SLOVENSKI STANDARD
SIST EN 13165:2013+A1:2015/kFprA2:2015

01-december-2015

Toplotnoizolacijski proizvodi za stavbe - Proizvodi iz trde poliuretanske pene (PUR) - Specifikacija

Thermal insulation products for buildings - Factory made rigid polyurethane foam (PU) products - Specification

Wärmedämmstoffe für Gebäude - Werkmäßig hergestellte Produkte aus Polyurethan-Hartschaum (PU) - Spezifikation

Produits isolants thermiques pour le bâtiment - Produits manufacturés en mousse rigide de polyuréthane (PU) - Spécification

Ta slovenski standard je istoveten z: **EN 13165:2012+A1:2015/FprA2**

ICS:

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

SIST EN 13165:2013+A1:2015/kFprA2:2015 **en,fr,de**

EUROPEAN STANDARD

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FINAL DRAFT
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English Version

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This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 88.

This draft amendment A2, if approved, will modify the European Standard EN 13165:2012+A1:2015. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 13165:2012+A1:2015/FprA2:2015) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

1 Modification to the Foreword

Just after the paragraph concerning the main changes that were made compared with EN 13165:2008, add the following paragraph:

"Compared with EN 13165:2012+A1:2015 the main changes are:

— determination of the aged values of thermal resistance and thermal conductivity (acceleration factor);

— new blowing agent.".

2 Modification to C.4.3, Addition of the safety increments (to be used with the accelerated ageing procedure only)

Replace the whole Table C.1 with the following one:

"

Table C.1 — Safety increments to be added to the measured accelerated aged value of thermal conductivity

Type of product/facing	Blowing agent technology[a]	Safety increment in W/(m·K) for products with nominal thickness d_N ≤ 80 mm	Safety increment in W/(m·K) for products with nominal thickness d_N > 80 mm
Cut foam without facing	Pentane[c], HFC 245fa, 227ea, 365mfc	0,001 0	0,002 0
	HFC 134a	0,001 5	0,002 5
Faced with diffusion open facings	Pentane [c], HFC 245fa, 227ea, 365mfc	0,001 0	0,001 5
	HFC 134a	0,001 5	0,002 0
Faced with diffusion tight facings[b]	Pentane[c], HFC 134a, 245fa, 227ea, 365mfc	0,001 0	0,001 0

[a] Safety increments for 100 % CO_2 – blown products will be determined when sufficient information is available.

[b] See C.5.1 for the definition of diffusion tight facings.

[c] Safety increments for pentane shall be used for mixtures of pentane with C_6F_{12} (CAS: 84650–68–0) with a maximum ratio for C_6F_{12} of 4 % in mass within the PU formulation.

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3 Modification to C.4.4, Acceleration test (optional and for diffusion open products only, in combination with the accelerated ageing procedure)

Replace the whole subclause with the following one:

"

C.4.4 Acceleration test (optional and for diffusion open products only, in combination with the accelerated ageing procedure)

Select a product sample (one to eight days after manufacture) and condition it for 16 h at (23 ± 3) °C and (50 ± 10) % relative humidity.

Cut two test specimens adjacent to each other of minimum dimensions 200 mm length and width × 20 mm thickness from the central area of the product sample.

Determine the initial values of thermal conductivity of the two test specimens in accordance with C.3. The determined initial values of thermal conductivity shall not differ by more than 0,000 5 W/(m·K). In case of larger differences new test specimens shall be sampled.

