

**Masinate ohutus. Õhu kaudu levivate kahjulike
ainete emissiooni hindamine. Osa 4:
Väljalaskesüsteemi efektiivse mõju ulatus.
Isotoopindikaatorite meetod KONSOLIDEERITUD
TEKST**

Safety of machinery - Evaluation of the emission of
airborne hazardous substances - Part 4: Capture
efficiency of an exhaust system - Tracer method
CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1093-4:1999+A1:2008 sisaldab Euroopa standardi EN 1093-4:1996+A1:2008 ingliskeelset teksti.

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Võtmesõnad: efektiivsus, emissioon, gaasilised saasteained, isotoopindikaatori meetod, kontsentratsioon, mõõtmine, ohtlikud materjalid, seadmete ohutus, väljalaskesüsteemid, õhu saastumine, õnnetuse vältimine

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Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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English Version

**Safety of machinery - Evaluation of the emission of airborne
hazardous substances - Part 4: Capture efficiency of an exhaust
system - Tracer method**

Sécurité des machines - Évaluation de l'émission de
substances dangereuses véhiculées par l'air - Partie 4 :
Efficacité de captage d'un système d'aspiration - Méthode
par traçage

Sicherheit von Maschinen - Bewertung der Emission von
luftgetragenen Gefahrstoffen - Teil 4: Erfassungsgrad eines
Absaugsystems - Tracerverfahren

This European Standard was approved by CEN on 10 February 1996 and includes Amendment 1 approved by CEN on 14 May 2008.

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 1093-4:1996+A1:2008) 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of an identical text or by endorsement, at the latest by December 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

This document includes Amendment 1, approved by CEN on 2008-05-14.

This document supersedes EN 1093-4:1996.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

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).

A1 For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. **A1**

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

1 Scope

This standard describes a method for the measurement of the capture efficiency of an exhaust system installed on a machine. This method is based on a tracer technique and may be operated in all types of test environment (bench, room and field, see ENV 1093-1).

This technique is applicable only if the tracer shows aerodynamic behaviour comparable with the real pollutant (see 7.1.1).

The measurement of the capture efficiency of an exhaust system can serve for:

- a) The evaluation of the performance of an exhaust system of a machine;
- b) The evaluation of the improvement of an exhaust system
- c) The comparison of exhaust systems for machines of similar design;
- d) The ranking of exhaust systems according to their capture efficiency;
- e) The determination of the air flow rate of an exhaust system to achieve a given level of capture efficiency;
- f) The determination of the state of the art of exhaust systems for machines with respect to the capture efficiency,

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, *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.*

ENV 1093-1, *Safety of machinery – Evaluation of the emission of airborne hazardous substances – Part 1: Selection of test methods.*

ISO 4053-1, *Measurement of gas flow in conduits – Tracer methods – Part 1: General.*

3 Terms and definitions

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

3.1
capture efficiency of an exhaust system η_c
the ratio of the mass-flowrate of a specified pollutant directly collected by the exhaust system to the uncontrolled mass-flowrate of this pollutant emitted from the machine