



SLOVENSKI STANDARD

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Toplotna izolacija - Klasifikacija gradbenih materialov glede na toplotno izolativnost

Thermal insulation - Classification of building materials according to their thermal insulation properties

Wärmeschutz - Klassifizierung von Baustoffen gemäß ihren Wärmedämmeigenschaften

Isolation thermique - Classification des matériaux utilisés dans la construction des bâtiments suivant leurs propriétés d'isolation thermique

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ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials
91.120.10	Toplotna izolacija stavb	Thermal insulation

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English version

Thermal insulation.
Classification of building materials
according to their thermal insulation properties

Isolation thermique. Classification
des matériaux utilisés dans la con-
struction des bâtiments suivant leurs
propriétés d'isolation thermique

Wärmeschutz. Klassifizierung von
Baustoffen gemäss ihren Wärme-
dämmeigenschaften

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This CEN REPORT has been established by Technical Committee CEN/TC 88 and has been approved on 1985-10-30 by the Technical Board on behalf of the Administrative Board of the European Committee for Standardization in accordance with CEN Internal Regulations.

CEN members are the national standards organizations of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, 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 Bréderode 2, B-1000 Brussels

BRIEF HISTORY

- This CEN Report was prepared by CEN/TC 88 "Classification of Building Materials according to their Thermal Insulation Properties", the Secretariat of which is assumed by DIN.
- Beginning of work: May 1977
- Decision to present the results to the CEN Secretariat as a CEN Report - Resolution 25 (Berlin 1982-5)-. <https://standards.iteh.ai/catalog/standards/sist/c75dcf7f-2883-4af0-a832-2f6508390918/sist-cr-245-1997>
- Decision not to prepare test methods - Resolution 22 (Berlin 1982-2) - and to ask ISO/TC 163 to do this work - Resolution 24 (Berlin 1982-4)-.

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1 SCOPE AND FIELD OF APPLICATION

This Report has been prepared with a view to harmonizing trade in building materials used primarily for the thermal insulation of buildings. It enables building materials to be classified (Clause 2) using a code to designate the different form, structure and chemical composition of the materials with particular regard to their thermal insulation properties. These materials may be produced in the factory or on site.

A standard form for a summarized description of the properties of a particular product is given in Clause 3.

Not all properties listed in the form will be applicable to each product. Therefore the number of properties to be specified in each individual case shall be subject to agreement.

In addition, a list is provided of those properties which can be of significance in terms of thermal insulating properties of the various building products (Clause 5). Test methods are also indicated, with the aid of which the relevant physical characteristics can be determined.

Wherever they exist, ISO test methods shall be used but since few relevant ISO test methods exist, the test methods published by the Standards Organizations of CEN Members may be used by agreement between manufacturer and user. Where these do not exist, the test methods of other bodies such as ASTM may be used. In all cases the test method used shall be stated.

This Report does not take into account any aspects pertaining to fire protection or sound insulation.

2 LISTING SYSTEM FOR THE CLASSIFICATION OF BUILDING MATERIALS
(CODING SYSTEM)

Code	Form	Code	Structure	Code	Chemical composition	Examples
A	Materials formed in the factory, for example blocks, boards, sheets, mats, etc.	1	Cellular materials	1	organic	Cellular plastics, ...
				2	inorganic	Cellular glass, autoclaved aerated concrete, ...
				3	hybrid	Cellular plastics with expanded glass-beads, ...
		2	Fibrous materials	1	organic	Wood fibres, ...
				2	inorganic	Mineral fibres, ...
				3	hybrid	**)
		3	Compact materials	1	organic	Solid plastics, ...
				2	inorganic	Concrete, ...
				3	hybrid	Wood particle concrete, ...
		4	Combinations of materials with different structures	1	organic	**)
				2	inorganic	Perlite-mineral fibre, asbestos cement, lightweight aggregate concrete, ...
				3	hybrid	Perlite-cotton, expanded polystyrene particle concrete, ...
		5	Multi-layer-materials*)	1	organic	Cellular plastics with organic facings, ...
				2	inorganic	Expanded clay with concrete facings, mineral fibre/plaster laminate, ...
				3	hybrid	Cellular plastics with concrete facings, ...
B	Materials injected, moulded or spray applied on site	1	Cellular materials applied in the form of a liquid or a paste	1	organic	Cellular polyurethane, cellular ureaformaldehyde, ...
				2	inorganic	Cellular concrete, ...
				3	hybrid	**)
		2	Fibrous materials applied in the form of a liquid or a paste	1	organic	**)
				2	inorganic	Spray applied mineral fibres, ...
				3	hybrid	**)
		3	Compact materials applied in the form of a liquid or a paste	1	organic	Solid plastics, ...
				2	inorganic	Concrete, ...
				3	hybrid	Asphalt, ...
		4	Combinations of materials with different structures	1	organic	**)
				2	inorganic	Lightweight aggregate concrete, ...
				3	hybrid	Expanded polystyrene particle filled concrete, ...
		5	Loose fill materials (all structures)	1	organic	Polystyrene-particles, ...
				2	inorganic	Loose mineral wool, Perlite, ...
				3	hybrid	Bituminised Perlite, ...

