



NATIONAL STANDARD

Storage and Handling of Workplace Dangerous Goods

NATIONAL STANDARD [NOHSC:1015(2001)]

MARCH 2001

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National Occupational Health and Safety Commission
Sydney

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ISBN 0-642-43304-6

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FOREWORD

In seeking to achieve Australian workplaces free from injury and disease, NOHSC works to lead and coordinate national efforts to prevent workplace death, injury and disease. We seek to achieve our mission through the quality and relevance of information we provide and to influence the activities of all parties with roles in improving Australia's OHS performance.

NOHSC has five strategic objectives:

- Improving national data systems and analysis,
- Improving national access to OHS information,
- Improving national components of the OHS and related regulatory framework,
- Facilitating and coordinating national OHS research efforts, and
- Monitoring progress against the National OHS Improvement /framework.

This publication is a contribution to achieving those objectives.

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PREFACE

The *National Standard for the Storage and Handling of Dangerous Goods* sets out requirements to ensure the effective control of the storage and handling of dangerous goods so as to protect the safety and health of workers and the public as well as the protection of property and the environment.

In terms of managing the storage and handling of dangerous goods, the national standard marks a significant change in approach. The national standard replaces current prescriptive requirements with a performance-based approach incorporating the principles of hazard identification, risk assessment and risk control.

This approach includes a storage and handling system which covers the risks associated with the premises where any dangerous goods are stored and handled, as well as the risks associated with the use of any container, tank, vehicle or freight container, spill containment system, plant and fire fighting and fire protection systems used on premises, in connection with the storage and handling of dangerous goods.

The national standard provides a framework within which individual Commonwealth, state and territory regulatory authorities can develop workplace regulations so that a nationally consistent regulatory regime can be achieved. To that end NOHSC has established two administrative mechanisms to facilitate the development of a nationally consistent regime:

- an implementation group that can include representatives of all relevant regulatory authorities and industry partners; and
- an annual review of the national standard implementation that will report on the extent of consistent adoption.

Traditionally, dangerous goods legislation has extended beyond the workplace to address public safety and the environment. NOHSC recognises that non-workplaces are not necessarily familiar with the performance and duty-based approach applied to various hazards in the workplace. Therefore, in declaring this national standard, NOHSC intends that for non-workplaces, the performance based approach will be only the framework within which regulation of non-workplaces will operate. It is envisaged that individual jurisdictions may need to supplement the requirements of the national standard with more prescriptive requirements to ensure public safety where dangerous goods are stored and handled in non-workplaces.

This standard is accompanied by the *National Code of Practice for the Storage and Handling of Dangerous Goods*, which provides practical advice on compliance for those who have duties under the national standard.

The *National Code of Practice for the Storage and Handling of Dangerous Goods* provides the information and guidance for the storage and handling of dangerous goods as minor quantities, and as consumer packages supplied by retailers.

PART A - PRELIMINARY

TITLE

- 1 This document may be cited as the *National Standard for the Storage and Handling of Dangerous Goods* [NOHSC:1015(2001)] and is referred to as the national standard within this document.

DECLARATION

- 2 This national standard was declared by the National Occupational Health and Safety Commission on 7 March 2001.

OBJECTIVE

- 3 The objectives of this national standard are to protect the safety and health of persons and to prevent damage to property and the environment from the *hazards* arising from the storage and *handling* of *dangerous goods* and *combustible liquids* by requiring specified classes of persons to:
 - (a) eliminate the *hazard* or, where this is not *practicable*, minimise as far as practicable the *risks* arising from the *hazards* associated with the storage and *handling* of *dangerous goods*, *goods too dangerous to be transported* and *combustible liquids* by:
 - (i) ensuring that the *hazards* associated with the storage and *handling* of *dangerous goods* and *combustible liquids* are identified and the *risks* are assessed and controlled; and
 - (ii) requiring the provision of relevant information and training;
 - (b) notify the *Authority* where:
 - (i) *dangerous goods* or *combustible liquids* are stored and *handled* in quantities that are greater than the levels specified in clause 45 of this national standard; or
 - (ii) a *pipeline* is to be used for the transport of *dangerous goods* or *combustible liquids*; and
 - (c) ensure that other relevant authorities, including *emergency services authorities*, have access to relevant information.

