TÖÖKOHA SAASTE. NANO-OBJEKTIDE JA NENDE AGREGAATIDE JA AGLOMERAATIDE HINGAMISTEEDESSE SATTUMISE MÕÕTMINE

Workplace exposure - Assessment of exposure by inhalation of nano-objects and their aggregates and agglomerates

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 17058:2018 sisaldab Euroopa standardi EN 17058:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 17058:2018 consists of the English text of the European standard EN 17058:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 14.11.2018.	Date of Availability of the European standard is 14.11.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Workplace exposure - Assessment of exposure by inhalation of nano-objects and their aggregates and agglomerates

Exposition sur les lieux de travail - Évaluation de l'exposition par inhalation aux nano-objets et à leurs agrégats et agglomérats

Exposition am Arbeitsplatz - Beurteilung der inhalativen Exposition gegenüber Nanoobjekten und deren Aggregaten und Agglomeraten

This European Standard was approved by CEN on 25 June 2018.

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
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 17058:2018) 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 May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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 has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The rapidly advancing field of nanotechnologies and concern on its potential impact on occupational health and safety has initiated efforts by Standardization bodies to provide guidance how health and safety issues can be appropriately addressed. ISO has published a series of documents, which focus on various aspects of exposure and risk assessment and risk mitigation, for example, ISO/TR 12885 [1], ISO/TS 12901-1 [2], ISO/TS 12901-2 [3].

The present document focuses on the assessment of occupational exposure by inhalation of nano-objects and their aggregates and agglomerates (NOAA). In general the objectives of an exposure assessment can vary widely and can include exposure exploration and determination, evaluation of the effectiveness of exposure control measures, check for compliance with any occupational exposure limit or other benchmark level, and can contribute to risk assessment and epidemiological studies. The measurement strategy used for the assessment will depend amongst other factors on the objective of the assessment. ISO/TS 12901-1 for example, provides guidance for the measurement strategy for evaluation controls. No EU legal workplace exposure limits for NOAA are established at the time of the publication of this European Standard. However, existing non-nano OELs for many substances are in force and these are measured as prescribed in national regulations/EN 689. Therefore, this document concerns the elements of exposure assessment and provides guidance for various applications. In addition, CEN has published documents (EN 16897 [4], EN 16966) that provide guidance of the use of commonly used devices for detection of nano-sized and submicron-sized aerosols using different metrics in the workplace air.

1 Scope

This European Standard provides guidelines to assess workplace exposure by inhalation of nano-objects and their aggregates and agglomerates (NOAA). It contains guidance on the sampling and measurement strategies to adopt and methods for data evaluation.

While the focus of this document is on the assessment of nano-objects, the approach is also applicable for exposure to the associated aggregates and agglomerates, i.e. NOAA, and particles released from nanocomposites and nano-enabled products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1540, *Workplace exposure — Terminology*

EN 689:2018, *Workplace atmospheres — Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy*

EN 16966:2018, *Workplace exposure — Metrics to be used for the measurements of exposure to inhaled nanoparticles (nano-objects and nanostructured materials) such as mass concentration, number concentration and surface area concentration*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1540, EN 16966 and the following apply.

Note 1 to entry: With regard to EN 16966, in particular, the following terms are used in this document: agglomerate, aggregate, BET method, nanomaterial, nano-object, nanoscale, particle aerodynamic diameter, particle diffusive diameter, particle mobility diameter, particle and primary particle.

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

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

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

3.1
appraiser
person who is sufficiently trained and experienced in occupational hygiene principles, working and measurement techniques, to conduct the part of the assessment he or she is performing according to the state of the art

Note 1 to entry: The appraiser may be supported by a team of qualified persons.

[SOURCE: EN 689:2018, 3.1.1]

3.2
background measurement
background particle measurement
measurement of the particle concentration, at a location or a time not affected by the activity/process under investigation