

Fume cupboards - Part 8: Fume cupboards for work with radioactive materials

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EUROPEAN STANDARD

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English Version

## Fume cupboards - Part 8: Fume cupboards for work with radioactive materials

Sorbonnes - Partie 8 : Sorbonnes pour matières radioactives

Abzüge - Teil 8: Abzüge für Arbeiten mit radioaktiven Substanzen

This European Standard was approved by CEN on 29 May 2022.

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<b>Contents</b>	<b>Page</b>
European foreword .....	3
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Dimensions .....	7
5 Basic safety and performance objectives .....	7
6 Materials .....	8
6.1 General requirements .....	8
6.2 Protective barrier .....	8
6.3 Sash .....	9
7 Safety requirements .....	9
7.1 General requirements .....	9
7.2 Construction .....	9
7.2.1 General .....	9
7.2.2 Workspace .....	9
7.2.3 Work surface .....	10
7.2.4 Base .....	11
7.2.5 Side walls .....	11
7.2.6 Protective barrier .....	12
7.2.7 Sash .....	12
7.2.8 Abatement system .....	12
8 Test methods .....	12
8.1 Type testing and onsite testing .....	12
8.2 Exhaust/extract air abatement system .....	14
8.3 Variable air volume control .....	14
9 Type test performance requirements .....	14
10 Services .....	14
10.1 General .....	14
10.2 Drainage .....	15
10.3 Liquids/water/cooling water .....	15
10.4 Electric sockets .....	15
11 User manual .....	15
12 Marking and labelling .....	15
13 Declaration of conformity .....	16
Bibliography .....	17

## European foreword

This document (EN 14175-8:2022) 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of an identical text or by endorsement, at the latest by January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

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## Introduction

Before using radioactive materials, a safety (risk) assessment is performed with reference to legislation and advice from radiation protection experts.

The maximum amount of activity allowed for every activity with radioactive material is evaluated in accordance to the three principles of radiological protection, namely justification, optimization, and the application of dose limits, clarifying how they apply to radiation sources delivering exposure and to individuals receiving exposure. Shielding or abatement system when appropriate are also evaluated.

There are three kinds of dose in radiological protection. Absorbed dose is a measurable, physical quantity, while equivalent dose and effective dose are specifically for radiological protection purposes. Dose is used in this document as defined in IAEA Glossary 2018.

Attention is drawn to the publication IAEA SAFETY STANDARDS SERIES, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements Part 3 (No. GSR Part 3).

## 1 Scope

This document specifies the characteristics of fume cupboards, as defined in EN 14175-1, for work with unsealed radioactive materials with specific requirements regarding radiation protection. It does not apply to fume cupboards, glove boxes or hot cells (shielded radiation containment cells which can incorporate fume extraction).

The purpose of this document is to set out rules for the design and testing of fume cupboards for work with unsealed radioactive materials, in order to provide guidelines for the manufacturer, planner, installer, operator, assessor and the authorities.

This document only covers bench type fume cupboards.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13150, *Workbenches for laboratories in educational institutions - Dimensions, safety and durability requirements and test methods*

EN 14056, *Laboratory furniture - Recommendations for design and installation*

EN 14175-1, *Fume cupboards - Part 1: Vocabulary*

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

EN 14175-3:2019, *Fume cupboards - Part 3: Type test methods*

EN 14175-4, *Fume cupboards - Part 4: On-site test methods*

EN 14175-6, *Fume cupboards - Part 6: Variable air volume fume cupboards*

ISO 16170:2016, *In situ test methods for high efficiency filter systems in industrial facilities*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14175-1, EN 14175-2:2003, EN 14175-3:2019, EN 14175-4, EN 14175-6 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

### 3.1

#### **abatement system**

equipment dedicated to the removal or reduction of pollutants from releases from installation to air or liquid

Note 1 to entry: Examples for abatement systems are filters, scrubbers or holding tanks.