

AS 2243.2:2021



Safety in laboratories

Part 2: Chemical aspects and storage



AS 2243.2:2021

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- Association of Biosafety for Australia and New Zealand
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute of Health and Safety
- Australian Institute of Occupational Hygienists
- Bureau of Steel Manufacturers of Australia
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- National Measurement Institute
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- Victorian WorkCover Authority (WorkSafe Victoria)

Additional Interests

- Environmental Science and Research New Zealand
- Ministry for Primary Industries (NZ)
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Part 2: Chemical aspects and storage

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Preface

This Standard was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee CH-026, Safety in Laboratories, to supersede AS/NZS 2243.2:2006, *Safety in laboratories, Part 2: Chemical aspects*, and AS/NZS 2243.10:2004, *Safety in laboratories, Part 10: Storage of chemicals*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this document as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this document is to provide information, recommendations and procedures involving the use and storage of chemicals to promote safe work practices in laboratories.

Major changes in this edition are as follows:

- (a) Incorporates chemical storage content from AS/NZS 2243.10, which has been withdrawn.
- (b) Addition of new clauses on nanotechnology.
- (c) Addition of new Appendices on nanomaterials and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

The Standard is Part 2 of an 8-part series designed to promote safety in laboratory operations, and is aimed at specific aspects of chemical safety common to laboratories.

The series comprises the following:

AS 2243.1, *Safety in laboratories, Part 1: Planning and operational aspects*

AS 2243.2, *Safety in laboratories, Part 3: Chemical aspects and storage* (this Standard)

AS/NZS 2243.3, *Safety in laboratories, Part 3: Microbiological safety and containment*

AS/NZS 2243.4, *Safety in laboratories, Part 4: Ionizing radiations*

AS/NZS 2243.5, *Safety in laboratories, Part 5: Non-ionizing radiations — Electromagnetic, sound and ultrasound*

AS/NZS 2243.6, *Safety in laboratories, Part 6: Plant and equipment aspects*

AS/NZS 2243.8, *Safety in laboratories, Part 8: Fume cupboards*

AS/NZS 2243.9, *Safety in laboratories, Part 9: Recirculating fume cabinets*

It is recommended that Part 1 be used in conjunction with this Part, and that additional Parts be obtained where applicable to the type of operations carried out in the particular laboratory.

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The terms “normative” and “informative” are used in Standards 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.

Contents

Preface	ii
Introduction	viii
Section 1 Scope and general	1
1.1 Scope.....	1
1.2 Application.....	1
1.3 Normative references.....	2
1.4 Terms, definitions and abbreviations.....	3
Section 2 Planning for chemical safety	10
Section 3 Chemical safety management	11
3.1 General.....	11
3.2 Management system components.....	11
3.2.1 General.....	11
3.2.2 Safety information.....	11
3.2.3 Security.....	11
3.2.4 Storage and handling of chemicals.....	12
3.2.5 Maintenance of laboratory services and cleaning of laboratories.....	12
3.2.6 Health monitoring.....	12
3.2.7 Safety equipment.....	13
3.2.8 Laboratory chemical wastes.....	13
3.3 Chemical safety practices.....	14
3.3.1 Principles of protection.....	14
3.3.2 Environmental considerations.....	15
3.3.3 Housekeeping.....	16
3.4 Spill management.....	17
3.4.1 General.....	17
3.4.2 Planning.....	
3.4.3 Spills inside fume cupboards.....	17
3.4.4 Spills outside fume cupboards.....	18
3.5 Fire, emergency and rescue procedures.....	18
Section 4 Safe use of chemical substances	19
4.1 General.....	19
4.2 Chemical hazards.....	19
4.3 Gases.....	19
4.3.1 General.....	19
4.3.2 Handling of gases, compressed or liquefied (other than cryogenic liquids).....	20
4.3.3 Handling of cryogenic fluids.....	21
4.4 Flammable chemicals.....	21
4.4.1 General.....	21
4.4.2 Precautions for highly flammable liquids.....	22
4.4.3 Special sources of danger.....	22
4.4.4 Precautions for Class 4 substances (dangerous solids).....	23
4.5 Toxic chemicals.....	24
4.5.1 General.....	24
4.5.2 Toxic dusts.....	24
4.6 Corrosive substances.....	25
4.7 Unstable chemicals.....	25
4.8 Highly reactive chemicals.....	25
4.9 Nanotechnology.....	26
4.9.1 General.....	26
4.9.2 Hazard identification.....	26
4.9.3 Safety data sheet (SDS).....	27
4.9.4 Risk assessment and control.....	27
4.9.5 Control strategies.....	27

