

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

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12919:2000 sisaldab Euroopa standardi EN 12919:1999 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12919:2000 consists of the English text of the European standard EN 12919:1999.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard specifies the performance requirements for pumps used within the scope of measuring methods for the determination of the concentration of chemical agents in the workplace atmosphere. The pumps and air movers are mainly used for aerosol sampling. This standard is valid for pumps with a nominal volumetric flow rate within the range 5 l/min to 400 l/min.</p>	<p>Scope:</p> <p>This European Standard specifies the performance requirements for pumps used within the scope of measuring methods for the determination of the concentration of chemical agents in the workplace atmosphere. The pumps and air movers are mainly used for aerosol sampling. This standard is valid for pumps with a nominal volumetric flow rate within the range 5 l/min to 400 l/min.</p>
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ICS 13.040.30, 23.080

Võtmesõnad:

ICS 13.040.30; 23.080

English version

Workplace atmospheres

**Pumps for the sampling of chemical agents with a
volume flow rate of over 5 l/min**

Requirements and test methods

Atmosphères des lieux de travail –
Pompes pour l'échantillonnage
individuel des agents chimiques d'un
débit volumique supérieur 5 l/min –
Exigences et méthodes d'essai

Arbeitsplatzatmosphäre – Pumpen für
die Probenahme von chemischen
Stoffen mit einem Volumendurchfluß
über 5 l/min – Anforderungen und
Prüfverfahren

This European Standard was approved by CEN on 1999-07-24.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Contents

Foreword	2
Introduction	2
1 Scope	3
2 Normative references	3
3 Definitions	4
4 Requirements	4
5 General test conditions	7
6 Test methods	10
7 Test report	16
8 Marking	16
9 Charger (only for battery-powered pumps)	16
Annex A (informative) Test instruments	17

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 February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.

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.

Introduction

Many different methods are used to determine the concentration of chemical agents in the workplace atmosphere. In some of these methods the air, charged with the chemical agent, is aspirated by means of a pump and the chemical agents are collected by a sample medium (e.g. a filter). The sample is then transported to the laboratory and analyzed.

Such pumps require to meet special requirements. The flow rate in particular requires to remain constant during sampling, as its value is used in the calculation of the concentration of the agent together with the duration of sampling and the analyzed mass of the agent.

Requirements and test procedures for pumps which are attached to a person during the period of sampling and which have a volume flow rate in the region of 5 ml/min to 5 l/min are laid down in EN 1232. This standard deals with pumps with a volume flow rate above 5 l/min.

Pumps with a volume flow rate above 5 l/min are mainly used in a stationary position to evaluate the effectiveness of engineering controls or for trouble shooting. They can also be used for personal sampling.

1 Scope

This European Standard specifies the performance requirements for pumps used within the scope of measuring methods for the determination of the concentration of chemical agents in the workplace atmosphere. The pumps considered in this standard are mainly used for aerosol sampling. This standard is valid for pumps with a nominal volumetric flow rate within the range 5 l/min to 400 l/min.

This standard applies to electrically driven pumps and also to air movers, which induce air flow with the aid of another mechanism, such as pressure drop across a critical nozzle.

The standard applies to pumps which

- are attached to a person and connected to the sampler by means of tubing during sampling;
- are stationary and which are connected to the sampler by means of tubing during sampling;
- are built-in into sampling apparatus which is either attached to a person or is operated in a stationary position.

This standard applies to pumps whose nominal volumetric flow rate can be kept constant by an automatic controller if the flow resistance changes during sampling. The control range shall be specified by the manufacturer.

This standard also applies to pumps which are operated at a constant nominal volumetric flowrate, since working at a constant flow resistance pressure drop during sampling (e.g. pumps with rotating cups).

For pumps which are attached to a person during sampling ergonomic requirements like maximum mass should be taken into account. These requirements are not specified in this standard in detail, but should be considered by the manufacturer when constructing a pump.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For 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.

EN 141:1990, *Respiratory protective devices – Gas filters and combined filters – Requirements, testing, marking*

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

EN 45001:1989, *General criteria for the operation of testing laboratories*

EN 50014, *Electrical apparatus for potentially explosive atmospheres – General requirements*

EN 50081-1, *Electromagnetic compatibility – Generic emission standard – Part 1: Residential, commercial and light industry*

EN 50082-1, *Electromagnetic compatibility – Generic immunity standard – Part 1: Residential, commercial and light industry*

EN 60068-2-31:1993, *Basic environmental test procedures – Part 2: Tests – Test Ec: Drop and topple, primarily for equipment-type specimens (IEC 60068-2-31 : 1969 + A1 : 1982)*