

---

---

**Thermal insulation for building  
equipment and industrial  
installations — Cellular glass products  
— Specification**

*Isolation thermique pour les équipements de bâtiments et les  
installations industrielles — Produits en verre cellulaire —  
Spécifications*



This document is a preview generated by ELS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

|  | Page      |
|--|-----------|
| Foreword.....  | iv        |
| <b>1 Scope.....</b>  | <b>1</b>  |
| <b>2 Normative references.....</b>   | <b>1</b>  |
| <b>3 Terms and definitions.....</b>  | <b>2</b>  |
| <b>4 Symbols and abbreviated terms.....</b>  | <b>2</b>  |
| <b>5 Characteristics.....</b>  | <b>3</b>  |
| 5.1 General.....   | 3         |
| 5.2 Thermal conductivity.....  | 3         |
| 5.3 Compression strength.....  | 4         |
| 5.4 Dimensions.....  | 5         |
| 5.5 Bending strength.....  | 6         |
| 5.6 Point load.....  | 6         |
| 5.7 Compressive creep.....   | 7         |
| 5.8 Long-term water absorption.....  | 7         |
| 5.9 Water vapour diffusion resistance.....   | 7         |
| 5.10 Fire behaviour.....   | 7         |
| 5.11 Maximum service temperature.....  | 7         |
| 5.12 Minimum service temperature.....  | 7         |
| 5.13 Trace quantities of water-soluble ions and the pH-value.....  | 7         |
| <b>6 Test methods.....</b>   | <b>8</b>  |
| 6.1 Sampling.....  | 8         |
| 6.2 Conditioning.....  | 8         |
| 6.3 Testing.....   | 8         |
| 6.3.1 Test methods and specimen requirements.....  | 8         |
| 6.3.2 Thermal conductivity.....  | 9         |
| <b>7 Designation code.....</b>   | <b>9</b>  |
| <b>8 Marking and labelling.....</b>  | <b>10</b> |
| <b>Annex A (normative) Factory production control (FPC).....</b>   | <b>11</b> |
| <b>Annex B (informative) Product classification for flat products in respect of compressive strength and thermal conductivity.....</b> | <b>12</b> |
| <b>Bibliography.....</b>   | <b>13</b> |

## 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](http://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](http://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 of 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 3, *Thermal insulation products, components and systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Thermal insulation for building equipment and industrial installations — Cellular glass products — Specification

## 1 Scope

This document specifies the requirements and test methods for factory-made cellular glass products, which are used for thermal insulation of building equipment and industrial installations, with an operating temperature range of approximately  $-265\text{ °C}$  to  $+430\text{ °C}$ . The products are manufactured in the form of slabs, faced or unfaced boards, pipe sections, segments and prefabricated ware.

This document describes product characteristics and test methods, designation code, marking and labelling.

This document does not apply to:

- products with a declared thermal conductivity greater than  $0,065\text{ W/(m}\cdot\text{K)}$  at  $10\text{ °C}$ ;
- products for the insulation of the building structure.

This document does not specify the required level of a given property to be achieved by a product to demonstrate fitness for purpose in a particular application. Specific requirements agreed between the purchaser and the supplier (e.g. type, dimensions and forms, regulatory compliance and inspection requirements or certification requirements), are outside the scope of this document.

## 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 1182, *Reaction to fire tests for products — Non-combustibility test*

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

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 8497, *Thermal insulation — Determination of steady-state thermal transmission properties of thermal insulation for circular pipes*

ISO 9229, *Thermal insulation — Vocabulary*

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

ISO 12570, *Hygrothermal performance of building materials and products — Determination of moisture content by drying at elevated temperature*

ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties — Cup method*

ISO 12624, *Thermal insulating products for building equipment and industrial installations — Determination of trace quantities of water-soluble chloride, fluoride, silicate, sodium ions and pH*

ISO 12628, *Thermal insulating products for building equipment and industrial installations — Determination of dimensions, squareness and linearity of preformed pipe insulation*

ISO 13787, *Thermal insulation products for building equipment and industrial installations — Determination of declared thermal conductivity*

ISO 16535, *Thermal insulating products for building applications — Determination of long-term water absorption by immersion*

ISO 18096, *Thermal insulating products for building equipment and industrial installations — Determination of maximum service temperature for preformed pipe insulation*

ISO 18097, *Thermal insulating products for building equipment and industrial installations — Determination of maximum service temperature*

ISO 29465, *Thermal insulating products for building applications — Determination of length and width*

ISO 29466, *Thermal insulating products for building applications — Determination of thickness*

ISO 29467, *Thermal insulating products for building applications — Determination of squareness*

ISO 29468, *Thermal insulating products for building applications — Determination of flatness*

ISO 29469, *Thermal insulating products for building applications — Determination of compression behaviour*

ISO 29472, *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*

ISO 29771, *Thermal insulating materials for building applications — Determination of organic content*

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

### 3 Terms and definitions

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

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

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

— IEC Electropedia: available at <https://www.electropedia.org/>

### 4 Symbols and abbreviated terms

|           |                                  |           |
|-----------|----------------------------------|-----------|
| $b$       | width                            | mm        |
| $d$       | thickness                        | mm        |
| $l$       | length                           | mm        |
| $d_N$     | nominal thickness of the product | mm        |
| $D$       | pipe diameter                    | mm        |
| $\lambda$ | thermal conductivity             | W/(m · K) |