

Australian/New Zealand Standard®

**The storage and handling of toxic
substances**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CH/9, Safe Handling of Chemicals. It was approved on behalf of the Council of Standards Australia on 31 December 1996 and on behalf of the Council of Standards New Zealand on 23 December 1996. It was published on 5 March 1997.

The following interests are represented on Committee CH/9:

Air Conditioning and Refrigeration Wholesalers Association
Australasian Railways Association
Australian Chemical Specialties Manufacturers Association
Australian Conservation Foundation
Australian Council of Trade Unions
Australian Fire Authorities Council
Australian Government Analytical Laboratories
Australian Institute of Petroleum
Australian Paint Manufacturers Federation
Department for Industrial Affairs, S.A.
Department of Defence, Australia
Department of Minerals and Energy, W.A.
Environment Protection Authority of N.S.W.
Institution of Engineers, Australia
Insurance Council of Australia
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Ministry of Health, New Zealand
National Association for Crop Protection and Animal Health
National Occupational Health and Safety Commission
New Zealand Chemical Industry Council
New Zealand Fire Service
Plastics and Chemicals Industry Association
Tranz Rail New Zealand
Victorian WorkCover Authority
Work Health Authority, N.T.
WorkCover N.S.W.
Workplace Standards Authority, Tasmania

Additional interests participating in preparation of Standard:

Agricultural and Veterinary Chemicals Association (AGSAFE)
Institute of Public Health, N.S.W.
New Zealand Department of Labour
Manufacturers and users of toxic substances
Consultants to the chemical industry

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The storage and handling of toxic substances

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STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Standards House,
155 The Terrace,
Wellington 6001 New Zealand

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH/9, Safe Handling of Chemicals. Preparation of the Standard was commenced following a request from the Australian Chemical Industry Council that a series of Standards be prepared on the storage and handling of dangerous goods.

The objective of this Standard is to provide users of toxic substances with such requirements and recommendations for the storage and handling of those substances as are appropriate to the interests of safety of persons and property.

This Standard deals with dangerous goods of Class 6.1, as classified in the UN *Recommendations on the Transport of Dangerous Goods*, the ADG Code and the IMDG Code. In New Zealand, this Standard also applies to those substances that meet the criteria of Schedules 1–4 of the New Zealand Toxic Substances Regulations 1983.

The series of Standards covering the storage and handling of dangerous goods presently comprises the following Standards:

AS

- 1596 LP Gas—Storage and handling
- 1894 Code of practice for the safe handling of cryogenic fluids
- 1940 The storage and handling of flammable and combustible liquids
- 2022 Anhydrous Ammonia—Storage and handling (known as the SAA Anhydrous Ammonia Code)
- 2507 The storage and handling of pesticides
- 2714 The storage and handling of hazardous chemical materials—Class 5.2 substances (organic peroxides)
- 2927 The storage and handling of liquefied chlorine gas
- 3780 The storage and handling of corrosive substances
- 3961 Liquefied natural gas—Storage and handling
- 4081 The storage, handling and transport of liquid and liquefied polyfunctional isocyanates
- 4326 The storage and handling of oxidizing agents
- 4332 The storage and handling of gases in cylinders

The Committee does not suggest that any of the provisions of this Standard are retrospective; however, users should check with the relevant statutory authority where this Standard has been adopted through legislation.

Attention has been paid to the alignment of requirements with the current needs of regulatory authorities, emergency services and environmental authorities, and cognizance has been taken of various publications of Worksafe Australia.

Australian and New Zealand references are separated by a slash (/).

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

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

Notes that appear in the main text of this Standard provide information only.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**The storage and handling of toxic substances**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out requirements and recommendations for the safe storage and handling of toxic substances that—

- (a) in Australia, are classified as Class 6.1 in the ADG Code; and
- (b) in New Zealand, meet the Class 6.1 classification criteria of the IMDG Code or Schedules 1–4 of the New Zealand Toxic Substances Regulations 1983.

The Standard also applies to other dangerous goods that are assigned a Class 6.1 subsidiary risk by the ADG Code/IMDG Code, except where they are of Class 2, or where more stringent requirements apply under another relevant Standard or applicable regulation.

