

**Masinate ohutus. Õhu kaudu levivate  
ohtlike ainete emissiooni hindamine.  
Osa 7: Massi järgi eraldamise  
efektiivsus, jaotuskanaliteta  
väljumisava**

Safety of machinery - Evaluation of the emission of  
airborne hazardous substances - Part 7: Separation  
efficiency by mass, ducted outlet

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>Käesolev Eesti standard EVS-EN 1093-7:1999 sisaldab Euroopa standardi EN 1093-7:1998 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 1093-7:1999 consists of the English text of the European standard EN 1093-7:1998.</p> <p>This document is endorsed on 23.11.1999 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><b>Käsitlusala:</b></p> <p>Käesolev Euroopa standard määrab kindlaks katseseadmemeetodi massi järgi eraldamise efektiivsuse mõõtmiseks õhupuhasustussüsteemide korral, mis töötavad ettemääratud tingimustel. Meetodit rakendatakse selliste süsteemide korral, mis puhastavad õhku aerosoolidest (tahmast, tolmust, suitsust, udust), aurust või gaasist ning millel on kindlaksmääratud suurusega õhu sisenemis- ja väljumisava ja neid on võimalik ühendada mõõtekanalitega.</p> | <p><b>Scope:</b></p> |
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ICS 13.040.40, 23.120

**Võtmesõnad:** efektiivsus, emissioon, eraldamismeetodid, gaasipuhastusseadmed, mõõtmine, ohtlikud ained, seadmete ohutus, tolmutõrjed, õhu saastumine, õhupuhasustusseadmed

**Hinnagrupp** D

ICS 13.040.40; 23.120

Descriptors: Emission, hazardous substances, separation efficiency.

**English version**

Safety of machinery

**Evaluation of the emission of airborne  
hazardous substances**

**Part 7: Separation efficiency by mass, ducted outlet**

Sécurité des machines – Evaluation de  
l'émission de substances dangereuses  
véhiculées par l'air – Partie 7: Efficacité  
massique de séparation, sortie  
raccordée

Sicherheit von Maschinen – Bewertung  
der Emission von luftgetragenen  
Gefahrstoffen – Teil 7: Masse-  
abscheidegrad, definierter Auslaß

This European Standard was approved by CEN on 1998-09-04.

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.

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**CEN**

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 114 "Safety of machinery", 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 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

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.

## 0 Introduction

This European Standard is a type B standard as stated in ENV 1070 : 1993.

This European standard is a part of EN 1093. Part 1 of this standard presents a selection of different methods for the evaluation of the emission of airborne hazardous substances from machines.

## 1 Scope

This European Standard specifies a test rig method for the measurement of the separation efficiency by mass of air cleaning systems, operating under defined conditions. The method shall apply to systems that clean air of aerosols (smoke, dust, fume, mist), vapour or gas with defined air inlet and air outlet which can be connected to measurement ducts.

Measurement of the separation efficiency by mass of an air cleaning system for an intended use can serve for the:

- a) evaluation of the performance of an air cleaning system;
- b) evaluation of the improvement of the air cleaning system;
- c) comparison of air cleaning systems;
- d) ranking of air cleaning systems according to their separation efficiency by mass;
- e) determination of the state of the art of air cleaning systems of the same intended use with respect to their separation efficiency by mass.

## 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 292-1 : 1991    | Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology                        |
| EN 292-2 : 1991    | Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications               |
| EN 292-2/A1 : 1995 | Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications; Amendment A1 |
| ENV 1070 : 1993    | Safety of machinery - Terminology                                                                                                   |
| EN 1093-1          | Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 1: Selection of test methods               |

## 3 Definitions

For the purposes of this European Standard the definitions of ENV 1070 : 1993 and the following definition applies:

**separation efficiency by mass  $\eta_s$ :** The separation efficiency of an air cleaning system for a specified pollutant is the ratio of the mass of pollutant retained by the air cleaning system ( $m_3$ ) to the mass of pollutant entering the air cleaning system ( $m_1$ ) during a given period .

The separation efficiency of air cleaning systems in percentage is expressed as follows:

$$\eta_s = \frac{m_3}{m_1} \cdot 100 \quad \dots (1)$$

## 4 Principle

The principle of the measurement method is to operate the air cleaning system under defined conditions and to determine the mass of the test substance in the air upstream and downstream of the air cleaning system.

NOTE: The test substance, which may be the real pollutant or a surrogate, should preferably be of low toxicity and compatible with the objectives of the method.