Australian/New Zealand Standard[™]

Safety in laboratories

Part 8: Fume cupboards





AS/NZS 2243.8:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CH-026, Safety in Laboratories. It was approved on behalf of the Council of Standards Australia on 6 April 2006 and on behalf of the Council of Standards New Zealand on 13 April 2006. This Standard was published on 26 April 2006.

The following are represented on Committee CH-026:

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Part 8: Fume cupboards

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PREFACE

This Standard was prepared by Subcommittee CH-026-08, Fume Cupboards, on behalf of the Joint Standards Australia/Standards New Zealand Committee CH-026, Safety in Laboratories, to supersede AS/NZS 2243.8:2001.

The objective of this Standard is to provide requirements for fume cupboards relating to their safety and performance, along with recommendations and procedures for their selection, installation, testing and use.

The majority of changes from the previous edition have been made to clarify requirements concerning the operation of isolators, the fire isolation of exhaust ducts, the use of exhaust filters and the test methods. Requirements concerning double-sided fume cupboards have changed so one sash needs to be fully closed at all times. Text concerning the siting of fume cupboards has been modified with some distances changed and some distances that were recommendations in the previous edition are now required minimum separations to prevent containment problems.

Attention is drawn to the last paragraph of the Foreword concerning upgrading of existing fume cupboards to comply with this Standard following their assessment for risk and implementation of interim control measures, if necessary, depending on the time frame decided for the upgrading program.

This Standard is Part 8 in a series aimed at promoting safety in laboratories.

The series is as follows:

- Part 1: Planning and operational aspects
- Part 2: Chemical aspects
- Part 3: Microbiological aspects and containment facilities
- Part 4: Ionizing radiations
- Part 5: Non-ionizing radiations—Electromagnetic, sound and ultrasound
- Part 6: Mechanical aspects
- Part 7: Electrical aspects
- Part 8: Fume cupboards (this Standard)
- Part 9: Recirculating fume cabinets
- Part 10: Storage of chemicals

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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FOREWORD

The primary reason for using a fume cupboard is to provide safe working conditions for the operator and other laboratory personnel. The fume cupboard provides a mechanical means of capturing, diluting and exhausting all fume, especially that which is hazardous or noxious.

The efficiency and safety of a fume cupboard depends upon the smooth entry of air, effective containment and scavenging of fume from the chamber, its siting with respect to air movement and laboratory ventilation, the materials used in its construction, the complete fume exhaust system, its controls and, if fitted, cleaning system (e.g. scrubbers and filters) and the safe and remote dispersal of fumes to the atmosphere.

Existing fume cupboard installations will, in many instances, not comply with this Standard and consequently should not be used for applications that could create a hazard. In the interests of laboratory safety, a high priority should be allocated to the preparation of a program for upgrading sub-standard fume cupboard installations to meet the requirements of this Standard. Fully ducted fume cupboards that do not comply with this Standard should be replaced or upgraded to the required levels as soon as practicable.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard Safety in laboratories

Part 8: Fume cupboards

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies safety requirements for fume cupboards and methods of test to be used to determine their performance. Appendix A provides the method for conducting a smoke test for a fume cupboard and Appendix B provides the method for determining face velocity. Appendix C describes typical materials used in the construction of fume cupboards and includes recommendations and requirements on material suitability.

Fume cupboards covered by this Standard are intended primarily for use in general chemical operations but may be used for the special applications set out in Appendix D, provided that the additional relevant features described therein are incorporated.

Recirculating fume cabinets (which recirculate air and do not extract to the outside atmosphere) are not included in this Standard (see AS/NZS 2243.9).

NOTE: Appendix E provides recommendations for the procurement of a fume cupboard. Appendix F provides an example checklist and report form for compliance testing and Appendix G lists documents relating to the subject of this Standard.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1444	Wrought alloy steels—Standard, hardenability (H) series and hardened and tempered to designated mechanical properties	
1668 1668.2	The use of ventilation and airconditioning in buildings Part 2: Ventilation design for indoor air contaminant control	
1807	Cleanrooms, workstations, safety cabinets and pharmaceutical isolators-Methods of test	
1807.15	Part 15: Determination of illuminance	
1807.20	Part 20: Determination of sound level at installed workstations, safety cabinets and pharmaceutical isolators	
1826	Electrical equipment for explosive atmospheres—Special protection—Type of protection s	
1940	The storage and handling of flammable and combustible liquids	
2243	Safety in laboratories	
2243.4	Part 4: Ionizing radiations	
2243.7	Part 7: Electrical aspects	
2444	Portable fire extinguishers and fire blankets-Selection and location	



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