Masinate ohutus. Õhu kaudu levivate kahjulike ainete emissiooni hindamine. Osa 3: Määratud saasteaine emissiooni intensiivsus. Katsestendi meetod reaalse saasteaine kasutamisega

Safety of machinery - Evaluation of the emission of airborne hazardoussubstances - Part 3: Emission rate of a specified pollutant - Bench test method using the real pollutant

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1093-3:1999 sisaldab Euroopa standardi EN 1093-3:1996 ingliskeelset teksti. Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1093-3:1999 consists of the English text of the European standard EN 1093-3:1996. This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: Standard kirjeldab katsestendi meetodit seadmetest lähtuva, õhu kaudu leviva määratud kahjuliku aine emissiooni määra mõõtmiseks, kasutades katsestendi seadme piiritletud töötingimustes. Standard ei määra ära sissehingatavaid osakesi sisaldava õhu kiiruse väärtust.	**Scope:**

ICS 13.040.40

Võtmesõnad: emissioon, gaasilised saasteained, katsestendid, mõõtmine, määrad ajaühikus, ohtlikud materjalid, seadmete ohutus, õhu saastumine, õnnetuse vältimine

Hinnagrupp C

EUROPEAN STANDARD
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EN 1093-3

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Descriptors: Hazardous substances, emission, machinery, safety.

English version

Safety of machinery

Evaluation of the emission of airborne hazardous substances

Part 3: Emission rate of a specified pollutant
Bench test method using the real pollutant

Sécurité des machines; évaluation de l'émission de substances dangereuses véhiculées par l'air. Partie 3: Débit d'émission d'un polluant donné; méthode sur banc d'essai utilisant le polluant réel

Sicherheit von Maschinen; Bewertung der Emission von luftgetragenen Gefahrstoffen. Teil 3: Emissionsrate eines festgelegten luftverunreinigenden Stoffes; Prüfstandverfahren unter Verwendung des realen luftverunreinigenden Stoffes

This European Standard was approved by CEN on 1996-02-10.

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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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

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Ref. No. EN 1093-3:1996 E

Contents

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 September 1996, and conflicting standards shall be withdrawn at the latest by September 1996.

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).

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

1 Scope

This standard describes a bench test method for the measurement of the emission rate of a specified airborne hazardous substance from machines using a test rig under specified operating conditions of the machine.

This standard does not specify any value for the air velocity of the inhalable particles [1]).

The measurement of the emission rates of a specified pollutant emitted from machines can serve for:

a) the evaluation of the performance of a machine;

b) the evaluation of the improvement of the machine;

c) the comparison of machines within groups of machines with the same intended use (groups are defined by the function and materials processed);

d) the ranking of machines from the same group according to their emission rates;

e) the determination of the state of the art of machines with respect to their emission rates.

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.

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[1]) The terms "inhalable" and "respirable" are defined in EN 481.

EN 292-1 Safety of machinery - Basic concepts - General principles for design - Part 1: Basic terminology, methodology

EN 292-2 Safety of machinery - Basic concepts - General principles for design - Part 2 : Technical principles and specifications

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

3 Definitions

For the purpose of this European Standard the following definitions apply:

3.1 uncontrolled emission rate of a specified pollutant $\dot{m}_u$: Mass of pollutant emitted from the machine into the space around the machine per unit of time. Any measures to reduce the air pollution around the machine (e. g. capture devices, containment equipment, wetting process) are not in use or activated.

3.2 controlled emission rate of a specified pollutant $\dot{m}_k$: Mass of pollutant emitted from the machine into the space around the machine per unit of time, taking into account the effects of measures to reduce the air pollution.

4 Principle

The principle of the measurement method is to operate machines under controlled conditions under a uniform air flow in a test rig and to collect a representative part of the airborne emissions in that air flow.

5 Description of the test rig

The test rig consists generally of a cabin with a funnel and a duct, of rectangular or circular cross section followed by a fan (see figure 1). It is the responsibility of the type C standard committees to select parameters within the ranges given in figure 1.

The fan produces an air flow in the test cabin from the inlet towards the funnel. The cabin should be equipped with a permeable inlet (e. g. macroporous filter material, perforated plastic foil or plate) in order to obtain a uniform air flow across the inlet.

The selected average air velocity, $\dot{u}$, in the cabin between the source and the funnel (see figure 1) is determined by the air volume flow rate, Q, in the duct. The system requires controls to ensure that a constant flow rate is maintained during a test. This air flow rate does not include the air flow rate caused by the operation of the capture device (where used) of the machine under test. The cross section of the cabin (form and dimensions) is chosen according to the size of the test object. The maximum cross sectional area of the test object shall not exceed a fifth of the cross sectional area of the cabin, A_c.

The cabin shall be long enough to accommodate the machine and the operator with the emission sources as close as practicable to the location specified in figure 1.