SLOVENSKI STANDARD
SIST EN 14305:2016

01-februar-2016

Nadomešča:
SIST EN 14305:2010+A1:2013

Toplotnoizolacijski proizvodi za opremo stavb in industrijske inštalacije - Proizvodi iz penjenega stekla (CG) - Specifikacija

Thermal insulation products for building equipment and industrial installations - Factory made cellular glass (CG) products - Specification

Wärmedämmstoffe für die technische Gebäudeausrüstung und für betriebstechnische Anlagen in der Industrie - Werkmäßig hergestellte Produkte aus Schaumglas (CG) - Spezifikation

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Produits isolants thermiques pour l'équipement du bâtiment et les installations industrielles - Produits manufacturés en verre cellulaire (CG) - Spécification

Ta slovenski standard je istoveten z: **EN 14305:2015**

ICS:

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

SIST EN 14305:2016 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14305

December 2015

ICS 91.100.60

Supersedes EN 14305:2009+A1:2013

English Version

Thermal insulation products for building equipment and industrial installations - Factory made cellular glass (CG) products - Specification

Produits isolants thermiques pour l'équipement du bâtiment et les installations industrielles - Produits manufacturés en verre cellulaire (CG) - Spécification

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This European Standard was approved by CEN on 24 October 2015.

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European foreword

This document (EN 14305:2015) 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of an identical text or by endorsement, at the latest by June 2016, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14305:2009+A1:2013.

This document is identifying those clauses of the standard which are needed for the compliance of the European Standard with the Construction Products Regulation (CPR).

The main technical changes that have been made in this new edition of EN 14305 are the following:

a) an addition to the foreword;

b) an addition in 3.2.2;

c) a new 4.3.14;

d) modification of 5.3.2;

e) modification of Clause 7;

f) modification of Clause 8;

g) modification of Annex A;

h) a new Annex ZA.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Regulation (EU) No. 305/2011.

For relationship with Regulation (EU) No. 305/2011, see informative Annex ZA, which is an integral part of this document.

Locally responsible authorities and contracting entities, who are bound by EU Directives to specify their requirements using European harmonized product standards, are allowed to demand additional properties outside the provisions of this standard if this is technically necessary because of prevailing operational conditions of the building equipment or the industrial installation projected or because of safety regulations.

This European Standard contains four annexes:

— Annex A (normative), Factory production control;

— Annex B (informative), Determination of minimum service temperature;

— Annex C (informative), Additional properties;

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— Annex D (informative), Preparation of the flat test specimens to measure thermal conductivity;

— Annex ZA (informative), Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation.

This document includes a bibliography.

This European Standard is one of a series of standards for insulation products used in building equipment and industrial installations, but this standard can be used in other areas, where appropriate.

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 21 months after availability 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 for the specifications of factory made thermal insulation products, all of which come within the scope of CEN/TC 88:

EN 14303, *Thermal insulation products for building equipment and industrial installations — Factory made mineral wool (MW) products — Specification*

EN 14304, *Thermal insulation products for building equipment and industrial installations — Factory made flexible elastomeric foam (FEF) products — Specification*

EN 14305, *Thermal insulation products for building equipment and industrial installations — Factory made cellular glass (CG) products — Specification*

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EN 14306, *Thermal insulation products for building equipment and industrial installations — Factory made calcium silicate (CS) products — Specification*

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EN 14307, *Thermal insulation products for building equipment and industrial installations — Factory made extruded polystyrene foam (XPS) products — Specification*

EN 14308, *Thermal insulation products for building equipment and industrial installations — Factory made rigid polyurethane foam (PUR) and polyisocyanurate foam (PIR) products — Specification*

EN 14309, *Thermal insulation products for building equipment and industrial installations — Factory made products of expanded polystyrene (EPS) — Specification*

EN 14313, *Thermal insulation products for building equipment and industrial installations — Factory made polyethylene foam (PEF) products — Specification*

EN 14314, *Thermal insulation products for building equipment and industrial installations — Factory made phenolic foam (PF) products — Specification*

EN 15501, *Thermal insulation products for building equipment and industrial installations — Factory made expanded perlite (EP) and exfoliated vermiculite (EV) products — Specification*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This European Standard specifies the requirements for factory made cellular glass products which are used for the thermal insulation of building equipment and industrial installations with an operating temperature range of approximately - 265 °C to + 430 °C.

Below an operating temperature of - 50 °C, special tests regarding the suitability of the product in the intended application are advised (e.g. liquefaction of oxygen). Manufacturer's advice should be heeded in all cases.

