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Test methods for assessing the performance of gas-phase air cleaning media and devices for general ventilation —

Part 2: Gas-phase air cleaning devices (GPACD)

*Méthodes d'essai pour l'évaluation de la performance des médias et des dispositifs de filtration moléculaire pour la ventilation générale —
Partie 2: Dispositifs de filtration moléculaire (GPACD)*



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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.

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 10121-2 was prepared by Technical Committee ISO/TC 142, *Cleaning equipment for air and other gases*.

ISO 10121 consists of the following parts, under the general title *Test methods for assessing the performance of gas-phase air cleaning media and devices for general ventilation*:

- *Part 1: Gas-phase air cleaning media (GPACM)*
- *Part 2: Gas-phase air cleaning devices (GPACD)*

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Introduction

There is an increasing use and need for gas-phase filtration in general filtration applications. This demand can be expected to increase rapidly due to the increasing pollution problems in the world together with an increasing awareness that solutions to the problems are available in the form of filtration devices or, phrased more technically, gas-phase air cleaning devices (GPACD). The performance of devices relies to a large extent on the performance of a gas-phase air cleaning media (GPACM) incorporated in the device. Still applications and device performance are often poorly understood by the users and suppliers of such media and devices. Media tests may also be adequate to offer data for real applications if actual low concentrations (< 100 ppb) and longer exposure times (>weeks) can be used in the test, provided that the geometrical configuration, packing density and flow conditions of the small-scale test specimen are equal to those used in the real applications. Such tests are however not included in the scope of ISO 10121. ISO 10121 attempts to increase understanding and communication by supplying a more standardized interface between media suppliers, device suppliers and end users. At present, standards exist for general ventilation in Japan^[4] by JIS, automotive filters by ISO^[4], in-duct sorptive media gas-phase air-cleaning devices by ASHRAE^[7] and for adsorptive media by ASHRAE^[8] and ASTM^[9]. No international standard for general filtration exists today.

This part of ISO 10121 prescribes methods, test equipment, data interpretation and reporting for gas-phase air cleaning devices intended for the removal of gas-phase contamination from air in general ventilation applications.

In addition, information is given in a number of annexes:

- [Annex A](#) describes the normative validation procedure in detail in a tabulated form.
- [Annex B](#) gives a list of possible test gases, generation sources and suggests suitable analysis equipment for common test gases in addition to reference techniques given for the simplified benchmark setup in [Clause 5.5](#).
- [Annex C](#) discusses different test stand designs.

A general introduction to molecular filtration and molecular filtration testing can be found in the scientific literature.

ISO 10121 aims to provide laboratory test methods for media and devices which are used for removal of gas-phase contaminants from air in general ventilation. It consists of two parts:

- ISO 10121-1 covers three different media configurations and is targeted towards giving a standardized interface between media suppliers and producers of air cleaning devices. It may also be used between media suppliers and end customers with regards to loose fill media properties.
- This part of ISO 10121 aims to give a standardized interface between suppliers of air cleaning devices and end customers seeking the most cost efficient way to employ gas-phase filtration.