SLOVENSKI STANDARD
oSIST prEN ISO 29464:2023

01-julij-2023

Čiščenje zraka in drugih plinov - Terminologija (ISO/DIS 29464:2023)

Cleaning of air and other gases - Terminology (ISO/DIS 29464:2023)

Reinigung von Luft und anderen Gasen - Terminologie (ISO/DIS 29464:2023)

Épuration de l'air et autres gaz - Terminologie (ISO/DIS 29464:2023)

Ta slovenski standard je istoveten z: **prEN ISO 29464**

ICS:

01.040.13	Okolje. Varovanje zdravja. Varnost (Slovarji)	Environment. Health protection. Safety (Vocabularies)
13.040.99	Drugi standardi v zvezi s kakovostjo zraka	Other standards related to air quality
23.120	Zračniki. Vetrniki. Klimatske naprave	Ventilators. Fans. Air-conditioners

oSIST prEN ISO 29464:2023 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 29464

ISO/TC **142**

Secretariat: **UNI**

Voting begins on:
2023-04-27

Voting terminates on:
2023-07-20

Cleaning of air and other gases — Terminology

Épuration de l'air et autres ga — Terminologie

ICS: 91.140.30; 01.040.91

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 29464:2023(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 142, *Cleaning Equipment for air and other gases.*

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.

This third edition of ISO 29464 cancels and replaces the second edition (ISO 29464:2017), which has been technically revised.

Cleaning of air and other gases — Terminology

1 Scope

This document establishes a terminology for the air filtration industry and comprises terms and definitions only.

This document is applicable to particulate matter and gas phase air filters and air cleaners used for the general ventilation of inhabited enclosed spaces. It is also applicable to air inlet filters for static or seaborne rotary machines and UV-C germicidal devices.

It is not applicable to cabin filters for road vehicles or air inlet filters for mobile internal combustion engines for which separate arrangements exist. Dust separators for the purpose of air pollution control are also excluded.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1 General, applicable to both particle and gas-phase air cleaners

3.1.1
air cleaner
device for removing *contaminants* (3.1.12) from air in a ventilation system, building or other enclosed space

3.1.2
robotic air cleaner
air cleaner that operates and changes its physical location autonomously without user intervention

Note 1 to entry: The **robotic air cleaner** can consist of a part that houses the air cleaning function and can have a docking station and/or other accessories to assist its operation.

[SOURCE: IEC 63086-1:2020]

3.1.3
fresh-air air cleaner
air cleaner connected to the external environment, which provides pollutant-reduced outdoor air into an indoor space

Note 1 to entry: The **fresh-air air cleaner** can also include other auxiliary functions, such as heat exchange.

[SOURCE: IEC 63086-1:2020]

3.1.4
air velocity
rate of air movement

Note 1 to entry: It is expressed in m/s (fpm).

3.1.5
bypass
air cleaner bypass
sneakage
proportion of the *challenge air stream* (3.5.13) that passes around or through an *air cleaner* (3.1.1) without interacting with the air cleaner

3.1.6
calibrate
to compare readings from the instrument to be calibrated with those from a reference device

3.1.7
capture
removal of contaminants from an air stream

3.1.8
classification
allocation of air cleaners into groups and classes according to relevant aspects of their air cleaning performance

3.1.9
clean side
downstream side of an air cleaner element

[SOURCE: ISO 22031:2021]

3.1.10
combination product
air cleaner that includes a secondary function besides air cleaning within the same housing, such as humidifying, dehumidifying, heating, or air conditioning

[SOURCE: IEC 63086-1:2020]

3.1.11
concentration
quantity of one substance dispersed in a defined amount of another

3.1.12
contaminant
pollutant
substance (solid, liquid or gas) that negatively affects the intended use of a gas

3.1.13
contamination
pollution
presence of a substance that negatively affects the intended use of a gas

3.1.14
decontamination factor
ratio of the *contaminant* (3.1.12) concentration or particle number upstream of an air cleaner to the contaminant *concentration* (3.1.11) or particle number downstream of the air cleaner

Note 1 to entry: The decontamination factor can also be expressed as 1/(1 – overall efficiency) or as 1/penetration.

