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Penjeni polimerni materiali - Toplotnoizolacijski proizvodi za stavbe - Specifikacije

Rigid cellular plastics - Thermal insulation products for buildings - Specifications

Plastiques alvéolaires rigides -- Produits d'isolation thermique pour bâtiments -- Spécifications

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Rigid cellular plastics — Thermal insulation products for buildings — Specifications

Plastiques alvéolaires rigides — Produits d'isolation thermique pour bâtiments — Spécifications

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 10, *Cellular plastics*.

This sixth edition cancels and replaces the fifth edition (ISO 4898:2010), of which it constitutes a minor revision.

The changes compared to the previous edition are as follows:

— product Category IV has been removed as this type of product is not made.

Rigid cellular plastics — Thermal insulation products for buildings — Specifications

1 Scope

This document specifies requirements and methods of testing for three categories of rigid cellular plastics thermal-insulation products for buildings. It covers rigid cellular plastics in the form of flat or profiled boards, with or without natural skins. They can also be faced or laminated with foil, plastic or metal films or sheets, mineral coatings, paper, cardboard or other materials.

This document is not applicable to materials used for the thermal insulation of pipes and vessels, for impact sound absorption or for acoustical insulation.

This document covers the following cellular materials used in the thermal insulation of buildings:

— PF based on phenolic polymer;

— EPS based on expanded polystyrene;

— XPS based on extruded polystyrene;

— PUR based on polyurethane.

The limiting quality values in this document are for use only in the specification of materials between purchaser and supplier, and are not intended to be used for design purposes.

Additional requirements for special applications can be added to those specified in this document by agreement between purchaser and supplier.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 844, *Rigid cellular plastics — Determination of compression properties*

ISO 845, *Cellular plastics and rubbers — Determination of apparent density*

ISO 1040, *Building construction — Modular coordination — Multimodules for horizontal coordinating dimensions*

ISO 1209-1, *Rigid cellular plastics — Determination of flexural properties — Part 1: Basic bending test*

ISO 1663, *Rigid cellular plastics — Determination of water vapour transmission properties*

ISO 1923, *Cellular plastics and rubbers — Determination of linear dimensions*

ISO 2796, *Cellular plastics, rigid — Test for dimensional stability*

ISO 2896, *Rigid cellular plastics — Determination of water absorption*

ISO 7616, *Cellular plastics, rigid — Determination of compressive creep under specified load and temperature conditions*

ISO 7850, *Cellular plastics, rigid — Determination of compressive creep*

ISO 8301, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus*

ISO 8302, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Guarded hot plate apparatus*

ISO 11561, *Ageing of thermal insulation materials — Determination of the long-term change in thermal resistance of closed-cell plastics (accelerated laboratory test methods)*

ISO 12576-1:2001, *Thermal insulation — Insulating materials and products for buildings — Conformity control systems — Part 1: Factory-made products*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
EPS
rigid cellular plastics insulation material manufactured by moulding beads of expandable polystyrene or one of its copolymers and that has a substantially closed-cell structure, filled with air

[SOURCE: ISO 9229]

3.2
XPS
rigid cellular plastics insulation material expanded and extruded with or without a skin from polystyrene or one of its copolymers and that has a closed-cell structure

[SOURCE: ISO 9229]

3.3
PUR
rigid cellular plastics insulation material with a substantially closed-cell structure based on polyurethane or urethane/isocyanurate polymers

Note 1 to entry: For definitions of polyisocyanurate plastic, polyurethane and urethane plastic, see ISO 472.

3.4
PF
rigid cellular insulation foam, the polymer structure of which is made primarily from the polycondensation of phenol, its homologues and/or derivatives with aldehydes or ketones

Note 1 to entry: PF used for thermal-insulation purposes has a cellular structure consisting substantially of closed cells (subcategory A) or with a higher content of open cells (subcategory B) which affects the thermal conductivity.

[SOURCE: ISO 9229, modified – Note 1 to entry has been added.]

4 Sizes and dimensional-tolerance requirements

4.1 Board materials shall be supplied in dimensions agreed between purchaser and supplier or in accordance with ISO 1040. Boards shall be flat.

4.2 Dimensional tolerances for length, width and squareness shall conform to the requirements specified in Table 1.

Table 1 — Tolerances for dimensions and squareness

Length or width mm	Tolerance on length or width[a] mm	Squareness tolerances based on differences in diagonal measurements[b c] mm
<1 000	±8	5
≥1 000	±10	5

[a] If more restrictive tolerances are required, these shall be agreed between purchaser and supplier.

[b] Tolerance categories for diagonal measurements are based on the board length (not width).

[c] Squareness may also be determined by equivalent methods such as the use of a rectangular pattern.

4.3 Dimensional tolerances for thickness shall conform to the requirements specified in Table 2.

Table 2 — Tolerances for thickness

Thickness mm	Tolerance[a] mm
<50	±2
50 to 75 (incl.)	±3
>75 to 100 (incl.)	±3[b]
>100	To be agreed between purchaser and supplier

[a] If more restrictive tolerances are required, these shall be agreed between purchaser and supplier.

[b] For EPS with natural skins, the thickness tolerance for this thickness category shall be ±4 mm.

5 Physical-property requirements

5.1 Categories

Physical-property requirements are organized into product categories to meet purchaser and supplier needs over a range of end-use applications.

Category I — Suitable for non-load-bearing applications such as wall and cavity insulation, vented roofs, cavity wall insulation and similar applications.

Category II — Suitable for limited load-bearing applications such as in built-up roofs, under floors and comparable applications, where elevated temperatures may be encountered and where compressive creep resistance is required. Products in this category may also be used for applications listed in category I.

Category III — Suitable for load-bearing applications such as in parking decks, floors of cold-storage areas and comparable applications requiring a higher level of compressive strength and compressive creep resistance. Products in this category may also be used for applications listed in categories I and II.

5.2 Subcategories

Product property categories I to III can be further divided into subcategories (A, B, C) on the basis of thermal-conductivity values. All thermal-conductivity specification values given for the subcategories in the tables are maximum values.

