

Loading dusts for testing air cleaning equipment (ISO 15957:2015)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 15957:2015 sisaldab Euroopa standardi EN ISO 15957:2015 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 15957:2015 consists of the English text of the European standard EN ISO 15957:2015.
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English Version

**Test dusts for evaluating air cleaning equipment (ISO
15957:2015)**

Poussières d'essai pour l'évaluation des équipements
d'épuration d'air (ISO 15957:2015)

Aufgabestäube zum Prüfen von Luftfilteranlagen (ISO
15957:2015)

This European Standard was approved by CEN on 12 December 2014.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 15957:2015) has been prepared by Technical Committee ISO/TC 142 "Cleaning equipment for air and other gases" in collaboration with Technical Committee CEN/TC 195 "Air filters for general air cleaning" the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

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Endorsement notice

The text of ISO 15957:2015 has been approved by CEN as EN ISO 15957:2015 without any modification.

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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.

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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 142, *Cleaning equipment for air and other gases*.

Introduction

Filters are subjected to evaluation of their initial performance and dust-loaded performance in laboratory tests using specified test dusts. The results are to reflect the performance of the filter as installed in a building. However, since the properties of atmospheric aerosols vary to a large extent regionally, seasonally, and according to weather conditions, test data obtained with a given test dust seldom accurately predict the filter performance as actually used. In addition to this, the test results with a given test dust might not be in agreement with those obtained by other laboratories because the filter performance is affected by many factors such as particle size distribution, particle agglomeration, and electrical charge. Despite these problems in testing filter performance, the test data are used for the classification of filters, estimation of energy consumption, Life Cycle Cost (LCC), and Life Cycle Assessment (LCA).

The test dust used for evaluating initial performance and loaded performance of filters can have a different specification from the dust used to achieve filter loading.

This International Standard does not control the specification, manufacturing, or use of test dusts. It describes the properties of test dusts which can be used to load filters, and the requirements for test dust generation that will ensure that useful laboratory test results are obtained in order to mimic the actual use as much as possible.

Test dusts for evaluating air cleaning equipment

1 Scope

This International Standard defines the properties of load test dusts used for heating, ventilation, and air conditioning (HVAC) air filters as well as air cleaning equipment in laboratories. Test dusts used for evaluation of efficiency performance are not included.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For updated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12103-1, *Road vehicles — Test dust for filter evaluation — Part 1: Arizona test dust*

ISO/TS 21220, *Particulate air filters for general ventilation — Determination of filtration performance*

3 Terms and definitions

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

3.1

dust feeder

device which is used to distribute test dust to the filter

3.2

median diameter

diameter of the particle for which the cumulated volume fraction is equal to 50 % on a cumulated volume particle size distribution curve

3.3

undersize

percentage in volume of particles smaller than a specified particle size in a particle size distribution

3.4

particulate matter

PM

size fraction of the natural aerosol (liquid and solid particles) suspended in ambient air, with the symbol PM_x where x defines the size range of the aerodynamic diameter

Note 1 to entry: The following particle size fractions are used in this International Standard.

Fraction	Category	Size range μm
PM10	Thoracic fraction	≤10
PM2,5	Respirable fraction	≤2,5

Note 2 to entry: The collection efficiency of the correct equipment at the considered diameter is equal to 50 %.