



SLOVENSKI STANDARD
SIST EN 826:1997

01-december-1997

Toplotno izolacijski proizvodi za uporabo v gradbeništvu - Ugotavljanje obnašanja pri tlačni obremenitvi

Thermal insulating products for building applications - Determination of compression behaviour

Wärmedämmstoffe für das Bauwesen - Bestimmung des Verhaltens bei Druckbeanspruchung

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Produits isolants thermiques destinés aux applications du bâtiment - Détermination du comportement en compression

[SIST EN 826:1997](#)

[https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-](https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997)

[744a8196a8ce/sist-en-826-1997](https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997)

Ta slovenski standard je istoveten z: EN 826:1996

ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials
-----------	---	--

SIST EN 826:1997

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 826:1997

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997>

EUROPEAN STANDARD

EN 826

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 1996

ICS 91.120.10

Descriptors: buildings, thermal insulation, thermal insulating materials, compression tests, determination, compressive strength

English version

Thermal insulating products for building
applications - Determination of compression
behaviour

Produits isolants thermiques destinés aux
applications du bâtiment - Détermination du
comportement en compression

Wärmedämmstoffe für das Bauwesen - Bestimmung
des Verhaltens bei Druckbeanspruchung

(standards.iteh.ai)

[SIST EN 826:1997](https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997)

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997>

This European Standard was approved by CEN on 1996-02-09. 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 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

Foreword	3
1 Scope	5
2 Normative references	5
3 Definitions	5
4 Principle	7
5 Apparatus	7
6 Test specimens	8
7 Procedure	9
8 Calculation and expression of results	10
9 Accuracy of measurement	11
10 Test report	12
Annex A (normative) Modifications to the general test method for cellular glass products	13

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 826:1997](#)

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997>

Foreword

This European Standard has been prepared by the 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 September 1996, and conflicting national standards shall be withdrawn at the latest by December 1996.

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 contains one normative annex:

Annex A - Modifications to the general test method for cellular glass products

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

In pursuance of Resolution BT 20/1993 Revised, CEN/TC 88 have proposed defining the standards listed below as a European "package" of standards, setting December 31, 1996 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 inter-related 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:

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997>

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
prEN 1602	Thermal insulating products for building applications - Determination of the apparent density
prEN 1603	Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions (23 °C/50 % relative humidity)
prEN 1604	Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions
prEN 1605	Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions
prEN 1606	Thermal insulating products for building applications - Determination of compressive creep

- prEN 1607 Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces
- prEN 1608 Thermal insulating products for building applications - Determination of tensile strength parallel to faces
- prEN 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

According to 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.

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076-744a8196a8ce/sist-en-826-1997>

1 Scope

This European Standard specifies the equipment and procedures for determining compression behaviour of test specimens. It is applicable to thermal insulating products. It can be used to determine the compressive stress in compressive creep tests and for applications in which insulation products are only exposed to short term loads.

The method can be used for quality control purposes. It may also be used to obtain reference values from which design values can be calculated using safety factors.

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 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.

prEN 12085	Thermal insulating products for building applications - Determination of linear dimensions of test specimens
ISO 5725:1986	Precision of test methods - Determination of repeatability and reproducibility for a standard test method by inter-laboratory tests

ITIH STANDARD PREVIEW
(standards.iteh.ai)

3 Definitions

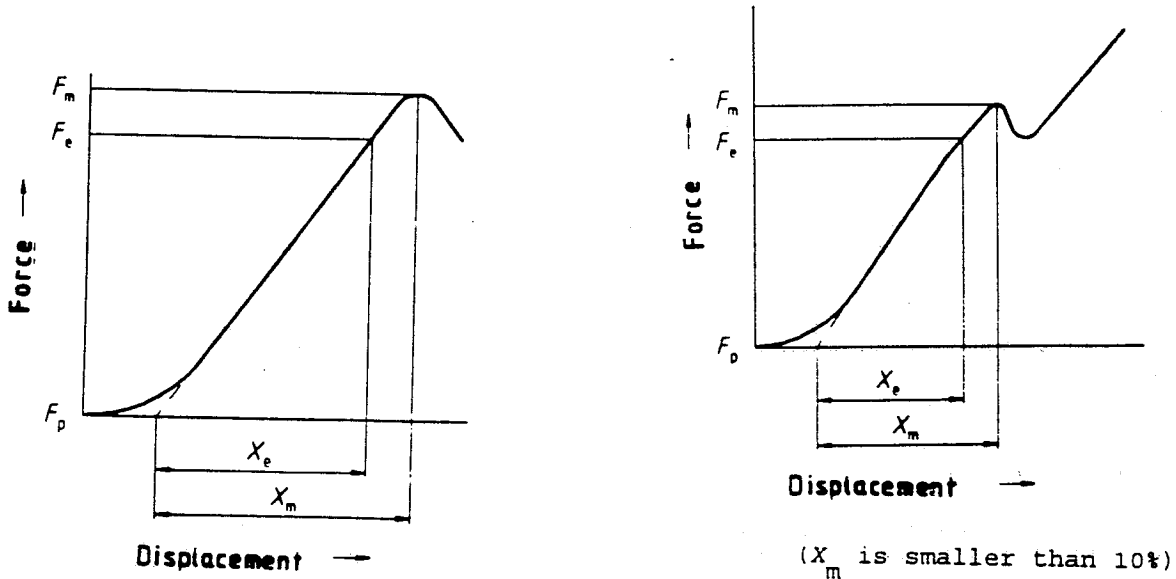
For the purposes of this standard, the following definitions apply:

3.1 **relative deformation, ϵ** : Ratio of the reduction in thickness of the test specimen to its initial thickness d_0 , measured in the direction of the load and expressed as a percentage.