SCOPE AND APPLICATION

- 4 (1) The provisions of this national standard apply to:
- (a) the workplace storage and handling of:
 - (i) dangerous goods of Class 2, 3, 4, 5, 6.1, 8 and 9 including goods too dangerous to be transported, except where otherwise specified¹;
 - (ii) C1 combustible liquids; and
 - (iii) C2 combustible liquids when stored and handled with fire risk dangerous goods.
 - (b) a pipeline for the conveyance of dangerous goods or C1 combustible liquids, unless that pipeline is regulated under other legislation that addresses safety and health outcomes.
- (2) (a) Where the provisions of this national standard refer to *dangerous goods*, that provision shall be read as including a reference to C1 *combustible liquids* except in relation to Clause 10 and Clause 51.
- (b) Where a provision of this national standard requires the determination of the quantity of *dangerous goods*, the quantity of C1 or C2 *combustible liquids* stored and *handled* together in any area with *fire risk dangerous goods* must be included in the aggregate quantity of the *fire risk dangerous goods*.
- (c) The provisions of this national standard do not apply to the storage and *handling* of C2 *combustible liquids* in isolation from *dangerous goods*, where isolation means the separation of the storage and *handling* of C2 *combustible liquids* from the storage and *handling* of *dangerous goods* by distances or barriers or both.

Minor Quantities and Consumer Packages

The *National Code of Practice for the Storage and Handling of Dangerous Goods* (the national code) provides information and guidance for the storage and handling of dangerous goods, in minor quantities and in consumer packages on retail premises. For the purposes of the national code, minor quantity means any quantity of dangerous goods less than or equal to the levels in Schedule 1 of this national standard.

¹ For the purposes of this national standard, dangerous goods includes articles that are dangerous goods. The aggregation of articles that are dangerous goods is specified in Note 2 in Schedule 1.

- (3) Only the provisions of Clause 8 of this national standard apply to the storage and *handling* of *dangerous goods*² which are in or on a vehicle, ship or other mobile plant, appliance or device if the goods are necessary for its propulsion or are part of, or necessary for the operation of, its equipment or accessories.
- (4) The provisions of this national standard do not apply to the storage and *handling* of:
 - (a) those *dangerous goods* where they are determined by the *Authority* appointed to give effect to the *ADG Code* not to be *dangerous goods*;
 - (b) *dangerous goods* to the extent of any inconsistency at *premises* and in circumstances in which there is a legislated requirement to comply with the:
 - (ii) *ADG Code*;
 - (iii) *International Civil Aviation Organization (ICAO) - Technical Instructions for the Safe Transport of Dangerous Goods by Air*; and
 - (iv) *International Marine Organization - International Maritime Dangerous Goods Code (IMDG Code)*; and
 - (c) *dangerous goods* to the extent of any inconsistency at premises and in circumstances in which they comply with the *International Air Transport Association (IATA) - IATA Regulations*.

INTERPRETATION

- 5 Unless inconsistent with the context of the subject matter, expressions used in this national standard (or in a particular provision) have the meanings set out in this clause.

The words and phrases defined in this national standard are shown in italics throughout.

'ADG Code' means the *Australian Code for the Transport of Dangerous Goods by Road and Rail*.

'Approval' means with the sanction of the *Authority*.

'Authority' means any Commonwealth, State or Territory regulatory agency with responsibility for the regulation of the storage and *handling* of *dangerous goods*.

'AS' followed by a designation means the Australian Standard to which that designation relates as issued by Standards Australia.

² The quantities of *dangerous goods* stored and *handled* in accordance with sub clause 4(2) do not apply in the calculation of quantity levels that trigger additional provisions of this national standard.

'Bulk' means:

- (a) a quantity of *dangerous goods* or *combustible liquids* in a container having a capacity greater than the maximum container size specified for *packaged dangerous goods* of that type, or *packaged combustible liquids*; or
- (b) solid *dangerous goods* in an undivided quantity exceeding 400 kg.

'C1 and C2 combustible liquids' means these '*combustible liquids*' within the meaning of Australian Standard AS 1940 The Storage and Handling of Flammable and Combustible Liquids, and for the purposes of this national standard the primary indicator for:

- (a) '*C1*' *combustible liquid* is that its flashpoint is greater than 60.5° C and less than 150° C; and
- (b) '*C2*' *combustible liquid* is that its flashpoint is greater than 150° C.

'Capacity' means the internal volume of a *container* at a temperature of 15° Celsius expressed in litres or cubic metres.

