
Rigid cellular plastics — Determination of water vapour transmission properties

*Plastiques alvéolaires rigides — Détermination des caractéristiques de
transmission de la vapeur d'eau*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 1663 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 10, *Cellular plastics*.

This third edition cancels and replaces the second edition (ISO 1663:1999), of which it constitutes a minor revision. The main changes are as follows:

- the tolerance limits required for the humidity in the constant-humidity chamber (see 5.6 and 8.1) have been relaxed from ± 2 % to ± 5 %;
- in Table 1, the third set of test conditions has been corrected to 38 °C and 0 % to 88 % RH.

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1 Scope

This International Standard specifies a method of determining the water vapour transmission rate, water vapour permance, water vapour permeability and water vapour diffusion resistance index for rigid cellular plastics.

The scope of this method provides for the testing of rigid cellular materials that have thicknesses from 10 mm upwards and which may, as an integral part of the material, contain natural skins or adhered facings of some different material.

Three different sets of temperature and humidity conditions are provided, as follows:

- a) 38 °C and a relative-humidity gradient across the test specimen of 0 % to 88 %;
- b) 23 °C and a relative-humidity gradient across the test specimen of 0 % to 85 %;
- c) 23 °C and a relative-humidity gradient across the test specimen of 0 % to of 50 %.

The results obtained by this method are suitable for design purposes and production control, and for inclusion in product specifications.

The method is suitable for materials which have water vapour transmission rates in the range 3 ng/(m²·s) to 200 ng/(m²·s).

2 Normative references

The following referenced documents are indispensable for the application 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 483, *Plastics — Small enclosures for conditioning and testing using aqueous solutions to maintain the humidity at a constant value*

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

3 Terms and definitions

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