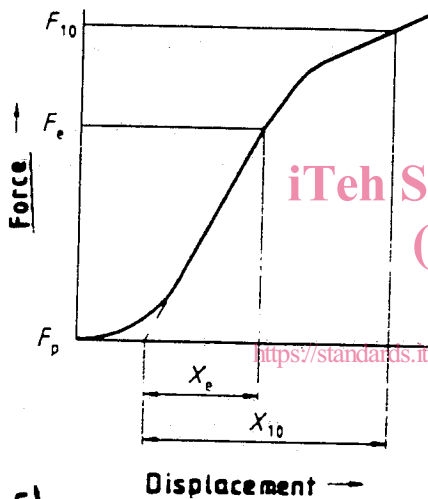
3.2 **compressive strength, σ_m** : Ratio of the maximum compressive force F_m reached when the relative deformation ϵ , at yield (see figure 1b)) or rupture (see figure 1a)), is less than 10 % to the initial surface area of the cross section of the test specimen.

3.3 **compressive stress at 10 % relative deformation, σ_{10}** : Ratio of the compressive force or F_{10} at 10 % relative deformation (ϵ_{10}) to the initial surface area of the cross section of the test specimen (see figures 1c) and 1d)) for products presenting 10 % relative deformation before possible yield or rupture.

3.4 **compression modulus of elasticity, E** : Compressive stress divided by the corresponding relative deformation below the proportional limit, when the relationship is linear (see figure 1).

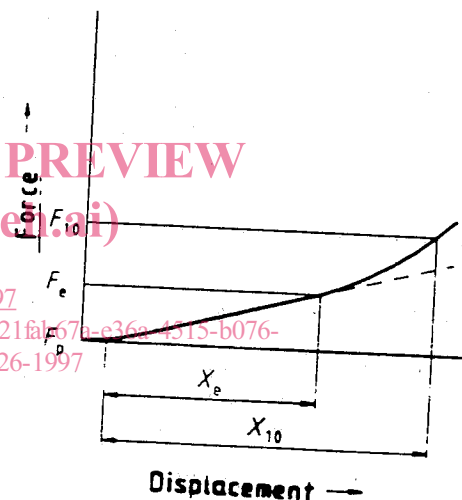


a)



c)

b)



d)

- F_p force corresponding to the preload
- F_m maximum force
- X_m displacement for maximum force
- F_{10} force at 10 % relative deformation
- X_{10} displacement for 10 % relative deformation
- F_e force corresponding to X_e (conventional proportional limit)
- X_e displacement in the conventional elastic zone

Figure 1: Examples of force-displacement curves

4 Principle

A compressive force is applied at a given rate of displacement in an axial direction perpendicular to the major faces of a squarely cut square test specimen and the maximum stress supported by the test specimen is calculated.

When the value of the maximum stress corresponds to a relative deformation of less than 10 %, it is designated as compressive strength and the corresponding relative deformation is reported. If no failure is observed before the 10 % relative deformation is reached, the compressive stress at 10 % relative deformation is calculated and its value reported as compressive stress at 10 % relative deformation.

5 Apparatus

5.1 Compression testing machine

Compression testing machine suited to the range of force and displacement involved and having two very rigid, polished, square or circular plane parallel plates of which the length of one side (or the diameter) is at least as large as the test specimen side (or diagonal) to be tested. One of the plates shall be fixed and the other movable, if appropriate, with a centrally positioned ball joint to ensure that only axial force is applied on the test specimen. The movable plate shall be capable of moving at a constant speed of displacement in accordance with clause 7.

5.2 Measurement of displacement

Device for the measurement of the displacement fitted to the compression testing machine and which allows continuous measurement of the displacement of the movable plate and which permits reading to ± 5 % or $\pm 0,1$ mm, whichever is the smaller (see 5.3).

5.3 Measurement of force

SIST EN 826:1997

<https://standards.iteh.ai/catalog/standards/sist/21fab67a-e36a-4515-b076->

Sensor fitted to one of the machine plates to measure the force produced by the reaction of the test specimen upon the plates. This sensor shall be such that its own deformation during the course of the measuring operation is negligible compared with that being measured or if not, it shall be taken into account by calculation. In addition it shall allow the continuous measurement of the force permitting reading to ± 1 %.

5.4 Recording device

Device for the simultaneous recording of the force F and the displacement X which provides a curve of F as a function of X (see 7.2).

NOTE: The curve gives additional information on the behaviour of the product and possibly enables the determination of the compression modulus of elasticity.