'Class' means the number assigned to *dangerous goods* which exhibit a common single or most significant hazard determined by the criteria or listing in the *ADG Code*. The broad classification of *dangerous goods* is as follows:

- (a) Class 1 - Explosives
- (b) Class 2 - Gases
 - (i) Class 2.1 - flammable gas
 - (ii) Class 2.2 - non-flammable, non-toxic gases
 - (iii) Class 2.3 - toxic gases
- (c) Class 3 - Flammable liquids
- (d) Class 4 - Flammable solids; substances liable to spontaneous combustion; substances that in contact with water emit flammable gases
 - (i) Class 4.1 - flammable solids
 - (ii) Class 4.2 - substances liable to spontaneous combustion
 - (iii) Class 4.3 - substances that in contact with water emit flammable gases
- (e) Class 5 - Oxidizing substances; organic peroxides
 - (i) Class 5.1 - oxidizing substances
 - (ii) Class 5.2 - organic peroxides
- (f) Class 6 - Toxic and infectious substances
 - (i) Class 6.1 - toxic substances
 - (ii) Class 6.2 - infectious substances
- (g) Class 7 - Radioactive material
- (h) Class 8 - Corrosive substances
- (i) Class 9 - Miscellaneous substances and articles

'Class label' means a label of a type specified in the *ADG Code* for the *Class* of dangerous goods.

'Combustible liquids' means 'combustible liquids' within the meaning of Australian Standard AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*.

'Compatible' means, in relation to two or more substances, that if they do interact they do not cause, or substantially increase, the potential to cause a *dangerous occurrence*.

'Container' means anything in or by which *dangerous goods* are wholly or partly encased, covered, enclosed, contained or packed and includes any components or materials necessary for a container to perform its containment function.

'Control temperature' means the maximum temperature at which organic peroxides, self-reacting substances of *Class 4.1* and other *dangerous goods* can be safely stored and handled. Control temperatures are specified in the *United Nations Recommendations on the Transport of Dangerous Goods* and can be derived from the self-accelerating decomposition temperature in that publication.

'Dangerous goods' means those goods that:

- (a) are named in a specific entry in Column 2 in Appendix 2 of the *ADG Code*, but not in a generic entry or in an entry where the letters 'N.O.S' are shown as part of the *Proper Shipping Name* for the goods; or
- (b) satisfy the criteria in Column 2 or 9 in Appendix 2 of the *ADG Code*; or
- (c) satisfy the criteria in a Special Provision of the *ADG Code* that is applied by Column 7 in Appendix 2 of the *ADG Code*; or
- (d) are determined to be *dangerous goods* by the authority appointed by the jurisdiction to give effect to the *ADG Code*; or
- (e) satisfy the United Nations *dangerous goods* tests and criteria for determining whether goods are *dangerous goods*; or
- (f) include goods defined as *goods too dangerous to be transported*; or
- (g) include C1 *combustible liquids*³.

'Dangerous goods in transit' means *dangerous goods* that:

- (a) are supplied to *premises* in *containers* that are not opened at the *premises*; and
- (b) are not used at the *premises*; and
- (c) are kept at the *premises* for a period of not more than 5 consecutive days.

'Dangerous occurrence' means, with respect to *dangerous goods*:

- (a) an uncontrolled emission;
- (b) loss of containment;

³ C1 combustible liquids are included in the interpretation of dangerous goods for the purposes of this national standard only. See Interpretation of C1 and C2 combustible liquids.

- (c) fire;
- (d) explosion; or
- (e) release of energy

that poses a serious and immediate risk to health and safety, property or the environment.

'Emergency services authority' means an organisation with functional jurisdiction over emergency response as defined by a State, Territory or Commonwealth jurisdiction.

'Employee' means a person who works under a contract of employment, apprenticeship or traineeship.

'Employee representative' includes any person elected to represent a group of employees on safety and health matters and any employee member of a health and safety committee where this is established in the workplace.

'Employer' means a corporation or an individual who employs persons under a contract of employment, apprenticeship or traineeship.

'Fire risk dangerous goods' means *dangerous goods* of Class 2.1, 3, 4 or 5 or Subsidiary Risk 2.1, 3, 4 or 5 which burn readily or support combustion.