4.9.6	Engineering control techniques.....	27
4.9.7	Ventilation and general considerations.....	27
4.9.8	Work practices.....	28
4.9.9	Administrative means for the control of workplace exposure.....	29
4.9.10	Safety equipment and hygiene.....	30
4.9.11	Cleaning and maintenance.....	30
4.9.12	Handling, storage and transport.....	31
4.9.13	Waste disposal.....	31
4.9.14	Other hazards.....	32
4.9.15	Personal protective equipment (PPE).....	32
Section 5	Basic principles of storage.....	34
5.1	Scope.....	34
5.2	Documentation.....	34
5.3	Knowledge of chemicals and gases.....	34
5.4	Choice of risk control measures.....	34
5.5	Storage procedures.....	34
5.6	Segregation.....	36
5.6.1	Information on chemicals and gases.....	36
5.6.2	Classification for segregation.....	36
Section 6	Required features for a laboratory, storeroom or space, chemical storage cabinets, laboratory cupboards, racks and shelves.....	37
6.1	Scope.....	37
6.2	Laboratory design and construction.....	37
6.3	Chemical storage cabinets.....	37
6.3.1	General.....	37
6.3.2	Cabinet storage capacity.....	37
6.3.3	Mixed Class DG storage in a cabinet.....	37
6.3.4	Design.....	37
6.3.5	Ventilation.....	38
6.3.6	Cabinet location.....	38
6.4	Laboratory cupboards.....	38
6.5	Display of hazard identification information.....	39
6.6	Storeroom or space.....	39
6.7	Room for opening packages.....	39
6.8	Shelves and racks.....	39
Section 7	Storage of chemicals and gas cylinders within a laboratory.....	40
7.1	Scope.....	40
7.2	Size of chemical package.....	40
7.3	Quantities of chemicals in storage within a laboratory.....	40
7.3.1	General.....	40
7.3.2	Maximum quantities of hazardous chemicals in storage within a laboratory.....	40
7.3.3	Maximum quantities of hazardous chemicals in chemical storage cabinets within a laboratory.....	41
7.4	Method of keeping chemicals.....	42
7.4.1	Enclosed storage.....	42
7.4.2	Open storage.....	42
7.4.3	Burettes.....	42
7.5	Restriction on opening packages.....	42
7.6	Segregation in storage.....	43
7.6.1	Incompatible chemicals.....	43
7.6.2	Class 3 dangerous goods (flammable liquids) and combustible liquids.....	43
7.6.3	Class 4.1 dangerous goods (flammable solids).....	43
7.6.4	Class 4.2 dangerous goods (substances liable to spontaneous combustion).....	43
7.6.5	Class 4.3 dangerous goods (substances that, in contact with water, emit flammable gases).....	44
7.6.6	Class 5.1 dangerous goods (oxidizing substances).....	44
7.6.7	Class 5.2 dangerous goods (organic peroxides).....	44

