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Vervangt NEN-EN 13098:1998 Ontw.

Nederlandse norm

NEN-EN 13098 (en)

Werkplekatmosfeer - Richtlijnen voor meting van micro-organismen en endotoxine in de lucht

Workplace atmosphere - Guidelines for measurement of airborne micro-organisms and endotoxin

ICS 13.040.30

oktober 2000

Als Nederlandse norm is aanvaard:
 - EN 13098:2000, EDT

Voorbeeld
 Preview

Normcommissie 390 146 "Luchtkwaliteit"

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Nederlands voorwoord

Voor de in deze norm vermelde normatieve verwijzingen bestaan in Nederland de volgende equivalenten:

<u>vermelde norm</u>	<u>Nederlandse norm</u>	<u>titel</u>
EN 481	NEN-EN 481	Werkplekatmosfeer - Definitie van de deeltjesgrootteverdeling voor het meten van de in de lucht zwevende deeltjes (en)
EN 482	NEN-EN 482	Werkplekatmosfeer - Algemene eisen voor de uitvoering van de procedures voor het meten van chemische stoffen (en,nl)
EN 689	NEN-EN 689	Werkplekatmosfeer - Leidraad voor de beoordeling van de blootstelling bij inademing van chemische stoffen voor de vergelijking met de grenswaarden en de meetstrategie (en,nl)
EN 1232	NEN-EN 1232	Werkplekatmosfeer - Pompen voor persoonlijke monsternemingsapparatuur voor chemische stoffen - Eisen en beproevingsmethoden (en)
prEN 12919 ISO 7218:1996	NEN-ISO 7218:1996	- Microbiologie van voedingsmiddelen en diervoeders - Algemene regels voor microbiologische onderzoeken (en)

Preview

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ICS 07.100.99; 13.040.30

English version



Workplace atmosphere - Guidelines for measurement of airborne micro-organisms and endotoxin

Atmosphères des lieux de travail - Règles pour le mesurage de micro-organismes et d'endotoxine en suspension dans l'air

Arbeitsplatzatmosphäre - Leitlinien für die Messung von Mikroorganismen und Endotoxin in der Luft

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Contents

	Page
Foreword	3
Introduction	4
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Symbols and abbreviations	7
5 Measurement of micro-organisms and endotoxin	7
6 Sampling	8
7 Analytical method	10
8 Expression of results	13
9 Report	13
Annex A (informative) Recommendations for selection of measurement methods	14
Annex B (informative) Example of sampling form	20
Annex C (informative) List of general media	21
Annex D (informative) Colony counting - Formula and examples	22
Bibliography	24

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 137 "Assessment of workplace exposure", 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 March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard has been prepared by Technical Committee CEN/TC 137 "Assessment of workplace exposure", the secretariat of which is held by DIN.

Annexes A, B, C and D are informative.

This standard includes a bibliography.

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Introduction

Assessing occupational exposure to airborne microbial contaminants in a representative way is a challenging task. It is necessary however that information can be gathered to evaluate and to minimise exposure to biological agents. The sampling equipment used often introduces its own critical limitations, as in the assessment of aerosol fractions. Some sampling equipment may be capable only of measuring culturable micro-organisms, while others allow the characterisation of both the total number of organisms and the culturable fraction. Analytical procedures may add further to the difficulties and the uncertainties, e.g. the method used may not allow the identification of the biological agents present, or may cause unwanted interference between different biological agents. However, by adhering to the principles outlined in this standard for choice of sampling and analytical procedures, these uncertainties can be reduced and controlled, allowing comparable and representative measurements to be made.

1 Scope

The European Standard provides guidelines for the assessment of workplace exposure to airborne micro-organisms including the determination of total number and culturable number of micro-organisms in the workplace atmosphere. The standard also provides methods for measurement of airborne endotoxin in the work environment.

The European Standard does not apply to viruses, specific pathogenic micro-organisms and toxins other than endotoxin, although some of the measurement principles may be the same.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications are listed hereafter. Dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 481, *Workplace atmospheres - Size fraction definitions for measurement of airborne particles*

EN 482, *Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents*

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

EN 1232, *Workplace atmospheres - Pumps for personal sampling of chemical agents - Requirements and test methods*

EN 12919, *Workplace atmospheres - Pumps for the sampling of chemical agents with a volume flow rate of over 5 l/min - Requirements and test methods*

ISO 7218, *Microbiology of food and animal feeding stuffs - General rules for microbiological examinations*

3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply:

3.1 actinomycetes

varied group of rod-shaped to filamentous Gram-positive bacteria.

NOTE Filamentous actinomycetes form a branching network of thin filaments called a mycelium. Most actinomycetes replicate by conidia-like spores which can easily be made airborne.

3.2 bacteria

large group of prokaryotic micro-organisms with one chromosome in a nuclear region and which replicate only asexually by cell division.

NOTE Different cell-wall chemistry is used for the classification of Gram-positive and Gram-negative bacteria. Morphological criteria divide into spheres (cocci) and rods. Some species produce endospores as survival units.

3.3 bioaerosol

airborne particles with biological origin

NOTE 1 In this standard, micro-organisms and endotoxin are considered.

NOTE 2 The majority of bioaerosol particles are complex as far as size, shape and constituent elements are concerned

3.4 biological preservation efficiency

the capacity of the sampler to maintain the viability of the airborne micro-organisms during collection and also to keep the microbial products intact.

3.5 colony forming unit

the unit by which the culturable number is expressed.

NOTE 1 One colony forming unit can originate from one single micro-organism, an aggregate of many micro-organisms or from one or many micro-organisms attached to one particle.

NOTE 2 The number of outgrown colonies may depend on cultivation conditions.

3.6 culturable number

the number of micro-organisms, single cells or aggregates able to form colonies on a solid nutrient medium.

NOTE The viable number (see 3.21) includes all potentially metabolic active micro-organisms. Some micro-organisms are viable but are not necessarily culturable

3.7 elevated level

a level above normal background level of micro-organisms in a specified environment.

3.8 endotoxin

a constituent of the external membrane of Gram-negative bacteria (lipopolysaccharide), consisting of a complex lipid, lipid A, which is covalently bound to a polysaccharide.

NOTE "Free endotoxin" is liberated after cell death and by budding from living cells. Lipid A is the active (toxic) part and is a potent pro-inflammatory substance and may induce febrile, bronchial and other symptoms in exposed workers. The composition and the toxicity of endotoxin differs between species.

3.9 endotoxin unit

a unit standardized against the defined reference material (Reference standard endotoxin).

3.10 exposure (by inhalation)

a situation in which a chemical or biological agent is present in air which is inhaled by a person (see EN 482).

3.11 filtration

collection of particles suspended in gas or liquid by flow through a porous medium.

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