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**WORKPLACE ATMOSPHERE - GUIDELINES
FOR MEASUREMENT OF AIRBORNE
MICRO-ORGANISMS AND ENDOTOXIN**

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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

This European Standard was approved by CEN on 17 August 2000.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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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of an identical text or by endorsement, at the latest by March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.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.

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.

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