*) Laminated products shall be assigned to group A 5. However, if the coating makes only a minimum contribution to the thermal insulation properties of the product and if it is necessary to enable the product to be handled, these coated products are assigned to groups coded A 1 to A 4.

***) Such a material not yet known.

3 FORM FOR PRODUCT DESCRIPTION

Note

It is not necessary to evaluate all the material properties listed in the form. The properties to be measured shall be subject to agreement between manufacturer and user.

Where no unit is given, the unit is determined by the choice of test method.

If required, this form may be supplemented by test reports on individual properties.

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1. Manufacturer:

2. Country of origin:

3. Manufacturer's designation:

4. CEN-Classification:

Code no.

5. Form of product:

6. Available in dimensions:

6.1 Length: mm

6.2 Width: mm

6.3 Thickness: mm

according to

7. Coated on one side or both sides with

8. Material properties:

Property	Units	Value	according to
8.1 Thermal resistance	$m^2 \cdot K/W$	.....	.....
Thermal conductivity	$W/(m \cdot K)$	.....	.....
Reference temperature	$^{\circ}C$	.....	.....
8.2 Density			
Bulk density	kg/m^3	.....	.....
Mass per unit area	kg/m^2	.....	.....
8.3 Thermal diffusivity or	m^2/s	.....	.....
Specific heat capacity	$J/(kg \cdot K)$	.....	.....
8.4 Water vapour permeability	$\mu g \cdot m/(s \cdot N)$	.....	.....
Water vapour permeance	$\mu g/(s \cdot N)$	.....	.....
8.5 Service temperature limits	$^{\circ}C$	.....	.....
8.6 Air permeability	m^2	.....	.....
8.7 Water absorption		.....	.....
8.8 Equilibrium moisture content		.....	.....
8.9 Compressive strength	kPa	.....	.....
8.10 Tensile strength			
longitudinal	kPa	.....	.....
transverse	kPa	.....	.....
interlaminar	kPa	.....	.....
8.11 Flexural strength	kPa	.....	.....
8.12 Dimensional stability dependent on humidity, temperature and load			
reversible	%	.....	.....
irreversible	%	.....	.....
8.13 Behaviour in fire		.....	.....

4 DIMENSIONS AND TEST METHODS

a) DEFINITION

The length, width and thickness of materials

Unit: m or mm

b) NOTE CONCERNING THE PROPERTY

Where the material is not in the form of a simple rectangle, other dimensions will be of significance.

Thickness is measured under an arbitrarily defined load.

c) STANDARDS **ITEH STANDARD PREVIEW**
(standards.iteh.ai)ISO Standards

ISO 766	Fibre building boards - Determination of dimensions of test pieces
ISO 821	Particles boards - Determination of dimensions of test pieces
ISO 1097	Plywood - Measurement of dimensions of panels
ISO 1923	Cellular plastics and rubbers - Determination of linear dimensions

National StandardsBELGIUM:

NBN B 62-201 (1977)	Détermination à l'état sec de la conductivité thermique ou de la perméance thermique des matériaux de construction par la méthode de la plaque chauffante à anneau de garde (§§ 5.2 - 6.1 - 6.2)
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Bepaling in droge toestand van de thermische geleidbaarheid of van de thermische permeantie van de bouwmaterialen door de methode van de verwarmingsplaat met schutting
(Determination of the thermal conductance and transmittance of building materials)

NBN B 62-202 (1978) Détermination de la conductivité thermique des matériaux de construction avec la sonde parallèle (§§ 5.1 - 6.1)

Bepaling van de thermische geleidbaarheid van de bouwmaterialen met de parallelsonde
(Determination of the thermal conductance of building materials)

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NBN B 62-203 (1978) Détermination de la conductivité thermique ou de la perméance thermique des matériaux de construction par la méthode fluxmètre (§§ 5.1 - 6.1)

Bepaling van de thermische geleidbaarheid of van de thermische permeantie van de bouwmaterialen door de methode met de warmtestrommmeter

(Determination of the thermal conductance of building materials)

NBN B 62-204 (1979) Détermination du coefficient de transmission thermique des éléments de construction (§§ 5.1 - 6.1)

Bepaling van de warmtedoorgangscoefficient van bouwdelen

(Determination of the heat-transmission coefficient of building elements)