This Standard applies in locations that are generally industrial, commercial or rural in nature, including laboratories where the provisions of this Standard are additional to those of AS 2243.10. Where there is conflict between the requirements of this Standard and AS 2243.10, this Standard shall take precedence.

This Standard does not apply to—

- (i) the transport on land of toxic substances, which is covered by the ADG Code/NZS 5433; or
- (ii) storage in port areas.

NOTE: Information on the hazards presented by toxic substances is provided in Appendix A.

In New Zealand any toxic substance that falls outside the UN criteria for Packing Groups shall be treated as if it were of Packing Group III.

1.2 APPLICATION The requirements of this Standard apply in conjunction with, but do not take precedence over, any government regulations that apply in any area.

Where the toxic substance being kept has one or more Subsidiary Risks, reference shall be made to the Australian Standards relevant to the classes of those risks and the more stringent requirements shall apply.

NOTE: Where no Australian Standard applies for a particular Subsidiary Risk, reference should be made to the relevant regulatory authority.

Where polyfunctional isocyanates are kept, reference to AS 4081 shall also be made and the more stringent requirements shall apply.

NOTES:

- 1 In Australia, toxic substances that are classified as dangerous goods may also be classified as workplace hazardous substances by NOHSC:1008 and listed in NOHSC:10005. As such they will also be subject to the legislative requirements relating to workplace hazardous substances. Cognizance of the relevant requirements of the *Standard for the Uniform Scheduling of Drugs and Poisons* (SUSDP) is also necessary.
- 2 An installation may come under the regulatory control of several authorities having differing areas of responsibility, and an approval from one authority does not necessarily constitute an approval from the others.
- 3 Cognizance of the relevant requirements of the *Building Code of Australia* (BCA)/*New Zealand Building Code* (NZBC) is necessary for all matters relating to building works.

- 4 The bulk transfer of toxic substances between a ship and an onshore storage is controlled by the relevant regulatory authority.

For minor storage (as defined in Clause 1.5.17) of toxic substances, only Sections 1, 2, 6 and 9 of this Standard apply. Section 2, minor storage, applies only in Australia. For transit storage (as defined in Clause 1.5.37) of toxic substances, only Sections 1, 3, 6, 7 and 9 apply.

1.3 NEW DESIGNS AND INNOVATIONS Any materials, designs, methods of assembly and procedures which do not comply with the specific requirements of this Standard or are not mentioned in it but which give performance and safety equivalent to those specified are not necessarily prohibited. Under such conditions the relevant regulatory authority can advise on the procedure for approval.

1.4 REFERENCED DOCUMENTS A list of documents referred to in this Standard is provided in Appendix B.

1.5 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.5.1 Access—a means by which persons and vehicles can approach and leave a specific location; includes walkways, platforms, stairways, ladders, roads and all other provisions for convenient entry and exit.

1.5.2 Approved, approval—with the agreement of, acceptable to, and meeting the prescribed standards of, the authority having jurisdiction.

1.5.3 Boundary—the perimeter of the whole of the site under the same occupancy as that on which the installation is situated.

1.5.4 Bulk—relating to toxic substances that are—

- (a) in liquid (as defined in the ADG Code/New Zealand Toxic Substances Regulations 1983) or paste form and are kept in a container having a capacity of greater than in Australia, 450 L or in New Zealand, 250 L; or
- (b) in solid form (including powders) and are kept in a container in an undivided quantity exceeding in Australia, 400 kg or in New Zealand, 250 kg.

1.5.5 Bund—an impervious embankment of earth, or a wall of brick, stone, concrete or other suitable material which may form part or all of the perimeter of a compound.

1.5.6 Compound—an area bounded by natural ground contours or by a bund, being sufficiently impervious to retain any spills or leaks of substances kept within the area pending the recovery of those spilled or leaked substances.

1.5.7 Container—anything in or by which dangerous goods are wholly or partly cased, covered, enclosed, contained or packed, whether such a thing is empty or partially or completely full, but does not include a vehicle or freight container.