7.6.8	Class 6.1 dangerous goods (toxic substances)	44
7.6.9	Class 8 dangerous goods (corrosive substances)	44
7.6.10	Class 9 dangerous goods (miscellaneous dangerous goods and articles)	44
7.7	Compressed gases and cryogenic liquids	44
7.7.1	Compressed gas cylinders	44
7.7.2	Class 2.3 toxic gases	45
7.7.3	Cryogenic liquids	45
7.7.4	Size of gas cylinders	45
Section 8	Storing chemicals in a separate store	46
8.1	Scope	46
8.2	Store location	46
8.2.1	General	46
8.2.2	Internal store	46
8.2.3	External stores	46
8.3	Exclusions	46
8.4	Store requirements	46
8.4.1	General	46
8.4.2	Store construction	47
8.4.3	Ventilation	48
8.4.4	Cooled stores	48
8.4.5	Heating	48
8.4.6	Ignition sources	48
8.4.7	Spillage containment	48
8.5	Method of storage	49
8.5.1	Chemical storage cabinets	49
8.5.2	Other storage	49
8.6	Management of movement of goods	50
8.7	Restriction on opening of packages	50
8.8	Segregation in storage	50
8.9	Fire protection	50
8.10	Display of hazard identification information	50
8.11	Safety equipment	50
Section 9	Storing gases and cryogenic liquids in a dedicated store	51
9.1	Scope of section	51
9.2	General	51
9.3	Requirements and location of store	51
9.3.1	General	51
9.3.2	Ventilation	51
9.3.3	Electrical equipment	52
9.4	Maximum quantities	52
9.5	Method of storage	52
9.6	Segregation in storage	52
9.7	Separation from other occupancies	53
9.7.1	Separation distance	53
9.7.2	Mixed storage of gases	53
9.7.3	Fire-resistant walls	53
9.7.4	Ignition sources	53
9.8	Display of hazard identification information	53
Section 10	Package opening and transfer	54
10.1	General	54
10.2	Work procedures for package opening	54
10.3	Transferring and repackaging	54
10.4	Liquid transfer	55
10.5	Spillage containment	55
10.6	Fire protection	55
Appendix A	(informative) Label for laboratory chemical wastes	56

Appendix B (informative) The use of absorbent materials and spill kits	57
Appendix C (normative) Handling of cryogenic fluids	58
Appendix D (informative) Examples of commonly used highly flammable chemicals	65
Appendix E (informative) Properties associated with commonly used highly reactive chemicals	66
Appendix F (informative) Properties associated with commonly used hazardous chemicals	68
Appendix G (informative) Properties associated with commonly used corrosive chemicals	71
Appendix H (informative) Properties associated with commonly used unstable substances	73
Appendix I (informative) Hazards associated with the use of perchloric acid	75
Appendix J (informative) Nanomaterials	78
Appendix K (normative) ADG class and packing group, and equivalent GHS class	83
Bibliography	86

Introduction

AS 2243.1 deals in a general manner with planning and operational safety matters, and AS 2243.2 covers operational safety when using chemicals, including the method of storage and the amounts of chemicals that can be stored in laboratories and stores associated with laboratories.

This document sets out requirements for storage within a laboratory, which is not addressed in other Standards.

AS/NZS 3833, *The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers*, is intended mainly for the storage of large quantities of predetermined dangerous goods, but excluding Packing Group I. It does not allow the storage flexibility often required for research and experimental laboratories. The required segregation distances may not be achievable in laboratories and laboratory stores. It may be more suitable for industrial applications where larger quantities of raw materials or finished products are held “in quarantine” awaiting quality assurance testing.

The relevant Standard for the particular class of dangerous goods or type of chemical may be preferable if only non-flammable dangerous goods or only one or two classes of dangerous goods or types of chemicals are stored, or they are in dominant quantities.

Australian Standard®

Safety in laboratories

Part 2: Chemical aspects and storage

Section 1 Scope and general

1.1 Scope

This document sets out requirements and recommended procedures for safe work with chemicals in the laboratory.

This document applies to —

- (a) substances, mixtures or materials defined as hazardous chemicals, dangerous goods or hazardous substances, except for those that are explosive, infectious and radioactive;
- (b) combustible liquids;
- (c) goods too dangerous to be transported; and
- (d) nanomaterials.

NOTE Refer to National, state and territory legislation for transport of dangerous goods requirements.

This document also applies to chemicals not classed as hazardous or dangerous if compatibility problems could arise during storage.

This document also sets out the requirements for the safe keeping and storage of chemicals and gases —

- (i) inside a laboratory; and
- (ii) in associated storerooms or spaces which are support areas to the laboratory.

The requirements of this document apply only to the keeping, in use or storage, of chemicals in packages and apparatus.

1.2 Application

This Standard is intended to be used in conjunction with AS 2243.1, which provides requirements and recommendations on matters common to all types of laboratory work.

Where the size of packages of chemicals or the aggregate quantities to be stored exceed the limitations of this document, reference should be made to —

- (a) AS 1940, for storage of flammable and combustible liquids;
- (b) AS/NZS 1596, for LP Gas;
- (c) AS 3780, for storage and handling of corrosive substances; or
- (d) other appropriate Australian, Australian/New Zealand or New Zealand Standards.

NOTE Refer to national, state and territory regulations for specific information.