'Free from dangerous goods' means, in relation to a *container*, if the *container* last held:

- (a) gas or volatile liquid - the concentration of gas or vapour in the atmosphere of the container is less than the concentration listed Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOSH:1003(1995)]; and
- (b) dangerous goods of Class 2.1, Class 3 or subsidiary risk 3 - the concentration of those goods or their vapours in the atmosphere of the container is less than 5 per cent of the lower explosive limit (LEL) for the goods when sampled at ambient temperature; or
- (c) non-volatile liquid or solid - thoroughly cleaned.

'Goods too dangerous to be transported' means goods that are:

- (a) named in Appendix 5 of the *ADG Code*; or
- (b) are determined to be *goods too dangerous to be transported* by the authority appointed by the jurisdiction to give effect to the *ADG Code*.

'Handling' means the conveying *dangerous goods* within any *premises*, manufacturing, processing, using, treating, dispensing, packing, supplying, *transferring*, loading and unloading, rendering harmless, destroying and disposing and includes conveying of *dangerous goods* within a *pipework* or a *pipeline*.

'Hazard' means a situation or an intrinsic property with the potential to cause harm to people, property or the built or natural environment.

'Hazardous area' means—‘hazardous area’ as defined in Australian Standard AS 2430.1 Classification of Hazardous Areas - Explosive Gas Atmospheres or AS/NZS 61241.3 Electrical Apparatus for use in the presence of Combustible Dust - Classification of Areas where Combustible Dusts are or may be present and AS 2430.3 Classification of Hazardous Areas.

'Hazchem Code' means ‘Hazchem Code’ as defined in the *ADG Code*.

'Ignition source' means a source of energy sufficient to ignite a flammable atmosphere, and may include naked flames, exposed incandescent material, electrical welding arcs, mechanical or static sparks, and electrical or mechanical equipment not specifically designed to be used in a flammable atmosphere;

'Importer' means the person in Australia who arranges with an overseas supplier, overseas agent or any other person overseas to provide dangerous goods to Australia.

'Ingredients' includes, but is not limited to, phlegmatizers, diluents, solvents, wetting agents, stabilizers, inhibitors and adulterants.

'Intermediate bulk container (IBC)' means a rigid or flexible portable packaging for the transport of *dangerous goods* that:

- (a) has a capacity of not more than:
 - (i) for solids of *Packing Group I* in a composite, fibreboard, flexible, wooden or rigid plastics or wooden *container* - 1,500 L; and
 - (ii) for solids of *Packing Group I* in a metal *container* - 3,000 L; and
 - (iii) for solids or liquids of *Packing Groups II and III* - 3,000 L;
- (b) is designed for mechanical *handling*; and
- (c) is resistant to the stresses produced in usual *handling* and transport.

'Manifest' means ‘manifest’ within the meaning of clause 40(2).

'Material Safety Data Sheet (MSDS)' for *dangerous goods* means a document in English that identifies the *dangerous goods*, describes their chemical and physical properties, provides information on the manufacturer’s details, health *hazards*, precautions for use and safe *handling*.

'Must' means that a requirement is mandatory.

'Near-miss' means any unplanned event involving imminent *risk* which, but for mitigating effects, actions or systems, could have escalated into a *dangerous occurrence*.

'Occupier' means an *occupier* of *premises* where *dangerous goods* or *combustible liquids* are stored and *handled*. Where such *premises* is a *workplace*, the *employer* is the *occupier*. For a *pipeline* through which *dangerous goods* or *combustible liquids* are conveyed, the person responsible for the *transfer* of those goods or liquids is the *occupier*.

'Package' means the complete product of the packing operation, and consists of the goods and their packaging. The packaging being the *container* in which the goods are received or held and includes anything that enables the container to receive or hold the goods or to be closed.

'Packaged combustible liquids' means *combustible liquids* in a *container* with a capacity of not more than 450 L.

'Packaged dangerous goods' means *dangerous goods* of:

- (a) *Class 2* in a *container* with a capacity of not more than 500 L; or
- (b) another *Class* in:
 - (i) a *container* with a capacity of not more than 450 L; and
 - (ii) a *container* with a net mass of not more than 400 kg.

'Packing Group' means the 'Packing Group' to which *dangerous goods* (except *dangerous goods* of *Class 1, 6.2 or 7*) are assigned:

- (a) in Column 5 in Appendix 2 of the *ADG Code*; or
- (b) in a Special Provision of the *ADG Code* applying to the goods; or
- (c) by satisfying the criteria in Column 9 in Appendix 2 of the *ADG Code* for assignment to the *Packing Group*; or
- (d) by a determination made by the authority appointed by the jurisdiction to give effect to the *ADG Code*; or
- (e) by satisfying the United Nations *dangerous goods* tests and criteria for assignment to the *Packing Group*.