1.5.8 Dangerous goods—substances and articles that—

- (a) satisfy the tests and criteria for determining whether goods are dangerous goods as specified in —
 - (i) the *UN Manual of Tests and Criteria*; or
 - (ii) the *UN Recommendations on the Transport of Dangerous Goods*; or
- (b) in Australia, are determined to be dangerous goods by the competent authority.

In New Zealand, the term ‘hazardous substances’ is often used in place of ‘dangerous goods’.

1.5.9 Fire resistance level (FRL)/fire resistance rating (FRR)—the grading period, in minutes, determined in accordance with AS 1530.4 (NZS/AS 1530.4) for—

- (a) structural adequacy;
- (b) integrity; and
- (c) insulation,

and expressed in that order (e.g. 60/60/30).

NOTES:

- 1 In New Zealand the term fire resistance rating (FRR) is used and has the same meaning as fire resistance level (FRL).
- 2 Where an FRL/FRR is required, reference should be made to the *Building Code of Australia* (BCA)/*New Zealand Building Code* (NZBC) for guidance.

1.5.10 Freight container—an article of transport equipment that is of a permanent character and accordingly strong enough to be suitable for repeated use; specially designed to facilitate the transport of goods, by one or more modes of transport, without immediate reloading; designed to be secured and/or readily handled, having fittings for these purposes. The term includes neither vehicles nor packaging; however, containers when carried on a chassis are included.

1.5.11 Hazardous area—an area in which an explosive atmosphere is present, or may be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources.

NOTE: A classification system for hazardous areas is given in AS 2430.1/NZS 6101.1.

1.5.12 Ignition source—a source of energy sufficient to ignite a flammable atmosphere, and which may include naked flames, exposed incandescent material, electrical welding arcs, mechanical or static sparks, and electrical or mechanical equipment not approved for use in hazardous locations.

1.5.13 Incompatible—in relation to toxic substances or the containers in which such substances are kept, the ability to react or combine with one another in a manner that increases the hazard of an individual substance, that could cause deterioration of any of those substances, that could increase the hazards in the event of fire, or that could increase the likelihood of contamination by toxic substances.

NOTES:

- 1 This definition should be read in conjunction with Clause 1.5.27.
- 2 Toxic substances and foodstuffs are an example of incompatibility.
- 3 Other goods with which toxic substances are incompatible may be identified from the ADG Code and from relevant MSDSs.

1.5.14 Installation—all of those facilities on a site that are related to the storage or handling of toxic substances.

1.5.15 Intermediate bulk container (IBC)—a container, other than a packaging—

- (a) used for the transport of dangerous goods of other than Class 2;
- (b) having a capacity of not more than 3 m³;
- (c) designed and constructed to be loaded onto, and unloaded from, a vehicle while filled; and
- (d) complying with the *ACTDG Specifications for Intermediate bulk containers for the Transport of Dangerous Goods*/NZS 5418.1 or otherwise approved design.

1.5.16 Material safety data sheet (MSDS)—a document that provides information on the identification, health hazards, precautions for use and the safe handling of a specific chemical product, and which complies with NOHSC:2011/*New Zealand Guidelines for the preparation of MSDSs*.

1.5.17 Minor storage—the storage of toxic substances in accordance with the criteria set out in Clause 2.2 of this Standard. Minor storage is that quantity which, in the event of loss of containment of the toxic substance in an emergency, will not unduly contribute to the emergency.

NOTE: Minor storage is not applicable in New Zealand.

1.5.18 Non-combustible—material that does not support combustion or is deemed to be non-combustible when tested in accordance with AS 1530.1 (NZS/AS 1530.1). For the purpose of this Standard, hardwood is deemed to be non-combustible.

1.5.19 Package—the complete product of the packaging operation, consisting of the packaging and its contents prepared for transport.

1.5.20 Packaging—

- (a) in relation to dangerous goods of other than Class 2 that are liquid, a container having a capacity not exceeding, in Australia, 450 L and in New Zealand, 250 L; and
- (b) in relation to solid dangerous goods, a container holding or capable of holding not more than, in Australia, 400 kg and in New Zealand, 250 kg, of those goods in an undivided quantity.

