
**Materials used as cigarette papers,
filter plug wrap and filter joining
paper, including materials having a
discrete or oriented permeable zone
and materials with bands of differing
permeability — Determination of air
permeability**

*Matériaux utilisés comme papier à cigarettes, pour le gainage des
filtres et comme papier manchette, y compris les matériaux possédant
une zone perméable discrète ou orientée et les matériaux à bandes de
perméabilité diverses — Détermination de la perméabilité à l'air*

ISO 2965:2019

<https://standards.iteh.ai/catalog/standards/iso/47fe73c0-724e-47a4-96a0-f252ec4f7191/iso-2965-2019>



iTeh Standards
(<https://standards.itih.ai>)
Document Preview

ISO 2965:2019

<https://standards.itih.ai/catalog/standards/iso/47fe73c0-724e-47a4-96a0-f252ec4f7191/iso-2965-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

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
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Apparatus	4
6 Sampling	5
7 Procedure	5
7.1 General	5
7.2 Leak check of the test piece holder	5
7.3 Preparation of test pieces	5
7.4 Calibration	6
7.5 Insertion of a test piece	6
7.5.1 General	6
7.5.2 Materials with uniformly distributed permeability	6
7.5.3 Materials with a narrow and oriented permeable zone	6
7.5.4 Materials with an extended and oriented permeable zone	6
7.5.5 Materials with discrete permeable zones	6
7.5.6 Materials with bands of different air permeability	6
7.6 Measurement	7
7.6.1 General	7
7.6.2 Measurement of strips	8
7.6.3 Measurement of spills (papers recovered from manufactured products)	8
8 Expression of results	8
9 Precision	9
9.1 Repeatability	9
9.2 Reproducibility	9
9.3 Results of an interlaboratory study (Study 1)	9
9.4 Statistical discussion of r and R results for Study 1	11
9.5 Results of an interlaboratory study (Study 2)	11
9.6 Statistical discussion of r and R results for Study 2	12
10 Test report	13
Annex A (normative) Leak testing of test piece holder	14
Annex B (normative) Calibration of air permeability standards and air permeability measuring instruments	16
Annex C (informative) Determination of relevant surface leakage of test piece in the test piece holder	20
Annex D (informative) Flow of air through porous materials	22
Annex E (informative) Compensation of calibration standards	24
Bibliography	27

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 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 126, *Tobacco and tobacco products*, Subcommittee SC 1, *Physical and dimensional tests*.

This fourth edition cancels and replaces the third edition (ISO 2965:2009), which has been technically revised. The main changes compared to the previous edition are as follows.

- Use of a 0,30 cm² test piece holder has been allowed for measurement of small paper areas.
- [Formula \(E.3\)](#) has been corrected.

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.

Introduction

Measurements of air permeability of materials used as cigarette papers have been made for many years. The methods have required development and change because of the changing nature of the paper products and changes in the magnitude of their air permeability.

This method has been developed with the technical resources of Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA).

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 2965:2019](https://standards.iteh.ai/catalog/standards/iso/47fe73c0-724e-47a4-96a0-f252ec4f7191/iso-2965-2019)

<https://standards.iteh.ai/catalog/standards/iso/47fe73c0-724e-47a4-96a0-f252ec4f7191/iso-2965-2019>