ILNAS

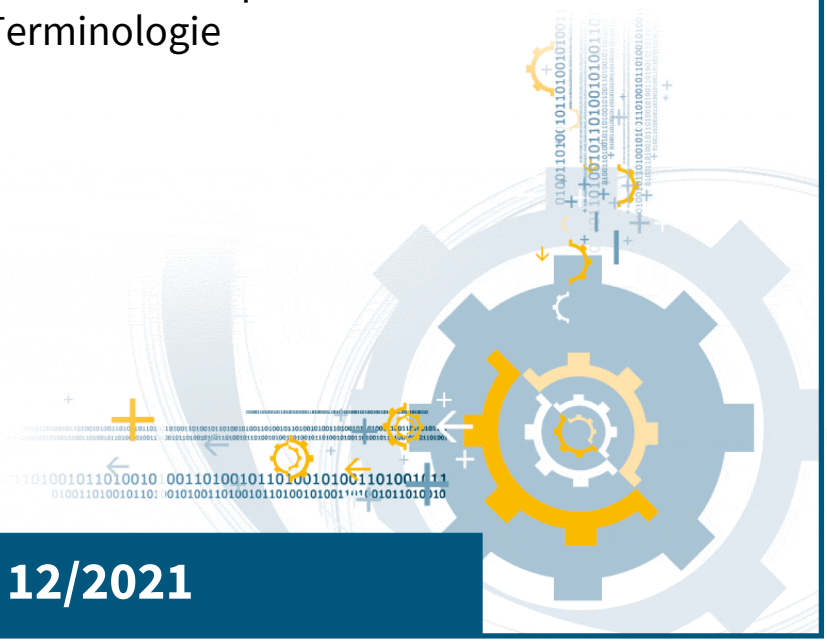
Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 1540:2021

Workplace exposure - Terminology

Exposition sur les lieux de travail - Terminologie

Exposition am Arbeitsplatz - Terminologie



12/2021

National Foreword

This European Standard EN 1540:2021 was adopted as Luxembourgish Standard ILNAS-EN 1540:2021.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
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ILNAS-EN 1540:2021

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1540

December 2021

ICS 01.040.13; 13.040.30

Supersedes EN 1540:2011

English Version

Workplace exposure - Terminology

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Exposition am Arbeitsplatz - Terminologie

This European Standard was approved by CEN on 5 December 2021.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 1540:2021) has been prepared by Technical Committee CEN/TC 137 “Assessment of workplace exposure to chemical and biological agents”, the secretariat of which is held by DIN.

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 June 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1540:2011.

The major technical changes between this document and the previous edition are as follows:

a) The given terminology has been re-adjusted, where appropriate, to ISO 18158:2016, which represents a modified ISO-adoption of EN 1540:2011.

b) The subdivision and order of the terms and definitions has partly been changed and simplified by deleting some subheadings.

c) The following terms and definitions (admitted terms given in italic) have been added:

1) General terms:

aerodynamic diameter, *aerodynamic equivalent diameter,* agglomerate, aggregate, *air sampling device,* appraiser, coagulation, *diffusive diameter*, *diffusive equivalent diameter*, dustiness mass fraction, *effective density*, equivalent density, *exposure by inhalation*, exposure profile, inhalation exposure, material density, median diameter, *median particle diameter*, microbial compound, *mobility diameter*, *mobility equivalent diameter*, nanomaterial, nano-object, nanoparticle, nanoscale, *particle aerodynamic equivalent diameter*, *particle diffusive diameter*, *particle diffusive equivalent diameter*, *particle material density*, particle mobility diameter, *particle mobility equivalent diameter*, particle number concentration, particle size, particle size distribution, *particle surface area*, similar exposure group, source domain, surface area, *ultrafine particle*, volume diameter, *volume equivalent diameter*

2) Terms related to the physical and chemical processes of workplace air sampling:

area sampling, *back pressure,* blank, *blank sample*, direct-reading instrument, flow-controlled pump, *method blank*, pressure drop, *real-time monitor*, *stationary sampler*, sampling cassette, vapour sampler

3) Terms related to the analytical method:
test gas

4) Terms related to method performance:
collection efficiency, *measurement bias*, *measurement precision, repeatability condition of measurement*, *reproducibility condition of measurement*, sampler bias, sampling bias

d) The term "thermodynamic diameter" is no longer used (see 3.1.2.12).

e) The term "efficiency curve" has been deleted as synonymous term for "sampling efficiency".

f) In Annex A, an additional column has been introduced for symbols commonly used.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies terms and definitions that are related to the assessment of workplace exposure to chemical and biological agents. These are either general terms or terms which are specific to physical and chemical processes of air sampling, the analytical method or method performance.

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.

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 https://www.iso.org/obp
- IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms

3.1.1 Agents and air pollutants

3.1.1.1
biological agent
bacteria, viruses, fungi and other micro-organisms or microbial compounds, including those which have been genetically modified, cell cultures and human endoparasites which can provoke hazardous effects

Note 1 to entry: Examples for hazardous effects are infections, allergies, poisoning and inflammations.

Note 2 to entry: Dusts of organic origin, for example pollen, flour dust and wood dust, are not considered to be biological agents and are therefore not covered by this definition.

3.1.1.2
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

[SOURCE: Council Directive 98/24/EC Art. 2(a)]

3.1.1.3
air pollutant
chemical or biological agent emitted into the atmosphere either by human activity or natural processes and adversely affecting humans or the environment

[SOURCE: ISO 18158:2016, 2.1.2.1, modified – "material" has been replaced with "chemical or biological agent".]

3.1.1.4
airborne dust
chemical and/or biological agent(s) in solid form, dispersed in air

3.1.1.5
airborne particle
chemical or biological agent in solid or liquid form, dispersed in air

[SOURCE: ISO 18158:2016, 2.1.2.3, modified – Singular form of term has been used and "fine matter" has been replaced with "chemical or biological agent".]

3.1.1.6
total airborne particles
all airborne particles present in a given volume of air

[SOURCE: ISO 18158:2016, 2.1.2.4, modified – "all" has been added.]

3.1.1.7
aerosol
airborne particles and the gas (and vapour) mixture in which they are suspended

Note 1 to entry: The airborne particles can be in or out of equilibrium with their own vapours.

[SOURCE: ISO 18158:2016, 2.1.4.1]

3.1.1.8
bioaerosol
biological agent(s) suspended in air

Note 1 to entry: Airborne dusts of organic origin, for example cotton dust, flour dust and wood dust, are not considered being bioaerosols and are therefore not covered by this definition.

[SOURCE: ISO 18158:2016, 2.1.4.2, modified – "aerosol consisting of (a)" has been deleted from the beginning of the definition and "suspended in air" has been added at the end of the definition.]

3.1.1.9
microbial compound
cell or cell wall component or metabolite of microbial origin

Note 1 to entry: Microbial compounds also include the chemical agents which are produced by microorganisms.

Note 2 to entry: Endotoxins, glucans, mycotoxins and enzymes are examples of microbial compounds. Microbial DNA is also included in this definition.

[SOURCE: EN 13098:2019, 3.17 modified – New Note 1 to entry has been added.]

3.1.1.10
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

3.1.2 Particles

3.1.2.1
health-related fractions
fractions of airborne particles penetrating to different regions of the respiratory tract

Note 1 to entry: The health-related fractions are the inhalable fraction, the thoracic fraction and the respirable fraction.