

Fume cupboards - Part 4: On-site test methods

Fume cupboards - Part 4: On-site test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

| | |
|--|---|
| <p>Käesolev Eesti standard EVS-EN 14175-4:2004 sisaldab Euroopa standardi EN 14175-4:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.12.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 14175-4:2004 consists of the English text of the European standard EN 14175-4:2004.</p> <p>This document is endorsed on 21.12.2004 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> |
|--|---|

| | |
|--|--|
| <p>Käsitlusala:</p> <p>This Part 4 of the European Standard specifies a selection of on-site test methods for the following fume cupboards: - Fume cupboards designed in accordance with Part 2 of this European Standard and type tested in accordance with Part 3 of this European Standard</p> | <p>Scope:</p> <p>This Part 4 of the European Standard specifies a selection of on-site test methods for the following fume cupboards: - Fume cupboards designed in accordance with Part 2 of this European Standard and type tested in accordance with Part 3 of this European Standard</p> |
|--|--|

ICS 71.040.10

Võtmesõnad:

ICS 71.040.10

English version

Fume cupboards - Part 4: On-site test methods

Sorbonnes - Partie 4: Méthodes d'essai sur site

Abzüge - Teil 4: Vor-Ort Prüfverfahren

This European Standard was approved by CEN on 22 July 2004.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

| | Page |
|--|------|
| Foreword..... | 4 |
| 1 Scope | 5 |
| 2 Normative references | 5 |
| 3 Terms and definitions | 5 |
| 4 General on-site test conditions | 5 |
| 5 Commissioning testing of type tested fume cupboards | 6 |
| 5.1 Scope and purpose..... | 6 |
| 5.2 Inspections | 6 |
| 5.3 Manufacturer's declarations or type test certification | 6 |
| 5.4 Face velocity test | 7 |
| 5.4.1 Objectives | 7 |
| 5.4.2 Test equipment and probe positions | 7 |
| 5.4.3 Test procedure and test results | 7 |
| 5.4.4 Test report | 7 |
| 5.5 Extract volume flow rate test | 7 |
| 5.5.1 Objectives | 7 |
| 5.5.2 Average face velocity method | 7 |
| 5.5.3 Calibrated pressure difference method | 8 |
| 5.6 Pressure drop test | 8 |
| 5.6.1 Objectives | 8 |
| 5.6.2 Test equipment and test procedure | 8 |
| 5.6.3 Expression of results | 8 |
| 5.7 Air flow visualization | 8 |
| 5.7.1 Objectives | 8 |
| 5.7.2 Test procedure | 9 |
| 5.7.3 Expression of results | 9 |
| 5.8 Room air velocity test | 9 |
| 5.8.1 Objectives | 9 |
| 5.8.2 Test equipment | 9 |
| 5.8.3 Probe positions | 9 |
| 5.8.4 Test procedure and test results | 9 |
| 5.9 Alarm system test | 9 |
| 5.9.1 Alarm by overriding the vertical sash stop | 9 |
| 5.9.2 Air flow indicator | 9 |
| 5.10 Containment test | 10 |
| 5.10.1 Objectives | 10 |
| 5.10.2 Test equipment, test procedure and data analysis | 10 |
| 5.10.3 Test report | 10 |
| 5.11 Sound pressure measurement | 10 |
| 5.11.1 Objectives | 10 |
| 5.11.2 Test procedure | 10 |
| 5.11.3 Test report | 10 |
| 6 Routine testing of type tested fume cupboards | 10 |
| 6.1 Scope and purpose..... | 10 |
| 6.2 Face velocity test | 11 |
| 6.2.1 Objectives | 11 |
| 6.2.2 Test equipment and test procedure | 11 |
| 6.2.3 Test report | 11 |
| 6.3 Extract volume flow rate test | 11 |
| 6.3.1 Objectives | 11 |
| 6.3.2 Sequential average face velocity test | 11 |

| | | |
|------|--|----|
| 6.4 | Pressure drop test | 12 |
| 6.5 | Air flow visualization | 12 |
| 6.6 | Alarm system test..... | 12 |
| 6.7 | Inspections | 12 |
| 7 | Qualification testing of non type tested fume cupboards | 12 |
| 7.1 | Scope and purpose | 12 |
| 7.2 | Inspections | 12 |
| 7.3 | Manufacturer's declarations | 12 |
| 7.4 | Face velocity test | 12 |
| 7.5 | Extract volume flow rate test..... | 12 |
| 7.6 | Pressure drop test | 12 |
| 7.7 | Air flow visualization | 12 |
| 7.8 | Room air velocity test | 13 |
| 7.9 | Alarm system test..... | 13 |
| 7.10 | Containment test | 13 |
| 7.11 | Robustness of containment | 13 |
| 7.12 | Air exchange efficiency..... | 13 |
| 7.13 | Sound pressure measurement..... | 13 |
| 7.14 | Illuminance test..... | 13 |
| 8 | Routine testing of qualified fume cupboards | 13 |
| 9 | On-site test reports..... | 13 |
| 9.1 | Test report for commissioning testing of type tested fume cupboards (see Clause 5)..... | 13 |
| 9.2 | Test report for routine testing of type tested fume cupboards (see Clause 6)..... | 14 |
| 9.3 | Test report for qualification testing of non type tested fume cupboards (see Clause 7) | 14 |
| 9.4 | Test report for routine testing of qualified fume cupboards (see Clause 8)..... | 14 |

Foreword

This document (EN 14175-4:2004) has been prepared by Technical Committee CEN/TC 332 "Laboratory equipment", 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 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

The tests established in this standard should be carried out by trained personnel.

This European Standard EN 14175 consists of the following parts, under the general title *Fume cupboards*

- Part 1: Vocabulary
- Part 2: Safety and performance requirements
- Part 3: Type test methods
- Part 4: On-site test methods
- Part 5: Recommendations for installation and maintenance (in preparation)
- Part 6: Variable air volume fume cupboards (in preparation)

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

1 Scope

This document specifies a selection of on-site test methods for the following general purpose fume cupboards:

- Fume cupboards designed in accordance with Part 2 of this European Standard and type tested in accordance with Part 3 of this European Standard.
- Fume cupboards designed in accordance with Part 2 of this European Standard and not type tested.

The test methods are designed to be used at the place of installation of the fume cupboard, usually a laboratory. They are used for commissioning after installation, for maintenance and for qualification purposes. For certain customer requirements additional or modified test methods may be necessary.

It is in the responsibility of the purchaser or user of a fume cupboard to decide which tests are to be performed. The commissioning testing can be selected and carried out from the type test methods. For routine testing, the number of test methods selected can be further reduced.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 14175-1:2003, *Fume cupboards – Part 1: Vocabulary*.

EN 14175-2:2003, *Fume cupboards – Part 2: Safety and performance requirements*.

EN 14175-3:2003, *Fume cupboards – Part 3: Type test methods*.

EN 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications (IEC 61672-1:2002)*.

EN ISO 11202, *Acoustics – Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions – Survey method in situ (ISO 11202:1995)*.

ISO 5221, *Air distribution and air diffusion -- Rules to methods of measuring air flow rate in an air handling duct*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14175-1:2003 and EN 14175-3:2003 apply.

NOTE Attention is drawn to EN 14175-3 where some definitions given in EN 14175-1 have been modified.

4 General on-site test conditions

Windows and doors of the room shall remain closed during measurements. There shall be no unnecessary obstructions or equipment in neighbourhood of the fume cupboard under test.

The general and the specific test conditions during all on-site tests, including make-up air sources and all extract air openings, shall be carefully considered and documented in the on-site test report according to Clause 9.