



**International
Standard**

ISO 15105-2

**Plastics film and sheeting —
Determination of gas-
transmission rate —**

**Part 2:
Equal-pressure method**

**Second edition
2025-11**

This document is a preview generated by EMS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

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
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Test specimens	2
6 Conditioning and test temperature	2
6.1 Conditioning.....	2
6.2 Test temperature.....	2
7 Apparatus and materials	3
7.1 General.....	3
7.2 Test gas.....	3
7.3 Transmission cell.....	3
7.4 Detection and measurement.....	3
8 Diffusion conditions	4
9 Procedure	4
10 Expression of results	5
11 Precision	5
12 Test report	5
Annex A (normative) Method for the determination of the oxygen-transmission rate using a coulometric sensor	6
Annex B (normative) Detection by gas chromatography	11

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

This second edition cancels and replaces the first edition (ISO 15105-2:2003), which has been technically revised.

The main changes are as follows:

- The title has been changed to conform with the ISO/IEC Directives Part 2;
- [Formula \(B.1\)](#) has been corrected;
- general temperature and pressure for converting gas from moles to volume have been added to the note in [Formulae \(A.2\)](#) and [\(B.2\)](#);
- temperature and pressure used for converting gas from moles to volume have been added in the test report.

A list of all parts in the ISO 15105 series can be found on the ISO website.

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.

Plastics film and sheeting — Determination of gas-transmission rate —

Part 2: Equal-pressure method

1 Scope

This document specifies a method for the determination of the gas-transmission rate of any plastic material in the form of film, sheeting, laminate, co-extruded material or flexible plastic-coated material.

Specific examples, currently in use, of the method are described in the annexes.

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 4593, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning*

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

gas-transmission rate

GTR

J_{GTR}

amount of gas passing through a plastic material, per unit area and unit time, under unit partial-pressure difference between the two sides of the material

Note 1 to entry: When the gas used is oxygen, the value obtained is the oxygen-transmission rate (J_{O_2GTR}).

3.2

gas permeability

coefficient of gas permeability

P

amount of gas passing through a homogeneous polymer material of unit thickness, per unit area and unit time, under unit partial-pressure difference between the two sides of the material

Note 1 to entry: The theoretical value of P is given by the [Formula \(1\)](#):