'Pipeline' means *pipework* that crosses the boundary of particular *premises*. A *pipeline* begins or ends at the nearest fluid or slurry control point (along the axis of the *pipeline*) to the boundary of the *premises* concerned.

'Pipework' means a pipe or an assembly of pipes, pipe fittings, valves and pipe accessories used to convey *dangerous goods*.

'Plant' includes any machinery, equipment (including scaffolding), appliance, implement or tool and any component or fitting thereof or accessory thereto.

'Practicable' means practicable having regard to the:

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

'Premises' includes a structure, whether permanent or temporary, and land, but does not include a vehicle.

'Product name' means the brand name, trade name, code name or code number specified by the supplier.

'Proper Shipping Name' means 'Proper Shipping Name' as defined in the *ADG Code*.

'Protected works' means a place to be provided with a measure of protection from the *dangerous goods*. It includes the following:

- (a) a dwelling, place of worship, public building, school or college, hospital, child-care facility or theatre;
- (b) a factory, workshop, office, store, warehouse, shop, building or yard where persons are working, and are not directly involved with the storage and handling of those *dangerous goods*; or
- (c) a ship lying at permanent berthing facilities.

'Record' means a collection of information in a permanent form. It may, for example, be in a written or electronic format.

'Retailer' means a person whose principal business is that of supplying consumer products (which include dangerous goods) to members of the public, who themselves are not engaged in any further supply of those goods.

'Risk' means the likelihood of harm occurring from a *hazard*.

'Should' means a recommendation.

'Subsidiary Risk' means 'Subsidiary Risk' with which the *dangerous goods* are assigned in accordance with:

- (a) Column 4 in Appendix 2 of the *ADG Code*; or
- (b) a Special Provision of the ADG Code applying to the goods; or
- (c) the criteria in Column 9 in Appendix 2 of the ADG Code for assignment of the Subsidiary Risk; or
- (d) a determination made by the authority appointed by the jurisdiction to give effect to the ADG Code; or
- (e) the United Nations *dangerous goods* tests and criteria for assignment to the *Subsidiary Risk*.

'Subsidiary Risk label' means a label of a type specified in the *ADG Code* for the *Subsidiary Risk* of the *dangerous goods*.

'Tank' means a *container*, other than an *IBC*, that is used, or designed to be used, to transport, store or handle dangerous goods in the form of a gas or a liquid in *bulk* and includes fittings, closures and any other equipment that forms part of the *container*.

'Transfer' includes the pumping, dispensing, or decanting from one *container* into another or from one place to another within a *premises*.

'Underground tank' means a tank intended to remain in one place and is wholly or partially buried below the surrounding ground gradient.

'UN Number' means, in relation to *dangerous goods*:

- (a) the substance identification serial number shown in Appendix 1 and Column 1 of Appendix 2 of the *ADG Code* in relation to those goods; or
- (b) the number assigned to the *dangerous goods* by the UN Committee of Experts on the Transport of Dangerous Goods and as published in the *United Nations Recommendations on the Transport of Dangerous Goods* as in force from time to time.

'Workplace' means any place, including any aircraft, ship or vehicle, where a person works, or is likely to work, and includes any place where a person goes while at work.

INCORPORATION OF REFERENCES

- 6 (1) Where this national standard refers to a document, other comparable documents which are deemed acceptable by the *Authority*, may be used in lieu of the referenced document.
- (2) Where there is any inconsistency between this national standard and any referenced document, this national standard prevails except as provided for in sub clause 4(4)(b) and 4(4)(c).
- (3) Where *approvals* are issued by the authority appointed by the jurisdiction to give effect to the *ADG Code*, then these are deemed to form part of the *ADG Code* for the purpose of this national standard in that jurisdiction.
- (4) Where an *approval* is issued by the Competent Authorities Panel as referred to under the *Road Transport Reform (Dangerous Goods) Act 1995* (Cwlth), then that *approval* is deemed to form part of the *ADG Code* for the purpose of this national standard and applies nationally.

OBLIGATIONS ON MORE THAN ONE PERSON

- 7 In this national standard, unless the requirement makes express provision to the contrary, if more than one person is under a duty to comply with a requirement, each person *must* comply with the requirement without regard to the fact that others may also be responsible for complying with the requirement.