3.1.15
dirty side
upstream side of an air cleaner element

[SOURCE: ISO 22031:2021]

3.1.16
downstream
area or region into which air flows on leaving an air cleaner

3.1.17
removal efficiency
air cleaner removal efficiency
filter removal efficiency
fraction or percentage of a challenge *contaminant* (3.1.12) that is removed by an air cleaner

3.1.18
average removal efficiency
value of removal efficiency which results from averaging the removal efficiencies determined over a number of discrete intervals up to the end of an efficiency test

3.1.19
effluent
gas or liquid discharged from a given source into the external environment

Note 1 to entry: This is a general term describing any gas or liquid discharged from a given source; in this context, the discharged liquid or gas may contain associated gaseous, liquid and/or particulate *contaminants* (3.1.12).

3.1.20
face velocity
filter face velocity
air cleaner face velocity
volumetric air flow rate divided by the *nominal air cleaner face area* (3.1.23)

Note 1 to entry: air cleaner face velocity is expressed in m/s (fpm).

3.1.21
filter
air filter
device for separating solid or liquid particles or gaseous *contaminant* (3.1.12) from an air stream passing through the device

Note 1 to entry: The device is generally formed of a layer or layers of porous, fibrous or granular material.

Note 2 to entry: Air being cleaned by a filter must pass through the filter, whereas an *air cleaner* (3.1.1) can reduce air *contamination* (3.1.13) by any method.

3.1.22
filter face area
air cleaner face area
cross-sectional face area of the air cleaner through which air flows into the device calculated using exact dimensions

3.1.23
nominal filter face area
nominal air cleaner face area
cross-sectional face area of the air cleaner through which air flows into the device calculated using dimensions rounded up to the nearest integer

3.1.24
filter insert
replaceable part of a filter which contains the filter medium but which can only operate mounted inside a frame

3.1.25
filter medium
material separating contaminants from air and characterized by its separating structure and its structural and/or textile-technological characteristics

3.1.26
filter medium area
area of *filter medium* (3.1.25) contained in the filter

Note 1 to entry: For filters with pleats or folds, the filter medium area may be much larger than the *filter face area* (3.1.22).

3.1.27
effective filter medium area
effective filtering area
exposed filter area
area of the *filter medium* (3.1.25) contained in the filter through which air passes during operation

Note 1 to entry: This excludes areas covered by sealant, spacers, struts, etc.

Note 2 to entry: Effective filter medium area is expressed in m^2(ft^2).

3.1.28
filter medium velocity
media velocity
medium velocity
volumetric air flow rate divided by the *effective filter medium area* (3.1.27) of the *filter*

Note 1 to entry: Filter medium velocity is expressed in m/s (fpm).

Note 2 to entry: In devices where the filter medium surface area has been increased by use of pleats, folds or bags, the filter medium velocity may be much less than the *filter face velocity* (3.1.20).

3.1.29
flow rate
air flow rate
volume of air flowing through an air cleaner per unit time

3.1.30
design flow rate
design air flow rate
air flow rate specified by the manufacturer

3.1.31
user air flow rate
user volume air flow rate
volume air flow rate specified by the user, at which an air cleaner is used or tested *in situ*

Note 1 to entry: This flow rate may be different from the one specified by the manufacturer.

[SOURCE: ISO 16170:2016]

3.1.32
air flow rate, test
test air flow rate
test flow
test flow rate
test volume flow rate
air flow rate used for testing

Note 1 to entry: The flow rate is usually expressed in volumetric units (m^3/h (cfm)).

Note 2 to entry: Test flow rate may differ from the manufacturer's specified flow through the air cleaner.

3.1.33
rated flow
flow rate through an air cleaner, either as stated by the manufacturer for defined conditions of use or as agreed between the interested parties for a particular installation

Note 1 to entry: The manufacturer's rated flow may differ from the *test air flow rate* (3.1.32).

