

**Ehituses kasutatavad  
soojustusmaterjalid. Näivtiheduse  
määramine**

Thermal insulating products for building applications  
- Determination of the apparent density

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1602:1999 sisaldab Euroopa standardi EN 1602:1996 + AC:1997 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1602:1999 consists of the English text of the European standard EN 1602:1996 + AC:1997.</p> <p>This document is endorsed on 23.11.1999 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>
--	---

<p><b>Käsitlusala:</b> See standard määrab kindlaks seadmed ja moodused üldise näivtiheduse ja/või puursüdamiku näivtiheduse määramiseks võrdlustingimustes. Standard kehtib nii täissuuruses soojustustoodete kui ka proovikehade kohta. Standardit võib kohaldada ka kihiliste toodete üksikkihtidele.</p>	<p><b>Scope:</b></p>
--	----------------------

**ICS** 91.100.60

**Võtmesõnad:** hooned, määramine, puistetihedus, soojaisolatsioon, soojustusmaterjalid, teimid, tihedus (mass/maht)

ICS 91.100.99

Descriptors: Thermal insulation, insulating materials, density, testing.

**English version**

**Thermal insulating products for building applications**  
Determination of the apparent density

Produits isolants thermiques destinés aux applications du bâtiment – Détermination de la masse volumique apparente

Wärmedämmstoffe für das Bauwesen – Bestimmung der Rohdichte

This European Standard was approved by CEN on 1996-10-05.

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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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

## Contents

	Page
Foreword .....	2
1 Scope .....	3
2 Normative references .....	3
3 Definitions .....	3
4 Principle .....	3
5 Apparatus .....	3
6 Test specimens .....	3
7 Procedure .....	4
8 Calculation and expression of results .....	4
9 Precision of the method .....	4
10 Test report .....	4

### Foreword

This European Standard 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 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 building, but it may also be used in other areas where it is relevant.

In pursuance of Resolution BT 20/1993 (revised), CEN/TC 88 has proposed defining the standards listed below as a European 'package' of standards, setting December 31, 1997 as the date of withdrawal (dow) of national standards which conflict with the European Standards of this 'package'.

The 'package' of standards comprises the following group of interrelated standards on test methods for determining dimensions and properties of thermal insulation materials and products, all of which come within the scope of CEN/TC 88:

- EN 822  
Thermal insulating products for building applications – Determination of length and width
- EN 823  
Thermal insulating products for building applications – Determination of thickness
- EN 824  
Thermal insulating products for building applications – Determination of squareness
- EN 825  
Thermal insulating products for building applications – Determination of flatness
- EN 826  
Thermal insulating products for building applications – Determination of compression behaviour
- EN 1602  
Thermal insulating products for building applications – Determination of the apparent density
- EN 1603  
Thermal insulating products for building applications – Determination of dimensional stability under constant normal laboratory conditions (23 °C/50 % relative humidity)
- EN 1604  
Thermal insulating products for building applications – Determination of dimensional stability under specified temperature and humidity conditions
- EN 1605  
Thermal insulating products for building applications – Determination of deformation under specified compressive load and temperature conditions
- EN 1606  
Thermal insulating products for building applications – Determination of compressive creep
- EN 1607  
Thermal insulating products for building applications – Determination of tensile strength perpendicular to faces
- EN 1608  
Thermal insulating products for building applications – Determination of tensile strength parallel to faces
- EN 1609  
Thermal insulating products for building applications – Determination of short-term water absorption by partial immersion
- prEN 12085  
Thermal insulating products for building applications – Determination of linear dimensions of test specimens
- prEN 12086  
Thermal insulating products for building applications – Determination of water vapour transmission properties

prEN 12087

Thermal insulating products for building applications – Determination of long-term water absorption by immersion

prEN 12088

Thermal insulating products for building applications – Determination of long-term water absorption by diffusion

prEN 12089

Thermal insulating products for building applications – Determination of bending behaviour

prEN 12090

Thermal insulating products for building applications – Determination of shear behaviour

prEN 12091

Thermal insulating products for building applications – Determination of freeze-thaw resistance

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, by May 1997 at the latest, and conflicting national standards shall be withdrawn by December 1997 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, 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 equipment and procedures for determining the apparent overall density and the apparent core density under reference conditions. It is applicable to full size thermal insulating products and test specimens. This standard can also be applied to the individual layers of multi-layered products.

## 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.

EN 822

Thermal insulating products for building applications – Determination of length and width

EN 823

Thermal insulating products for building applications – Determination of thickness

prEN 12085

Thermal insulating products for building applications – Determination of linear dimensions of test specimens

## 3 Definitions

For the purposes of this standard, the following definitions apply:

**3.1 apparent overall density,  $\rho_a$ :** The mass per unit volume of a product, including all surface skins formed during production, but excluding any facings and/or coatings.

**3.2 apparent core density,  $\rho_c$ :** The mass per unit volume of the core of a product after all surface skins formed during production and all facings and/or coatings have been removed.

## 4 Principle

The density is determined as the ratio of the mass and the volume of the specimen.

## 5 Apparatus

**5.1 Balance,** capable of determining the mass of a specimen to an accuracy of 0,5 %.

**5.2 Equipment,** for the determination of linear dimensions (see 7.2).

## 6 Test specimens

### 6.1 Dimensions of test specimens

The specimens shall be full size products or parts of them, or specimens used for other tests.

The shape of specimens shall be such that their volume can be easily calculated.

When the apparent overall density is being determined using specimens cut from a product with surface skins formed during production, the ratio of the area of the surface skin to the total volume shall be the same for the specimen as for the product.

NOTE: The size of a specimen should preferably be as large as possible, commensurate with the apparatus available and with the shape of the original product. The size of the specimens may also be specified in other test methods.

### 6.2 Number of test specimens

The number of specimens for full size products shall be as specified in the relevant product standard. If specimens from other tests are used, the number shall be as specified in the test method. If the number is not specified, then at least five test specimens shall be used.

NOTE: In the absence of a product standard or any other European technical specification, the number of specimens may be agreed between parties.

### 6.3 Preparation of test specimens

The specimens shall be cut by methods that do not change the original structure of the product.

The location from which the specimens are taken shall be such that the density obtained is representative of the density of the product.

For determining the apparent overall density, any facings and/or coatings shall be removed from the product. For determining the apparent core density, any surface skins formed during production and any facings and/or coatings shall be removed from the product.