
**Air quality — General aspects —
Vocabulary**

Qualité de l'air — Aspects généraux — Vocabulaire

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

ISO 4225:2020

<https://standards.iteh.ai/catalog/standards/iso/1cc734a6-5f76-4821-acd9-7d214f39d4b9/iso-4225-2020>



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

ISO 4225:2020

<https://standards.iteh.ai/catalog/standards/iso/1cc734a6-5f76-4821-acd9-7d214f39d4b9/iso-4225-2020>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

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
3.1 General terms.....	1
3.1.1 Terms describing air quality.....	1
3.1.2 Agents.....	2
3.1.3 Terms related to aerosols.....	2
3.1.4 Terms related to exposure.....	3
3.1.5 Other terms.....	3
3.2 Terms related to air pollution and pollution control.....	5
3.2.1 Terms generally describing air pollution.....	5
3.2.2 Components or forms of air pollution.....	7
3.2.3 Terms related to control of air pollution.....	9
3.3 Terms related to air quality sampling.....	10
3.3.1 Samples.....	10
3.3.2 Sampling equipment.....	10
3.3.3 Sampling methods.....	12
3.4 Terms related to air quality measurement.....	13
3.4.1 Measurement methods.....	13
Annex A (informative) Alphabetical index of terms defined	15
Bibliography	19

Document Preview

ISO 4225:2020

<https://standards.itech.ai/catalog/standards/iso/1cc734a6-5f76-4821-acd9-7d214f39d4b9/iso-4225-2020>

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 4, *General aspects*.

This third edition cancels and replaces the second edition (ISO 4225:1994), which has been technically revised. The main changes compared to the previous edition are as follows:

- where appropriate, terms and definitions have been harmonized with ISO 18158:2016;
- obsolete terms have been removed;
- references have been updated.

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

The work programme of ISO/TC 146, Air quality, includes the standardization of procedures for sampling and measurement of gases, vapours and airborne particles. Many terms that are commonly used in relation to air quality, sampling and measurement are defined within individual standards or technical documents and are often defined differently from one standard or document to the next. This creates ambiguities and inconsistencies in the use of such terms. This document was developed to ensure that commonly used terms have agreed-upon definitions and to eliminate ambiguities and inconsistencies in their usage. It will be of benefit to agencies concerned with air quality, sampling, and laboratory analysis.

The terms given in this document are those in common use. The list should not be considered complete, however, and further terms will be added as the need arises.

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

[ISO 4225:2020](https://standards.iteh.ai/catalog/standards/iso/1cc734a6-5f76-4821-acd9-7d214f39d4b9/iso-4225-2020)

<https://standards.iteh.ai/catalog/standards/iso/1cc734a6-5f76-4821-acd9-7d214f39d4b9/iso-4225-2020>

Air quality — General aspects — Vocabulary

1 Scope

This document specifies terms and definitions that are related to *air quality* (see 3.1.1.1). These are either general terms or are used in connection with the *sampling* (see 3.3.3.1) and measurement of gases, *vapours* (see 3.1.5.8) and *airborne particles* (see 3.2.2.1) for the determination of air quality.

The terms included are those that have been identified as being fundamental because their definition is necessary to avoid ambiguity and ensure consistency of use.

An alphabetical index of the terms is provided in [Annex A](#).

This document is applicable to all International Standards, ISO Technical Reports, ISO Technical Specifications, and ISO Guides related to air quality.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

3.1 General terms

3.1.1 Terms describing air quality

3.1.1.1

air quality

features of the air which have an impact on humans (e.g., safety and health) and/or the environment

Note 1 to entry: Air quality is typically expressed in terms of the presence or absence of *air pollution* (3.2.1.2) (e.g. *emissions* (3.2.1.4) or conversions resulting from emissions, e.g., ozone), using one or more measurements.

Note 2 to entry: The concept of air quality can be used in reference to *ambient air* (3.1.1.3), *indoor air* (3.1.1.5), or *workplace air* (3.1.1.7).

3.1.1.2

air quality standard

specified attribute of the air intended to prevent or minimize impacts on humans (e.g. safety and health) and/or the environment

Note 1 to entry: Air quality standards are frequently defined statistically by setting a limit to the concentration of an *air pollutant* (3.2.1.1) over a specified *averaging time* (3.1.1.9).

Note 2 to entry: Air quality standards can have legal or advisory status in one or more jurisdictions.

3.1.1.3

ambient air

outdoor air to which people, plants, animals or material can be exposed

3.1.1.4

ambient air quality standard

air quality standard ([3.1.1.2](#)) for the *ambient air* ([3.1.1.3](#))

3.1.1.5

indoor air

air within an enclosed space, e.g., dwelling or public building

3.1.1.6

indoor air quality standard

air quality standard ([3.1.1.2](#)) for the *indoor air* ([3.1.1.5](#))

3.1.1.7

workplace air

air to which a person is exposed, whether indoor or outdoor, during the hours of work at the person's workplace

3.1.1.8

workplace air quality standard

air quality standard ([3.1.1.2](#)) for the *workplace air* ([3.1.1.7](#))

3.1.1.9

averaging time

interval of time over which an attribute of *air quality* ([3.1.1.1](#)) has been expressed as an average

3.1.2 Agents

3.1.2.1

biological agent

one of a number of agents such as bacteria, viruses, fungi and other micro-organisms or parts of them and their associated allergens or toxins, including those which have been genetically modified, cell cultures or endoparasites which are potentially hazardous to human health