3.1.34
gas
substance whose vapour pressure is greater than the *ambient pressure* (3.5.52) at ambient temperature

3.1.35
header frame
integral rigid frame of an air cleaner with a flange extending beyond the dimensions of the frame walls, enabling it to be fastened and sealed against the *holding frame* (3.1.36)

3.1.36
holding frame
rigid structural frame, part of an air handling system into which an air cleaner is fastened and sealed

3.1.37
housing
device used to hold an air cleaner

3.1.38
hood
inlet device for an air extraction system

3.1.39
integrity test
in-situ test procedure for quantifying the unfiltered leakage of the system

[SOURCE: ISO 16170:2016]

3.1.40
leak
point in a filter at which the local penetration exceeds a given value

3.1.41
penetration
breakthrough
ratio of contaminant concentration downstream of an air cleaner to the upstream (challenge) *concentration* (3.1.11)

Note 1 to entry: Sometimes expressed as a percentage.

Note 2 to entry: Penetration (P) is related to removal efficiency (E) by the expression: $E = (1 - P) \times 100$ %.

Note 3 to entry: Penetration is related to the *decontamination factor (DF)* (3.1.14) by the expression: DF = 1/ penetration.

3.1.42
reference device
primary device possessing accurately known parameters used as a standard for calibrating secondary devices

Note 1 to entry: Reference particle filters are laboratory tested for *removal efficiency by particle size* (3.2.142) and/or resistance to air flow.

3.1.43
resistance to air flow
differential pressure
pressure differential
pressure drop
difference in absolute (static) pressure between two points in an air flow system

Note 1 to entry: Resistance to air flow is expressed in Pa (inches of water).

3.1.44
test air
air being used for testing purposes

3.1.45
test device
device under test
DUT
air cleaner that is being subjected to performance testing

3.1.46
upstream
area or region from which air flows as it enters an air cleaner

3.1.47
washer
dust separator (3.2.153), *droplet separator* (3.2.152) or *gas purifier* (3.5.40) that depends on a liquid acting as a collecting medium for its operation

3.2 Particulate matter filters (including general ventilation, EPA, HEPA and ULPA filters)

3.2.1
aerosol
solid or liquid particles suspended in a gas

Note 1 to entry: Based on EU and EPA information, atmospheric aerosol is divided into four size categories: the ultrafine range $x < 0{,}1$ µm, the fine range $0{,}1$ µm $\leq x \leq 2{,}5$ µm, the coarse range $2{,}5$ µm $< x \leq 10$ µm, and the large coarse range $x > 10$ µm, whereby x is the *particle diameter* (3.2.107).

3.2.2
liquid phase aerosol
liquid particles suspended in a gas

3.2.3
monodisperse aerosol
aerosol, the width of whose distribution function, described by the geometric standard deviation σg, is less than 1,15 µm

3.2.4
aerosol neutralisation
action of bringing the aerosol to a Boltzmann charge equilibrium distribution with bipolar ions

Note 1 to entry: Neutralization should not be confused with discharging.

3.2.5
aerosol photometer
instrument that measures the light-scattering properties of an aerosol sample

3.2.6
polydisperse aerosol
aerosol, the width of whose distribution function, described by the geometric standard deviation σg, exceeds 1,5 µm

3.2.7
quasi-monodisperse aerosol
aerosol, the width of whose distribution function, described by the geometric standard deviation σg, is between 1,15 µm and 1,5 µm

3.2.8
reference aerosol
defined approved aerosol for test measurement within a specific size range

3.2.9
solid phase aerosol
solid particles suspended in a gas

3.2.10
test aerosol
aerosol used for determining the particle removal efficiency performance of the device being tested or for calibrating particle measurement devices

3.2.11
agglomerate
collection of solid particles adhering to each other

3.2.12
agglomeration
action leading to the formation of *agglomerates* (3.2.11)

3.2.13
agglutination
action of joining, by *impact* (3.2.86), solid particles coated with a thin adhesive layer or of trapping solid particles by impact on a surface coated with adhesive

3.2.14
aggregate
relatively stable assembly of dry particles, formed under the influence of physical forces

3.2.15
arrestance
gravimetric arrestance
measure of the ability of a filter to remove a standard test dust from the air passing through it under given operating conditions

Note 1 to entry: This measure is expressed as a mass percentage.