PART B - DUTIES

GENERAL DUTY OF CARE

- 8 A person who has to any extent, management or control of the storage and handling of *dangerous goods* must take such precautions and exercise such care as is practicable to protect the safety and health of persons, and prevent damage to property and/or the environment, from the risks arising from the *dangerous goods*.

DUTIES OF MANUFACTURERS, SUPPLIERS, IMPORTERS AND INSTALLERS

DANGEROUS GOODS

Classification of Dangerous Goods

- 9 (1) A person who imports or manufactures goods where it is suspected or reasonably ought to be suspected that the goods are *dangerous goods*, must determine whether the goods are *dangerous goods*.
- (2) For the purposes of sub-clause 9(1), the determination must be made in accordance with:
- (a) the *ADG Code*, if the goods could be suspected as being *dangerous goods*, or
 - (b) AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*, if the goods could be suspected as being *combustible liquids*.
- (3) A person who imports or manufactures goods that are *dangerous goods* must ensure that the *dangerous goods* are classified:
- (a) in accordance with the *ADG Code* for those *dangerous goods* specifically listed in the code; or
 - (b) in accordance with the criteria referenced in the *ADG Code*.

Supply of Dangerous Goods

- (4) A person who imports or manufactures *dangerous goods* to be stored or handled at another *premises* must ensure that they are contained, packaged and labelled in accordance with the *ADG Code*, and, for workplace supply, labelled with other information to protect the health and safety of persons before the goods are supplied for use.

- (5) A person who supplies *dangerous goods* *must* not supply *dangerous goods* in circumstances where the person could be reasonably expected to know that the condition of the *dangerous goods* and any *container, package or label* associated with the *dangerous goods* do not comply with sub-clause 9(4).

A Person Who Retails Dangerous Goods

- 9 (6) The provisions of sub-clause 9(4) do not apply to a *retailer*, other than as provided in clause 9(7), in respect of the supply of *dangerous goods* into a *container* of a capacity no greater than that for *packaged dangerous goods* which is provided by the purchaser, however the *retailer* *must* ensure that, as far as *practicable*, the *container*:
- (a) is of a material that will not react adversely with the *dangerous goods*, is constructed in manner that will contain the *dangerous goods* and is not in a damaged condition;
 - (b) has the name of the *dangerous goods* contained clearly marked on the *container*; and
 - (c) cannot be mistakenly identified as containing foodstuffs;

Cylinders, Disposable Containers and Aerosol Containers for Class 2 Dangerous Goods

- (7) A person who fills, permits or causes to be filled any cylinder, disposable container or aerosol container with *dangerous goods* of *Class 2* *must* ensure that the cylinder, disposable container or aerosol container complies with the requirements of the *ADG Code*.

Provision of Material Safety Data Sheets

- 10 (1) A person who imports or manufactures *dangerous goods* *must*:
- (a) provide a *MSDS* for those *dangerous goods* they supply; and
 - (b) in order to keep the information up to date, ensure the *MSDS* for the *dangerous goods* they import or manufacture, are reviewed and revised at intervals not exceeding five years from the date of the last issue of the *MSDS*.
- (2) A person who supplies *dangerous goods* *must* have available, the current *MSDS* information provided by the importer or manufacturer:
- (a) on request, to a person likely to be affected by the *dangerous goods*, and
 - (b) to a *workplace*:
 - (i) on or before the first supply, that the *dangerous goods* are supplied, or where this is not possible, as soon as possible thereafter; and

- (ii) subsequently, on or before the first occasion *dangerous goods* are supplied after each revision of the *MSDS*.
- (3) The provisions of sub-clause 10(2) do not apply to a person who is a *retailer* who supplies:
- (a) *packaged dangerous goods* that are consumer *packages* to a purchaser; or
 - (b) *dangerous goods* into a *container* provided by the purchaser, in accordance with sub-clause 9(6).

Provision of Other Information

- 11 Where a person who receives *dangerous goods* from a supplier requests the supplier to provide information, which is relevant to the safe storage and *handling* of the *dangerous goods*, other than that contained in the *MSDS*, then the supplier *must* provide that relevant information if it is available to the supplier at the time of the request.