1.5.21 Packing Group (PG)—the division of dangerous goods (of other than Classes 1, 2, 5.2, 6.2 and 7) into three hazard groups as designated in the ADG Code/NZS 5433, in decreasing order of hazard, by the Roman numerals—

- (a) 'I' for great danger;
- (b) 'II' for medium danger; and
- (c) 'III' for minor danger.

NOTE: The *UN Manual of Tests and Criteria*/NZS 5433 provides criteria for the assignment of Packing Groups. A list of those already assigned is given in the ADG Code/NZS 5433.

1.5.22 Pesticide—any substance or mixture of substances intended for preventing or controlling any unwanted species of insects, plants and animals, including any substance or mixture of substances intended for use as a plant-growth regulator, defoliant or desiccant.

1.5.23 Pipework—an assembly of pipes, pumps, hoses, valves and fittings used in the transfer of toxic substances.

1.5.24 Practicable—practical with regard to—

- (a) the severity of the hazard or risk in question;
- (b) the state of knowledge about that hazard or risk and any ways of removing or mitigating that hazard or risk;
- (c) the availability and suitability of ways to remove or mitigate that hazard or risk; and
- (d) the cost of removing or mitigating that hazard or risk.

1.5.25 Protected places—these are deemed to include—

- (a) a dwelling, place of worship, public building, school or college, hospital, aged persons' accommodation, childcare facility or theatre;
- (b) a factory, workshop, office, store, warehouse, shop, building, or yard where persons are employed;
- (c) a ship lying at permanent berthing facilities;
- (d) any storage facility for dangerous goods outside the property boundary of the installation; or
- (e) an environmentally sensitive area, which includes but is not limited to—
 - (i) a water catchment area;

- (ii) a reservoir for drinking water;
- (iii) a freshwater or marine environment; or
- (iv) a national park or equivalent.

1.5.26 Public place—any place other than private property, open to the public, which the public has a right to use and which includes a public road.

NOTES:

- 1 In New Zealand, a 'public road' is a 'road'.
- 2 Commercial building car parking areas are not considered to be public places.

1.5.27 React dangerously—in relation to the reaction of substances, to react in a manner that directly creates a hazard due to the reaction—

- (a) being violent;
- (b) producing an explosion;
- (c) producing a potentially explosive combination of products;
- (d) producing fire or rapid evolution of heat; or
- (e) producing toxic vapour or toxic gas.

NOTE: Examples of substances that react dangerously are acids and cyanides; stabilized acetone cyanohydrin evolving hydrocyanic acid gas in the presence of alkalis; and iron pentacarbonyl reacting with water or steam to produce carbon monoxide.

1.5.28 Regulatory authority—the statutory authority having jurisdiction for that particular aspect of the storage and handling of Class 6.1 substances.

NOTE: More than one authority may be involved in relation to such matters (see Note 2 to Clause 1.2).

1.5.29 Restricted area—an area to which access is only available to such persons as are authorized by the occupier.

1.5.30 Retail premises—premises on which goods of Class 6.1 are kept for the purpose of sale to the general public.

1.5.31 Screen wall—a structurally-sound wall that is impervious to liquid and vapour and is constructed of materials that are substantially resistant to attack by the toxic substances kept.

1.5.32 Segregation—the isolation of goods that are incompatible, or react dangerously, from each other within a storage area.

1.5.33 Separation—the isolation of dangerous goods stores from protected places, public places, boundaries or other dangerous goods stores.

1.5.34 Shall, should, may—the word 'shall' is to be understood as mandatory and the word 'should' as advisory; 'may' implies the right to use discretion.

1.5.35 Tank—a receptacle, other than an intermediate bulk container, having a capacity of at least, in Australia, 450 L and in New Zealand, 250 L for liquids and a capacity of at least 500 L for gases. 'Tank' includes—

- (a) a demountable tank, which is a tank designed to be carried on a vehicle, having no permanent attachment to the vehicle chassis and includes a tank container and portable tank;
- (b) a portable tank, which is a tank within the scope of the requirements of a 'portable tank' or 'portable tank for gases' in Section 13 of the General Introduction to the IMDG Code; and
- (c) a tank container, which is a portable tank within the scope of the requirements for 'container' in the *International Convention for Safe Containers* (CSC/IMO).