The products are manufactured in the form of faced or unfaced boards, pipe sections, segments and prefabricated ware.

This European Standard describes product characteristics and includes procedures for testing, evaluation of conformity, marking and labelling.

Products covered by this standard are also used in prefabricated thermal insulation systems and composite panels; the performance of systems incorporating these products is not covered.

This European Standard does not specify the required level of a given property that should be achieved by a product to demonstrate fitness for purpose in a particular application. The levels required for a given application can be found in regulations and invitations to tender.

Products with a declared thermal conductivity greater than 0,065 W/(m·K) at 10 °C are not covered by this standard.

This European Standard does not cover products for the insulation of the building structure.

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2 Normative references

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The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) 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*

EN 824, *Thermal insulating products for building applications - Determination of squareness*

EN 825, *Thermal insulating products for building applications - Determination of flatness*

EN 826:2013, *Thermal insulating products for building applications - Determination of compression behaviour*

EN 1604, *Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity 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*

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

EN 12086:2013, *Thermal insulating products for building applications - Determination of water vapour transmission properties*

EN 12087, *Thermal insulating products for building applications - Determination of long term water absorption by immersion*

EN 12089, *Thermal insulating products for building applications - Determination of bending behaviour*

EN 12430, *Thermal insulating products for building applications - Determination of behaviour under point load*

EN 12667, *Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance*

EN 12939, *Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance*

EN 13172:2012, *Thermal insulation products - Evaluation of conformity*

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EN 13467, *Thermal insulating products for building equipment and industrial installations - Determination of dimensions, squareness and linearity of preformed pipe insulation*

EN 13468, *Thermal insulating products for building equipment and industrial installations - Determination of trace quantities of water soluble chloride, fluoride, silicate, sodium ions and pH*

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EN 13472, *Thermal insulating products for building equipment and industrial installations - Determination of short term water absorption by partial immersion of preformed pipe insulation*

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 13820, *Thermal insulating materials for building applications - Determination of organic content*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 14706, *Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature*

EN 14707, *Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature for preformed pipe insulation*

EN 15715:2009, *Thermal insulation products - Instructions for mounting and fixing for reaction to fire testing - Factory made products*

EN ISO 354, *Acoustics - Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 1182, *Reaction to fire tests for products - Non-combustibility test (ISO 1182:2010)*

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EN ISO 1716, *Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 8497, *Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497)*

EN ISO 9229:2007, *Thermal insulation - Vocabulary (ISO 9229)*

EN ISO 11654, *Acoustics - Sound absorbers for use in buildings - Rating of sound absorption (ISO 11654)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

EN ISO 13787, *Thermal insulation products for building equipment and industrial installations - Determination of declared thermal conductivity (ISO 13787)*

ISO 7884-7, *Glass — Viscosity and viscometric fixed points — Part 7: Determination of annealing point and strain point by beam bending*

3 Terms and definitions

3.1 Terms and definitions

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

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3.1.1 Terms and definitions as given in EN ISO 9229:2007

For the purposes of this document, most of the terms and definitions given in EN ISO 9229:2007 apply.

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3.1.1.1
cellular glass
rigid insulation material made from expanded glass with a closed-cell structure

3.1.1.2
faced cellular glass board
board of cellular glass with facing(s) with a maximum of 3 mm on one or two faces which may be roofing felt or metal foil or paper, cardboard, plastic foil, rendering or similar materials

Note 1 to entry: The core may consist of either one board, a part of a board or a number of boards bonded edge to edge in the factory, with an appropriate adhesive.

Note 2 to entry: Bitumen is a suitable adhesive which may be used to bond both the joints and the facings. Of course there are alternative adhesives available depending the end use.

3.1.1.3
board
slab
(insulation) rigid or semi-rigid product of rectangular shape and cross section in which the thickness is uniform and substantially smaller than the other dimensions

Note 1 to entry: Boards are usually thinner than slabs. They may also be supplied in tapered form.

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3.1.2 Additional terms and definitions

3.1.2.1
level
given value which is the upper or the lower limit of a requirement

Note 1 to entry: The level is given by the declared value of the characteristic concerned.

3.1.2.2
class
combination of two levels of the same property between which the performance shall fall

3.1.2.3
pipe section
section
(insulation) product in the shape of a cylindrical annulus which may be split to facilitate application

3.1.2.4
lag
segment
rigid or semi-rigid insulation product for application to large diameter cylindrical or spherical equipment

3.1.2.5
block
billet
(insulation) product generally of rectangular cross section and with a thickness not significantly smaller than the width

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Note 1 to entry: In English, some industries define a large block as a billet.

