First edition
2018-08

Indoor air —

Part 34: Strategies for the measurement of airborne particles

Air intérieur —

Partie 34: Stratégie pour la mesure des particules en suspension

Reference number
ISO 16000-34:2018(E)

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

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 146, *Air quality,* Subcommittee SC 6, *Indoor air*.

A list of all parts in the ISO 16000 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.

Introduction

Airborne particulate matter (colloquially known as “fine dust”) plays a role not only outdoors, but is also significant in terms of hygiene, especially indoors. People in industrialized countries spend most of the day indoors. Particles are either transported into indoor air from outdoor environments or the particles directly result from indoor sources, such as smoking, housework and do-it-yourself (DIY), burning candles, residential wood burning, cooking and using printers. The concentration, composition and size distribution of airborne particulate matter in indoor environments strongly depend on parameters such as the sources present in the room, room size, relative humidity, air exchange rate, air flow conditions and sink effects on surfaces (e.g. walls, ceilings, floor coverings, soft furnishings). In addition, particles already deposited can be re-entrained through various activities and subsequently inhaled. Depending on the particular case, all this can result in highly variable levels of indoor fine dust pollution that are not easily ascertained or assessed in terms of their impact on health.

In the ISO 16000 series, the following rooms are understood to constitute indoor spaces: dwellings with living rooms, bedrooms, work rooms, sport rooms, cellars, kitchens and bathrooms; work spaces or workstations in buildings not subject to controls under industrial safety legislation in terms of airborne pollution (e.g. offices, shops); public buildings (e.g. restaurants, theatres, cinemas, other function rooms); and the passenger compartments of vehicles and all public transport systems (e.g. buses, trains, aircraft).

Epidemiological and toxicological findings suggest that health effects are more strongly related to sub-micron particles[33]. Indeed, ultrafine particles (UFP), due to their small size, can deeply penetrate into the body and contribute to adverse health effects.

This document describes the general strategies for the measurement of airborne particles, including PM_{10}, $PM_{2,5}$, PM_1 and UFP. The different technologies available equipment are presented and compared in a way that allows the user to select the best technique depending on the monitoring objective. Sampling requirements are presented together with key factors that users should take into account.