PLANT AND STRUCTURES USED FOR STORAGE AND HANDLING

- 12 (1) A person who supplies or installs *plant* or a structure for the storage and *handling* of *dangerous goods* *must* ensure that:
- (a) the *plant* or structure is suitable and safe for use with those goods;
 - (b) the *plant* or structure conforms with the design for that *plant* or structure;
 - (c) for *plant* or a structure that is designed to be operated in a fixed position, inadvertent movement is prevented; and
 - (d) the *occupier* is provided with information on:
 - (i) installation, testing, commissioning, use, in-service inspection and testing, cleaning, repair, dismantling and disposal, to the extent that it is relevant to the safe storage and *handling* of *dangerous goods*;
 - (ii) how the *plant* or structure should be operated and maintained; and
 - (iii) any conditions or specifications necessary, when the *plant* or structure is in operation, to ensure the safety and health of relevant persons and to prevent damage to property and the environment.
- (2) A person who has supplied or installed *plant* or a structure *must* ensure that, as far as is *practicable*, the *occupier* is provided with any information which becomes available about the *plant* or structure after the *plant* or structure has been installed, where this may impact on the safe storage and *handling* of *dangerous goods*.

DUTIES OF OCCUPIERS

GENERAL

Hazard Identification

- 13 (1) The *occupier* of a *premises* must ensure that any *hazard* associated with the storage and *handling* of *dangerous goods* on the *premises* is identified, having regard to the state of knowledge of the *hazard*.
- (2) Without limiting the generality of sub-clause 13(1), when identifying the *hazards* associated with those *dangerous goods*, the *occupier* must ensure due consideration is given to:
- (a) the chemical and physical properties of the *dangerous goods* including physical state, viscosity, vapour pressure, chemical energy, particle size, solubility, electrical conductivity, reactivity, combustion products and concentration; and
 - (b) the chemical and physical reaction between *dangerous goods* and other substances and articles which could cause a hazard should they come into contact with one another; and
 - (c) any manufacturing, *transfer* and transport processes involving the *dangerous goods* including the temperatures and pressures to which the goods are subjected, physical processes as separation, mixing, absorption and changes of state and processes involving chemical reaction; and
 - (d) the structures, *plant* (including the characteristics of the materials used in the *plant*), system of work and activities, used in the storage and *handling* of *dangerous goods* which could cause a *hazard*; and
 - (e) any activities, systems of work, structures, *plant* (including the characteristics of the materials used in the *plant*), substances or articles which are not used to store or handle the *dangerous goods* at the *premises*, but could interact with the *dangerous goods* at the *premises* to cause a hazard ;
 - (f) any information about the inherent hazardous properties of the *dangerous goods*, including material safety data sheets for the *dangerous goods*, available to the *occupier*; and
 - (g) the type and characteristics of incidents known to be associated with the dangerous goods, including incidents affecting the *plant* or structures used in the storage and *handling* of the *dangerous goods* at the *premises*.

Risk Assessment

- 14 (1) Where a *hazard* is identified under clause 13, the *occupier must* ensure that, an assessment is made of the *risks* associated with the *hazard*.
- (2) Without limiting the generality of sub clause 14(1), in carrying out the *risk* assessment, the occupier must have regard to:
- (a) the chemical and physical properties of the *dangerous goods* including physical state, viscosity, vapour pressure, chemical energy, particle size, solubility, electrical conductivity, reactivity, combustion products and concentration; and
 - (b) the chemical and physical reaction between *dangerous goods* and other substances and articles which could cause a hazard should they come into contact with one another; and
 - (c) any manufacturing, *transfer* and transport processes involving the *dangerous goods* including the temperatures and pressures to which the goods are subjected, physical processes as separation, mixing, absorption and changes of state and processes involving chemical reaction; and
 - (d) the structures, *plant* (including the characteristics of the materials used in the *plant*), system of work and activities, used in the storage and *handling* of *dangerous goods*; and
 - (e) any structures, *plant* (including the characteristics of the materials used in the *plant*), activities, systems of work, substances or articles which are not used to store or handle the *dangerous goods* at the *premises*, but could interact with the *dangerous goods* at the *premises*; and
 - (f) the consequences, on and beyond the *premises*, of all reasonably foreseeable incidents that may occur as a result of the storage and *handling* of the *dangerous goods*.

Record Keeping

- (3) The *occupier must* ensure that:
- (a) a *record* is made of:
 - (i) the assessment; and
 - (ii) each review of the assessment;
 - (b) a copy of that *record* is kept while the assessment is current or being reviewed; and
 - (c) that *record* is available, on request, to the relevant *Authority*.