3.1.2.6
prefabricated ware
pieces cut, abraded or otherwise formed from a board or block of product, e.g. elbows, T-pieces, etc

Note 1 to entry: These several pieces are glued together to the required form.

3.1.2.7
production line
assemblage of equipment that produces products using a continuous process

3.1.2.8
production unit
assemblage of equipment that produces products using a discontinuous process

3.2 Symbols, units and abbreviated terms

3.2.1 Symbols and units used in this standard

α_p	is the practical sound absorption coefficient	—
α_w	is the weighted sound absorption coefficient	—
b	is the width	mm

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D_i	is the inside diameter	mm
D_o	is the outside diameter	mm
d	is the thickness	mm
d_D	is the declared thickness of the product	mm
$\Delta\varepsilon_b$	is the relative change in width	%
$\Delta\varepsilon_d$	is the relative change in thickness	%
$\Delta\varepsilon_l$	is the relative change in length	%
L	is the deviation from linearity	mm
l	is the length	mm
λ	is the thermal conductivity	W/(m·K)
λ_D	is the declared thermal conductivity	W/(m·K)
μ	is the water vapour diffusion resistance factor	—
P_d	is the deformation under a point load of 1 000 N	mm
S_b	is the deviation from squareness on length and width	mm/m
S_d	is the deviation from squareness on thickness	mm
s_d	is the water vapour diffusion equivalent on air layer thickness	m
S_{max}	is the deviation from flatness	mm
σ_m	is the compressive strength	kPa
σ_b	is the bending strength	kPa
σ_{mt}	is the tensile strength perpendicular to faces	kPa
σ_t	is the tensile strength parallel to faces	kPa
v	is the deviation from squareness for pipe sections	mm
W_{lp}	is the long term water absorption by partial immersion	kg/m²
W_p	is the short-term water absorption	kg/m²
X_{ct}	is the compressive creep	mm
X_t	is the deformation at time t	mm
Z	is the water vapour resistance	m² h Pa/mg
AP	is the symbol of the declared level of practical sound absorption coefficient	
AW	is the symbol of the declared level of weighted sound absorption coefficient	
BS	is the symbol of the declared level for bending strength	
CC(i_1/i_2 /y) σ_c	is the symbol of the declared level for compressive creep	
CL	is the symbol of the declared level for soluble chlorides	
CS(Y)	is the symbol of the declared level for compressive strength	
F	is the symbol of the declared level of soluble fluoride ions	

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L	is the symbol of the declared level for linearity
MU	is the symbol of the declared value for water vapour diffusion resistance factor
NA	is the symbol of the declared level of soluble sodium ions
pH	is the symbol of the declared level of the pH-value
PL(P)	is the symbol of the declared level for penetration under point load
SI	is the symbol of the declared level of soluble silicate ions
ST(+)	is the symbol of the declared level for maximum service temperature
ST(–)	is the symbol of the declared level for minimum service temperature
TP	is the symbol of the declared level for tensile strength parallel to faces
TR	is the symbol of the declared level for tensile strength perpendicular to faces
WL(P)	is the symbol of the declared level for long term water absorption
WS	is the symbol of the declared level for short-term water absorption
Z	is the symbol of the declared value for water vapour resistance

3.2.2 Abbreviated terms used in this standard

AVCP	is **A**ssessment and **V**erification of **C**onstancy of **P**erformance (previously named attestation of conformity)
CG	is **C**ellular **G**lass
DoP	is **D**eclaration of **P**erformance
FPC	is **F**actory **P**roduction **C**ontrol
PTD	**P**roduct **T**ype **D**etermination (previously named ITT for Initial Type Test)
RtF	**R**eaction to **F**ire
ThIBEII	is **T**hermal **I**nsulation for **B**uilding **E**quipment and **I**ndustrial **I**nstallations
VCP	is **V**erification of **C**onstancy of **P**erformance (previously named evaluation of conformity)

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4 Requirements

4.1 General

Product properties shall be assessed in accordance with Clause 5. To comply with this standard, products shall meet the requirements of 4.2, and the requirements of 4.3 as appropriate.

NOTE Information on additional properties is given in Annex C.

One test result for a product property is the average of the measured values on the number of test specimens given in Table 6.

4.2 For all applications

4.2.1 Thermal conductivity

For flat specimens, thermal conductivity shall be based upon measurements carried out in accordance with EN 12667 or EN 12939 for thick products. For cylindrical specimens EN ISO 8497 shall be used as specified in 5.3.2.