1.5.36 Toxic substances—substances and articles that—

- (a) are listed as Class 6.1 substances in the ADG Code/NZS 5433;
- (b) meet the classified criteria specified in the *UN Manual of Tests and Criteria*/NZS 5433;
- (c) have a primary risk of another class and a Subsidiary Risk of 6.1; or
- (d) in New Zealand, conform to Schedules 1–4 of the NZ Toxic Substances Regulations 1983.

NOTE: For the purposes of this Standard, the term ‘toxic substances’ is deemed to include toxic articles.

1.5.37 Transit storage—storage of toxic substances, in accordance with Section 3 of this Standard, held in transit for at least 12 h and not more than three normal working days.

1.6 PACKAGING A packaging that is to be filled with toxic substances shall—

- (a) for use other than at the premises at which it is to be filled, meet the requirements of, in Australia, the ADG Code and in New Zealand, NZS 5433 and New Zealand Toxic Substances Regulations 1983; and
- (b) for use at the premises at which it is to be filled, be constructed—
 - (i) with sufficient strength and durability for its proposed service; and
 - (ii) such that all components of the packaging that may be directly in contact with the contents are compatible with the contents.

1.7 LABELLING Packages containing toxic substances shall be labelled in accordance with the appropriate Australian state or territory or New Zealand legislation.

NOTE: In Australia, labelling in compliance with some or all of NOHSC:2012, the ADG Code and the SUSDP may be required under such legislation.

1.8 SECURITY OF STORAGE AREAS All storage areas shall be appropriately secured from access by unauthorized persons. The storage area shall be considered a ‘restricted area’.

1.9 SEPARATION AND SEGREGATION

1.9.1 Separation of stores from protected places, public places and boundaries All stores containing toxic substances, in quantities above those for minor storage, shall be separated from protected places, public places and boundaries by the minimum distances determined from Table 1.1.

To calculate the minimum separation distance from a store to a protected place, public place or boundary, the distance corresponding to the quantity of toxic substances stored and their Packing Group is determined from Table 1.1(A), and multiplied by the risk factor determined in Table 1.1(B) and the protection factor determined in Table 1.1(C). Except for a retail store’s public access point, a minimum separation distance of 5 m for PG I substances and 3 m for PG II and PG III substances shall apply.

Where quantities of toxic substances in excess of 500 tonnes are stored, they shall be separated by distances determined by risk assessment.

NOTES:

- 1 Appendix C gives a worked example of the calculation of separation distance.
- 2 Where the separation distance is measured across a boundary to a protected place or public place on neighbouring premises, and subsequent developments on those neighbouring premises compromise the original separation distance, then the relevant regulatory authority may require that the original installation be modified, relocated or taken out of service, to ensure that the separation distance remains in compliance.
- 3 Other requirements may be specified in the *Worksafe Australia Draft National Code of Practice for the Control of Major Hazard Facilities*.

Separation distances may be measured in a horizontal plane around an intervening screen wall, provided that—

- (a) where the height of the store is greater than or equal to that of the protected place, the wall shall extend at least 1 m above the highest container in the store;
- (b) where the height of the store is less than that of the protected place, the wall shall extend at least 1 m above the protected place or extend as a roof above the store;
- (c) the wall shall be marked such as to indicate the maximum permissible storage height; and
- (d) the wall and the roof, if any, shall have a fire resistance level (FRL)/fire resistance rating (FRR) of at least 120/120/120.

NOTE: Where an FRL/FRR is required, reference should be made to the *Building Code of Australia* (BCA)/*New Zealand Building Code* (NZBC) for guidance.

1.9.2 Segregation

1.9.2.1 Segregation of substances that are incompatible or which may react dangerously Stores of toxic substances shall be segregated from incompatible goods and goods with which they may react dangerously in accordance with the following:

- (a) Where the substances being kept are incompatible—
 - (i) they shall be kept in separate compounds; or
 - (ii) they shall be segregated by a distance of at least 5 m, except that, where both substances are solids, the minimum segregation distance may be reduced to 3 m.
- (b) Where the substances being kept may react dangerously—
 - (i) they shall not be kept within the same compound, or in compounds that share a common drainage system; and
 - (ii) they shall be segregated by a distance of at least 5 m.
- (c) Where toxic substances are being consolidated for transport, they may be held in a vehicle or freight container, provided that they are segregated within that vehicle or freight container in accordance with the ADG Code, IMDG Code or IATA Dangerous Goods Regulations, as appropriate to the intended mode of transport.