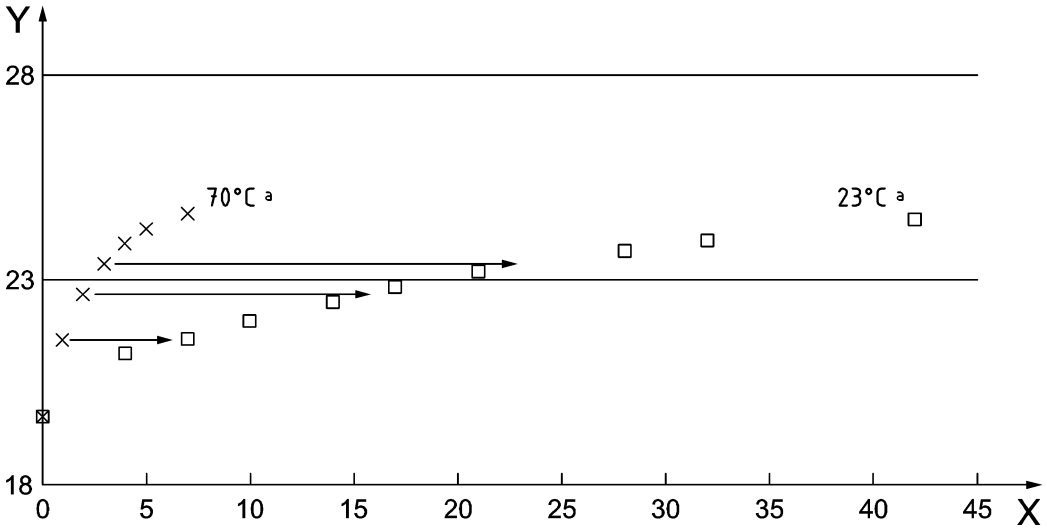
Store one test specimen at (70 ± 2) °C and the other test specimen at (23 ± 3) °C for such a time that the increase of the value of thermal conductivity has reached in both cases 0,004 W/(m·K). Determine at least 6 values of thermal conductivity for the specimen aged at 23°°C and at least three values for the specimen aged at 70 °C within this range of 0,004 W/(m·K) thermal conductivity increase.

If the test specimen is reconditioned at room temperature for measurement of the value of thermal conductivity between subsequent accelerated ageing treatment at 70 °C, the time of conditioning shall be between 1 h to 2 h. The actual time of accelerated ageing at 70 °C shall be recorded. For specimens aged at 70 °C, identify all the values of thermal conductivity which increased by more than 0,000 5 W/(m·K) but less than 0,004 W/(m·K) need to be identified. Each of these identified thermal conductivity values is shifted over the time axis to find the best overlap with the values of thermal conductivity of the specimen aged at 23 °C and a time shift factor is noted down for each of the above identified thermal conductivity values. The average of these time shift factors is calculated and this gives the acceleration factor. This factor shall be reported to the first decimal digit.

The definition of 'best overlap' of a given value of thermal conductivity of a specimen aged at 70 °C with the values of the specimen aged at 23 °C, is given below. First, for a given value of thermal conductivity of a specimen aged at 70 °C, the two adjacent (one higher, one lower) thermal conductivity values of the specimen aged at 23 °C, are identified. Subsequently, the time shift of the thermal conductivity value of the specimen aged at 70 °C is done in such a way that a straight line is obtained with the two adjacent thermal conductivity values of the specimen aged at 23 °C. As such, the time shift factor is defined unambiguously.

NOTE Guidelines for measurement frequency.

Based on the above criteria, the frequency of measurements can be adapted in order to generate useful data for the calculations. For the ageing at 70 °C, it is recommended to measure every day during the first 5 d. After that, the measurement frequency can then be slowed down and measurements can be stopped when lambda increase is > 0,004 W/(m·K). For the ageing at 23 °C, it is recommended to measure twice a week during the first month. Measurements can be stopped when the lambda plateau is reached or when newly generated lambda values are not required anymore for the shift of the (accepted) 70 °C data. These recommendations might need to be adjusted in certain cases.



Key

X aging time (days)

Y thermal Conductivity (mW/mK)

a aging

Figure C.2 — Illustration of the acceleration test

In this example, for the specimen aged at 70 °C, 3 values of thermal conductivity which have a thermal conductivity increase of more than 0,0005 W/(m·K) but less than 0,004 W/(m·K) have been identified. They are all 3 individually shifted over the time axis for a best overlap with the values of thermal conductivity of the specimen aged at 23°C and a time shift factor is calculated 3 times.

".

4 Modifications to C.5.3, Calculation of the aged value of thermal conductivity

Replace the whole Table C.2 with the following one: