

Australian/New Zealand Standard™

Safety in laboratories

Part 8: Fume cupboards



S t a n d a r d s Australia



STANDARDS

NEW ZEALAND
Pūnaha Te Wharekōwhiri

AS/NZS 2243.8:2001

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Australian/New Zealand Standard™

Safety in laboratories

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 2243.8—1992 and NZS 7203:1992.

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 emergency isolators, the test methods and what needs to be checked before a fume cupboard can be said to comply with the Standard. The smoke test method has been tightened significantly with respect to the method for smoke generation. The Standard has also been modified to remove the recommended maximum volume of flammable liquid permitted in the fume cupboard at any one time. This has been replaced with a risk assessment process covering all liquids.

Attention is drawn to the last paragraph of the Foreword concerning upgrading of existing fume cupboards to comply with this Standard. Existing equipment should be assessed for risk and interim control measures implemented, 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: General
- Part 2: Chemical aspects
- Part 3: Microbiology
- Part 4: Ionizing radiations
- Part 5: Non-ionizing radiations
- 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, 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.

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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 the methods of test to be used to determine their performance. Appendix A 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 B, 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 2243.9).

NOTE: Appendix C lists documents relating to the subject of this Standard. Appendix D provides recommendations for the procurement of a fume cupboard.

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
1469	Acoustics—Methods for the determination of noise rating numbers
1668	The use of mechanical ventilation and air-conditioning in buildings
1668.2	Part 2: Mechanical ventilation for acceptable indoor-air quality
1682	Fire dampers (series)
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