Where used, bunds shall comply with Clause 5.7. In New Zealand, they shall also comply with the New Zealand Toxic Substances Regulations 1983.

Where toxic substances are kept with other dangerous goods that are compatible and do not react dangerously with each other, the two storage areas should be discrete ones (for good housekeeping reasons).

1.9.2.2 Segregation from foodstuffs Foodstuffs, other products for human or animal consumption, empty foodstuff containers, material for the production of foodstuff packagings and medical and veterinary material shall not be kept in the same room, store or cabinet as any dangerous goods of Class 6.1, Packing Group I.

In Australia, foodstuffs, other products for human or animal consumption, empty foodstuff containers, material for the production of foodstuff packagings and medical and veterinary material may be kept in the same store or room as dangerous goods of Class 6.1, Packing Group II or III, provided that—

- (a) they are kept at least 5 m away from the dangerous goods;
- (b) they are not kept in any compound that is provided for the dangerous goods; and
- (c) the dangerous goods are in packages that are not opened.

In New Zealand, a scheduled toxic substance shall not be kept on or above any shelf in which any food, drink or medicine is stored or displayed, or in any cupboard, box or other place in which articles of food, drink or medicine are stored or kept for use (refer New Zealand Toxic Substances Act 1979).

1.9.2.3 Measurement of segregation distances The distances specified in Clauses 1.9.2.1 and 1.9.2.2 may be measured in a horizontal plane around an intervening screen wall, provided that the screen wall extends a distance of at least 1 m above the highest storage and is clearly marked to indicate the highest storage permitted. Where any of the goods being so segregated are of Classes 2.1, 3 or 5, such a screen wall shall have an FRL/FRR in accordance with the requirements given in the appropriate Australian Standard for that class of dangerous goods. Where the goods so segregated are of Class 4, the screen wall shall have an FRL/FRR of at least 240/240/240.

NOTE: Where an FRL/FRR is required, reference should be made to the *Building Code of Australia* (BCA)/*New Zealand Building Code* (NZBC) for guidance.

1.9.2.4 Co-storage of Class 6.1 with a Subsidiary Risk 3 Minor quantities of dangerous goods of Class 6.1/Subsidiary Risk 3 and dangerous goods of Class 3/Subsidiary Risk 6 may be stored with other Class 3 dangerous goods, provided that such a store meets the requirements of both this Standard and AS 1940. Such goods in greater than minor quantities shall not be kept within a store for dangerous goods of Class 6.1 that have no Subsidiary Risk.

NOTE: This is because the flammability risk will increase the risk associated with the storage of toxic substances.

Where a store contains goods that are both flammable and toxic, the addition of a minor quantity of Class 6.1 dangerous goods will not unduly increase the risk. However, the addition of a greater amount of Class 6.1 dangerous goods will increase the risk.

TABLE 1.1
MINIMUM SEPARATION DISTANCES FOR STORES OF
TOXIC SUBSTANCES

(A) Separation distance

Aggregate quantity kept tonnes or m ³ (kL)	Minimum separation distance, m		
	PG I	PG II	PG III
≤ 1	10	6	6
> 1 ≤ 10	16	10	6
> 10 ≤ 20	18	12	8
> 20 ≤ 50	20	16	10
> 50 ≤ 100	30	20	16
> 100 ≤ 200	40	30	20
> 200 ≤ 500	50	35	30

NOTE: For quantities greater than 500 tonnes or 500 m³, a risk assessment shall be carried out.

