

This is a preview of "ISO 29463-4:2011". [Click here to purchase the full version from the ANSI store.](#)

First edition
2011-10-15

High-efficiency filters and filter media for removing particles in air —

Part 4:

Test method for determining leakage of filter elements — Scan method

Filtres à haut rendement et filtres pour l'élimination des particules dans l'air —

Partie 4: Méthode d'essai pour déterminer l'étanchéité de l'élément filtrant (méthode scan)



Reference number
ISO 29463-4:2011(E)

© ISO 2011

This is a preview of "ISO 29463-4:2011". [Click here to purchase the full version from the ANSI store.](#)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 29463-4:2011". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Normative references.....	1
3 Terms and definitions	2
4 Principle	2
5 Test filter	3
6 Test apparatus	3
6.1 Set-up of the test apparatus	3
6.2 Test duct.....	6
6.3 Scanning assembly	7
6.4 Aerosol generation and measurement techniques.....	8
7 Test air	9
8 Procedure	10
8.1 General	10
8.2 Preparatory checks	10
8.3 Starting up the aerosol generator.....	11
8.4 Preparing the test filter	11
8.5 Testing.....	11
9 Test report.....	12
10 Maintenance and inspection of the test apparatus.....	13
Annex A (normative) Oil thread leak test	15
Annex B (normative) Aerosol photometer filter scan test method.....	16
Annex C (normative) Determining the test parameters	20
Annex D (informative) Example of an application with evaluation	28
Annex E (informative) Leak test with solid PSL aerosol.....	31
Annex F (informative) 0,3 µm to 0,5 µm particle efficiency leak test.....	34
Annex G (informative) Calculation of aerosol challenge	36
Bibliography.....	38

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 29463-4 was prepared by Technical Committee ISO/TC 142, *Cleaning equipment for air and other gases*.

ISO 29463 consists of the following parts, under the general title *High-efficiency filters and filter media for removing particles in air*:

- *Part 1: Classification, performance, testing and marking*
- *Part 2: Aerosol production, measuring equipment, particle-counting statistics*
- *Part 3: Testing flat sheet filter media*
- *Part 4: Test method for determining leakage of filter element — Scan method*
- *Part 5: Test method for filter elements*

This is a preview of "ISO 29463-4:2011". [Click here to purchase the full version from the ANSI store.](#)

Introduction

ISO 29463 (all parts) is derived from EN 1822 (all parts) with extensive changes to meet the requests from non-EU p-members. It contains requirements, fundamental principles of testing and the marking for high-efficiency particulate air filters with efficiencies from 95 % to 99,999 995 % that can be used for classifying filters in general or for specific use by agreement between users and suppliers.

ISO 29463 (all parts) establishes a procedure for the determination of the efficiency of all filters on the basis of a particle counting method using a liquid (or alternatively a solid) test aerosol, and allows a standardized classification of these filters in terms of their efficiency, both local and overall efficiency, which actually covers most requirements of different applications. The difference between ISO 29463 (all parts) and other national standards lies in the technique used for the determination of the overall efficiency. Instead of mass relationships or total concentrations, this technique is based on particle counting at the most penetrating particle size (MPPS), which is, for micro-glass filter mediums, usually in the range of 0,12 μm to 0,25 μm . This method also allows testing ultra-low penetration air filters, which was not possible with the previous test methods because of their inadequate sensitivity. For membrane filter media, separate rules apply, and they are described in ISO 29463-5:2011, Annex B. Although no equivalent test procedures for testing filters with charged media is prescribed, a method for dealing with these types of filters is described in ISO 29463-5:2011, Annex C. Specific requirements for test method, frequency, and reporting requirements can be modified by agreement between supplier and customer. For lower efficiency filters (group H, as described below), alternate leak test methods described in Annex A of this part of ISO 29463 can be used by specific agreement between users and suppliers, but only if the use of these other methods is clearly designated in the filter markings as described in Annex A of this part of ISO 29463.

There are differences between ISO 29463 (all parts) and other normative practices common in several countries. For example, many of these rely on total aerosol concentrations rather than individual particles. For information, a brief summary of these methods and their reference standards are provided in ISO 29463-5:2011, Annex A.