3.2.16
average arrestance
average gravimetric arrestance
ratio of the total mass of a standard test dust retained by the filter to the total mass of dust fed up to final test pressure differential

3.2.17
initial arrestance
initial gravimetric arrestance
ratio of the mass of a standard test dust retained by the filter to the mass of dust fed after the first increment of dust load

Note 1 to entry: This measure is expressed as a mass percentage.

Note 2 to entry: For example, in ISO 29461-1 or ISO 16890-3 procedure.

3.2.18
ash
solid residue of effectively complete combustion

3.2.19
fly ash
ash entrained by combustion gases

3.2.20
bioaerosol
particles of biological origin with an aerodynamic diameter of up to 100 µm suspended in a gaseous medium

Note 1 to entry: Bioaerosol particles include viruses, bacteria, fungi, pollen, plant debris, fragments of these and their derivatives such as endotoxins, glucans, allergens and mycotoxins.

3.2.21
burst pressure
value of differential pressure across a filter, above which damage/destruction of the *filter medium* (3.1.20) or the structure occurs

3.2.22
calibration particle
mono-disperse spherical particle with a known mean particle size, e.g. polystyrene latex (PSL) particle traceable to an international standard of length where the standard uncertainty of the mean particle size is equal to or less than ±2,5 %

Note 1 to entry: The refractive index of (PSL) calibration particles is close to 1,59 at a wavelength of 589 nm (sodium D line).

3.2.23
dust holding capacity
DHC
dust loading capacity
test dust capacity
TDC
total mass of loading dust captured by an air-cleaning device up to the final test resistance to air flow

3.2.24
cleaning
<after clogging> removal of the deposit of solid or liquid particles which has produced clogging

3.2.25
clogging
deposition, progressive or otherwise, of solid or liquid particles on or within a *filter medium* (3.1.25), causing the flow to be obstructed

3.2.26
coagulation losses
particle losses due to collision and adhesion of particles

Note 1 to entry: Coagulation affects the measured particle parameters as follows: the *particle number concentration* (3.2.114) decreases, the particle mass *concentration* (3.1.11) remains the same and the *particle size* (3.2.118) increases.

3.2.27
coalescence
action by which liquid particles in *suspension* (3.2.156) unite to form larger particles

3.2.28
coefficient of variation
CV
standard deviation of a group of measurements divided by the mean

3.2.29
coincidence error
error which occurs because at a given time more than one particle is contained in the measurement volume of a particle counter

Note 1 to entry: The coincidence error leads to a measured number *concentration* (3.1.11) which is too low and a value for the *particle diameter* (3.2.107) which is too high.

3.2.30
correlation ratio
measure of bias between the upstream and downstream sampling systems

Note 1 to entry: This is expressed as the downstream particle concentration divided by the upstream particle concentration measured without filter in place.

3.2.31
counting efficiency
ratio of detected number *concentration* (3.1.11) of particles to the real number concentration of particles in a given size or range of sizes

Note 1 to entry: This is usually expressed as a percentage

Note 2 to entry: The counting efficiency depends on the *particle size* (3.2.118) and decreases progressively in the proximity of the lower detection limit of the particle counter.

3.2.32
counting rate
number of counting events per unit time

3.2.33
cyclone
dust separator (3.2.153) or *droplet separator* (3.2.152) utilizing essentially the centrifugal force derived from the motion of the gas

3.2.34
DiEthylHexylSebacate
DEHS
liquid used for generating the DEHS *test aerosol* (3.2.10)

3.2.35
equivalent diameter
diameter of a spherical particle which will give behaviour equivalent to that of the particle being examined