(B) Risk factor

Storage/handling activity:	Factor
Storage cabinets (packages are closed)	0.5
Package store (packages are closed)	0.5
Package store (packages are opened or filled)	1.0
Bulk store (toxic substance presents no inhalation hazard)	1.0
Bulk store (toxic substance presents an inhalation hazard)	2.0
In process use; that could present an inhalation hazard due to the release of a toxic vapour or dust, having regard to —the vapour pressure of the substance —the temperature at which the substance is held —the decomposition products in the event of a fire —the product of a possible chemical reaction —the nature of the process	2.0

(C) Protection factor

Protection to place/boundaries:	Factor
Protected place*	1.0
Retail sale public access point (minor quantities of closed packages of PG II and PG III)	0.0
Premises boundaries or public place	0.5

* When separation distances are applied to an on-site protected place, the factor may be reduced to 0.5, subject to appropriate risk identification, assessment and control.

SECTION 2 MINOR STORAGE

(Australia only)

2.1 SCOPE OF SECTION This Section specifies the criteria for minor storage classification for toxic substances, and the requirements for such storage, in Australia.

NOTE: The underlying concept of minor storage is that quantities below a certain level are so small, or are so scattered and separated, that they present little real risk and in an emergency will not unduly hinder the activities of emergency personnel or contaminate the surrounding area.

2.2 CRITERIA FOR CLASSIFICATION AS MINOR STORAGE Storage of toxic substances in packages, in compliance with Table 2.1, is classified as minor storage.

TABLE 2.1
MAXIMUM QUANTITIES OF TOXIC SUBSTANCES
PERMISSIBLE AT VARIOUS PREMISES FOR
DESIGNATION AS MINOR STORAGE

Types of premises	Maximum quantity, kg or L		
	PG I	PG II	PG III
Residential premises	1	10	100
Farms ≥2 ha	10	500	3 500
All other premises	10	100	1 000

NOTES:

- 1 Units of kilograms are applicable to solids and units of litres to liquids. The maximum quantities specified in terms of 'kg or L' are the sum of the number of kilograms of solid substances plus the number of litres of liquid substances.
- 2 The quantities on any given line may be aggregated.

2.3 REQUIREMENTS APPLICABLE TO MINOR STORAGE The following requirements apply to minor storage:

- (a) Storage areas shall be secured against unauthorized entry.
- (b) A supply of water shall be available at a nearby location, for personal hygiene.
- (c) Adequate ventilation shall be provided for all storage and handling areas (see Clause 6.3.2).
- (d) Packages shall not be kept near substances with which they are incompatible or with which they may react dangerously.
- (e) Packages shall be kept away from sources of heat.
- (f) Packages shall be kept securely closed when not in use.
- (g) Packages shall be kept in such a manner as to avoid spillage.
- (h) Appropriate spillage-retention measures shall be provided at locations where packages are likely to be opened or their contents transferred.
- (i) The contents of a package shall not be transferred to any other container for storage, unless the latter is suitable for the storage of the toxic substance and is clearly marked in accordance with Clause 1.7.

NOTE: Where the contents of a package have been transferred into another container, the resultant package, if it is to be used for transportation, is required by the relevant regulatory authority to comply with the ADG Code.

- (j) Appropriate control measures shall be instituted for any process involving product transfer operations, e.g. decanting or filling.
- (k) Appropriate personal protective equipment shall be worn by any person involved in product transfer operations (see Clauses 6.7.2(d) and 6.8).
- (l) Any spills or leaks shall be cleaned up immediately, and disposed of in accordance with Section 9.
- (m) Wastes shall be disposed of in accordance with Section 9.

2.4 STORAGE ON FARMS The maximum quantity of toxic substances allowed as minor storage on farms is as given in Table 2.1. This quantity is permissible only provided that—

- (a) such substances are not intended for resale;
- (b) the area of any such farm is at least 2 ha and is used or intended to be used for agricultural, horticultural, floricultural or pastoral purposes;
- (c) the ground around the storage area is kept clear of combustible vegetation or refuse for a distance of at least 3 m;
- (d) potential flow of spillage is prevented from reaching any protected place, watercourse or property boundary by such means as the use of natural ground slope, or the provision of a diversion channel, kerb or bund;
- (e) the store is separated from any protected place or dwelling on the property by at least 10 m;
- (f) any store is separated from the boundary of the property by at least 15 m; and
- (g) where there are two or more minor stores on the same property, each may be treated as a separate minor store if they are separated by a distance of at least 100 m.