INTERNATIONAL STANDARD

ISO 1663

Fourth edition
2023-08

Rigid cellular plastics — Determination of water vapour transmission properties

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

Reference number
ISO 1663:2023(E)

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Published in Switzerland

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Foreword

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

This fourth edition cancels and replaces the third edition (ISO 1663:2007), which has been technically revised.

The main changes are as follows:

— in the Scope (Clause 1):
  — the unit ng has been changed to µg;
  — the upper limit has been changed from 200 µg/(m^2·s) to 1 400 µg/(m^2·s);
— Clause 9 has been modified as follows:
  — 9.2, "Blank specimen" has been added;
  — 9.3.2 "Corrections" has been added;
  — in 9.5, Formula (8) has been modified;
— in Clause 11, a new item (k) has been added;
— Formula (B.8) has been modified.

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Rigid cellular plastics — Determination of water vapour transmission properties

1 Scope

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

This method is applicable for the testing of rigid cellular materials that have thicknesses from 10 mm upwards and can, 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 μg/(m^2·s) to 1 400 μg/(m^2·s).

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 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.

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/

3.1
water vapour transmission rate
quantity of water vapour transmitted through unit area of a test specimen in unit time under specified conditions of temperature, humidity, and thickness

Note 1 to entry: It is expressed in micrograms per square metre per second (μg·m^{-2}·s^{-1}).

Note 2 to entry: The values obtained for the water vapour transmission rate are specific to the thickness of the test specimen.

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