FRANCE

- NF B 20-101 Produits isolants à base de fibres minérales - Feutres, matelas et panneaux de laine minérale - Mesure conventionnelle de l'épaisseur
(Mineral fibre based insulating products - Mineral wool felts, mattresses and panels - Conventional measure of thickness)
- NF B 51-140 Panneaux de fibres - Mesurage des dimensions, de la rectitude et de l'équerrage des panneaux
(Fibre building boards - Measurement of dimensions, of straightness and of squareness of panels)
- NF B 51-240 Panneaux de particules - Mesurage des dimensions, de la rectitude et de l'équerrage des panneaux
(Particle boards - Measurement of dimensions, of straightness and of squareness of panels)
- NF B 51-340 Contreplaqué - Mesurage des dimensions, de la rectitude et de l'équerrage des panneaux
(Plywood - Measurement of dimensions, of straightness and of squareness of panels)
- NF T 56-119 Plastiques et caoutchoucs alvéolaires - Matériel et mode opératoire de mesurage des dimensions rectilignes
(Cellular plastics and rubbers - Equipment and procedure for the measurement of linear dimensions)

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- NF T 56-121 Plastiques alvéolaires rigides -
Détermination des dimensions rectilignes
moyennes des produits alvéolaires rigides
présentés sous forme de plaques
(Determination of the average linear
dimensions of rigid cellular products in
sheet form)
- GERMANY
- DIN 18 161 Teil 1 Korkerzeugnisse als Dämmstoffe für das
Bauwesen; Dämmstoffe für die Wärmedämmung
(Cork products as insulating building
materials; insulating materials for
thermal insulation)
- DIN 18 164 Teil 1 Schaumkunststoffe als Dämmstoffe für das
Bauwesen; Dämmstoffe für die Wärmedämmung
(Foamed plastics as insulating building
materials; insulating materials for
thermal insulation)
- DIN 18 165 Teil 1 Faserdämmstoffe für das Bauwesen;
Dämmstoffe für die Wärmedämmung
(Fibrous insulating building materials;
insulating materials for thermal insulation)
- DIN 18 174 Schaumglas als Dämmstoff für das Bauwesen;
Dämmstoffe für die Wärmedämmung
(Cellular glass as insulating building
material; insulating materials for thermal
insulation)
- ITALY
- UNI 6262-68 Prodotti di fibre di vetro per isolamento
termico ed acustico - Feltri trapuntati -
Tolleranze dimensionali e relative
determinazioni
(Glass fibre products for thermal and
acoustical insulation - Sewn felts -
Dimensional tolerances and respective
determinations)

UNI 6264-68

Prodotti di fibre di vetro per isolamento termico ed acustico - Feltri resinati - Tolleranze dimensionali e relative determinazioni
(Glass fibre products for thermal and acoustical insulation - Resin bonded felts - Dimensional tolerances and respective determinations)

UNI 6265-68

Prodotti di fibre di vetro per isolamento termico ed acustico - Coppelle - Tolleranze dimensionali e di forma e relative determinazioni
(Glass fibre products for thermal and acoustical insulation - Pipe coverings - Dimensional and shape tolerances and respective determinations)

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UNI 6266-68

Prodotti di fibre di vetro per isolamento termico ed acustico - Veli, veli armati, veli rinforzati - Tolleranze dimensionali e relative determinazioni
(Glass fibre products for thermal and acoustical insulation - Veils, inside reinforced veils, superficially reinforced veils - Dimensional tolerances and respective determinations)

UNI 6267-68

Prodotti di fibre di vetro per isolamento termico ed acustico - Pannelli - Tolleranze dimensionali e di forma e relative determinazioni
(Glass fibre products for thermal and acoustical insulation - Resin bonded slabs - Dimensional and shape tolerances and respective determinations)

- UNI 6347 Materiali cellulari rigidi e flessibili a base di materie plastiche e di elastomeri - Definizioni e condizioni generali di prova (Flexible cellular plastics and cellular rubber materials - Definitions and general testing conditions)
- UNI 6348 Materie plastiche cellulari rigide e flessibili - Misura delle dimensioni lineare (Rigid and flexible cellular plastics - Determination of linear dimensions)
- UNI 6349 Materie plastiche cellulari rigide e flessibili - Determinazione della densità (Rigid and flexible cellular plastics - Determination of apparent density)
- UNI 6538-69 **iTeh STANDARD PREVIEW**
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Prodotti di fibre di vetro per isolamento termico ed acustico - Feltri e pannelli - Determinazione della massa dell'unità di superficie (Glass fibre materials for thermal and acoustical insulation - Felts and resin bonded slabs - Determination of the mass per surface unit)
- UNI 6539-69 Prodotti di fibre di vetro per isolamento termico ed acustico - Veli - Determinazione della massa dell'unità di superficie (Glass fibre materials for thermal and acoustical insulation - Veils - Determination of the mass per surface unit)
- UNI 6824-71 Prodotti di fibre di vetro per isolamento termico ed acustico - Coppelle - Determinazione della massa volumica apparente (Glass fibre materials for thermal and acoustical insulation - Pipe coverings - Determination of density)