3.1.2.2

chemical agent

chemical element or compound on its own or admixed as it occurs in the natural state or as produced, used, or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market

3.1.3 Terms related to aerosols

3.1.3.1

aerosol

airborne particles ([3.2.2.1](#)) and the gas (and vapour ([3.1.5.8](#))) mixture in which they are suspended

3.1.3.2

bioaerosol

aerosol ([3.1.3.1](#)) consisting of (a) *biological agent(s)* ([3.1.2.1](#))

3.1.3.3

nanoaerosol

aerosol ([3.1.3.1](#)) comprised of, or consisting of, *nanoparticles* ([3.1.3.4](#)) and *nanostructured particles* ([3.1.3.5](#))

3.1.3.4**nanoparticle**

material with all three dimensions in the size range from approximately 1 nm to 100 nm

3.1.3.5**nanostuctured particle**

particle with structural features smaller than 100 nm, which can influence its physical, chemical and/or biological properties

Note 1 to entry: A nanostuctured particle can have a maximum dimension substantially larger than 100 nm.

EXAMPLE A 500 nm diameter *agglomerate* (3.1.3.6) of *nanoparticles* (3.1.3.4) would be considered a nanostuctured particle.

3.1.3.6**agglomerate**

<aerosols> group of particles held together by relatively weak forces, including van der Waals forces, electrostatic forces and surface tension

3.1.4 Terms related to exposure**3.1.4.1****breathing zone**

space around the nose and mouth from which air is inhaled

Note 1 to entry: Technically, the breathing zone corresponds to a hemisphere (generally accepted to be 30 cm in radius) extending in front of the human face, centred on the midpoint of a line joining the ears. The base of the hemisphere is a plane through this line, the top of the head and the larynx. This technical description is not applicable when measuring air within respiratory protective equipment.

3.1.4.2**inhalation exposure**

situation in which a *chemical agent* (3.1.2.2) or *biological agent* (3.1.2.1) is present in the air that is inhaled by a person

3.1.4.3**dermal exposure**

contact between a *chemical agent* (3.1.2.2) or *biological agent* (3.1.2.1) and human skin

3.1.5 Other terms**3.1.5.1****cyclone**

<meteorology> large circulatory wind system around a region of low atmospheric pressure

3.1.5.2**stability**

<atmosphere> state of hydrostatic equilibrium of the atmosphere in which a parcel of air moved from its initial level undergoes a hydrostatic force which tends to restore it to this level

3.1.5.3**chimney effect**

phenomenon consisting of upwards movement of a localized mass of air or other gases caused by temperature differences

3.1.5.4**effective chimney height**

height used for the purposes of calculating the dispersion of emitted gases from a chimney, and which differs from the real chimney height by an amount which depends on such factors as the exit velocity, buoyancy effects and wind speed as well as topography

3.1.5.5

dispersion parameters, Gaussian

parameters which describe the size of an assumed Gaussian *plume* ([3.2.1.20](#)) as a function of atmospheric *stability* ([3.1.5.2](#)) and travel distance or time

3.1.5.6

lapse rate

variation of an atmospheric parameter with height

Note 1 to entry: The parameter is temperature unless otherwise stated.

Note 2 to entry: This variation is taken as positive when temperature decreases with increasing height. If meteorological conditions are such that the atmospheric lapse rate is the same as that for an adiabatically rising parcel of dry air (about 10 °C km⁻¹), the atmosphere is said to have a dry adiabatic lapse rate.

3.1.5.7

micrometeorology

part of meteorology that deals with observations and processes in the smallest scales of time and space, approximately smaller than 1 km and less than a day (i.e., local processes)

[SOURCE: American Meteorological Society Glossary of Meteorology]

3.1.5.8

vapour

gas phase of a substance in a state of equilibrium or disturbed equilibrium with the same substance in a liquid or solid state below its boiling or sublimation point

3.1.5.9

fog

type of *aerosol* ([3.1.3.1](#)) consisting of a suspension of *droplets* ([3.1.5.12](#)) in air

Note 1 to entry: In meteorology, fog refers to a suspension of water *droplets* ([3.1.5.12](#)) resulting in a visibility of less than 1 km.

3.1.5.10

haze

type of *aerosol* ([3.1.3.1](#)) consisting of a suspension of extremely small *airborne particles* ([3.2.2.1](#)) in air, individually invisible to the naked eye, but which are numerous enough to give the air an appearance of opalescence together with reduced visibility

3.1.5.11

mist

suspension of *droplets* ([3.1.5.12](#)) in a gas

Note 1 to entry: A mist reduces visibility to a lesser extent than *fog* ([3.1.5.9](#)).

[SOURCE: ISO 29464:2017, 3.2.109]

3.1.5.12

droplet

liquid particle of small mass, capable of remaining in suspension in a gas

Note 1 to entry: In some turbulent systems, for example clouds, the diameter of a droplet can reach 200 µm.

3.1.5.13

particle aerodynamic diameter

aerodynamic diameter

diameter of a sphere of 1 g/cm³ density with the same terminal settling velocity in calm air as the particle, under the prevailing conditions of temperature, pressure and relative humidity

Note 1 to entry: The particle aerodynamic diameter depends on the size, density and shape of the particle.