products", the secretariat of which is held by DIN.

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 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

This European Standard is one of a series of standards which specify test methods for determining dimensions and properties of thermal insulating materials and products. It supports a series of product standards for thermal insulating materials and products which derive from the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (Directive 89/106/EEC) through the consideration of the essential requirements.

This European Standard has been drafted for applications in buildings but may also be used in other areas where it is relevant.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European Standard specifies equipment and procedures for determining behaviour of test specimens under cyclic loading conditions. It is applicable to thermal insulating products.

The selection of the conditions of the test shall be derived from the specific requirements of the intended application.

## 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 (including amendments).

EN 826, *Thermal insulating products for building applications - Determination of compression behaviour.*

EN 12085, *Thermal insulating products for building applications - Determination of linear dimensions of test specimens.*

## 3 Terms and definitions

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

### 3.1

#### **thickness, $d_s$**

initial thickness of the test specimen

### 3.2

#### **compressive stress, $\sigma_c$**

compressive force referred to the initial area of the cross section of the test specimen

—  $\sigma_{\min}$ : Lower stress level of one load cycle;

—  $\sigma_{\max}$ : Upper stress level of one load cycle.

### 3.3

#### **deformation, $X$**

reduction in thickness of the test specimen equal to  $X_i - X_0$  both for  $X_{i, \min}$  and  $X_{i, \max}$

—  $X_{i, \min}$ : Reduction in thickness of the test specimen under the lower stress level,  $\sigma_{\min}$ , at a given number of load cycles,  $i$ ;

—  $X_{i, \max}$ : Reduction in thickness of the test specimen under the upper stress level,  $\sigma_{\max}$ , at a given number of load cycles,  $i$ .

### 3.4

#### **relative deformation, $\epsilon$**

quotient of the deformation  $X$  of the test specimen and its thickness  $d_s$

### 3.5

#### **load cycle**

cycle during which the compressive force is applied to the test specimen, starting at  $\sigma_{\min}$ , to be increased to  $\sigma_{\max}$  and then reduced back to  $\sigma_{\min}$ , so that the cycle of loading and unloading describes a type of sine wave, where  $\sigma_{\min}$  is the bottom and  $\sigma_{\max}$  is the top of the wave