Review of Assessment

- (4) The *occupier must* ensure that the assessment is reviewed:

- (a) when there is a change in circumstances such that the previous assessment is no longer valid;
- (b) at intervals of not more than five years from the previous assessment or review of assessment.

Control of Risk

- 15 (1) The *occupier must* ensure that any *risk* associated with the storage and *handling* of *dangerous goods* is controlled by eliminating the *hazards* associated with that *risk* or, where this is not *practicable*, by reducing that *risk* as far as *practicable*.
- (2) The *occupier must* ensure that as far as *practicable* the *risks* are controlled by progressive application of the following measures:
- (a) elimination of the use of *dangerous goods*;
 - (b) substitution of the *dangerous goods* with other *dangerous goods* which are assessed to have a lower potential for adverse effects; and
 - (c) the quantity of the *dangerous goods* stored and *handled* is minimised.
- (3) The *occupier must* ensure that:
- (a) control measures and safe systems of work are implemented, supervised and maintained so as to ensure its continued control of all *dangerous goods* on the *premises*; and
 - (b) where any non-compliance with this national standard is identified or reported, action is taken immediately to rectify the non-compliance. Where there are any *risks* arising from the non-compliance, the *hazards* associated with those *risks* are eliminated or, where this is not *practicable*, those *risks* are minimised.

Design, Operation, Maintenance and Repair

- (4) The *occupier must* ensure that:
- (a) the *plant* and structures associated with the storage and *handling* of *dangerous goods* are designed, manufactured, installed, commissioned, operated, tested, maintained, repaired and decommissioned so as to eliminate the *hazards* giving rise to a *risk* or, where this is not *practicable*, reduce the *risk* as far as *practicable*;
 - (b) any structures, *plant* (including the characteristics of the materials used in the *plant*), activities, systems of work, substances or articles which are not used to store or *handle* the *dangerous goods* at the *premises*, do not affect the *dangerous goods* or the manner in which the *dangerous goods* are stored and *handled*, which increases the risk; and

- (c) controls are put in place to eliminate or, where this is not *practicable*, reduce the *risk* posed to the:
- (i) public, property or environment arising from the storage and handling of *dangerous goods* on the *premises*; and
 - (ii) *plant*, structures, processes, activities and systems of work used for storage and *handling of dangerous goods*, arising from actions by members of the public who are permitted to have access to any area where *dangerous goods* are stored or *handled*.

SPECIFIC

Separation by Physical Means

- 16 (1) Without limiting the generality of Clause 15, the occupier *must* ensure that the *risk* to:
- (a) *protected works*; and
 - (b) other *dangerous goods* storage and *handling* areas; and
 - (c) people, other property and the environment;
- at, or beyond the boundaries of the *premises* arising from a *dangerous occurrence* involving the storage and *handling* of *dangerous goods* is eliminated, or if it is not *practicable* to eliminate the *risk*, reduced so far as is *practicable* by isolation.
- (2) For the purposes of sub-clause 16(1), isolation means the separation of the storage and *handling* of *dangerous goods* from the *protected works*, other parts of the *premises* and places beyond the boundaries, by distances or barriers or both.

Segregation of Dangerous Goods

- 17 (1) Without limiting the generality of clause 15, the occupier *must* ensure that, as far as is *practicable*, *dangerous goods* cannot interact with goods which are not *compatible*, to cause a *dangerous occurrence*.
- (2) The *occupier* *must* ensure that, as far as practicable, dangerous goods cannot contaminate food, food packaging, or personal use products.

Stability of Dangerous Goods

- 18 (1) The *occupier* *must* ensure that, as far as practicable, in relation to *dangerous goods*:
- (a) all necessary measures are taken to ensure that those goods do not *inadvertently* become unstable, dangerously decompose or change to *dangerous goods* of a different or greater *hazard*, or increase the *risk* associated with the *dangerous goods*; and

- (b) without limiting the generality of sub-clause 18(1)(a):
- (i) where the stability of the *dangerous goods* is dependent on the maintenance of the proportion of *dangerous goods* and any *ingredients*, then those proportions are maintained as specified by the manufacturer; and
 - (ii) where the *dangerous goods* are required to be stored at or below the *control temperature* nominated by the manufacturer, the *dangerous goods* are stored at or below the *control temperature*.
- (2) Sub-clause 18(1) does not apply where the *dangerous goods* are about to be consumed or used in manufacture.

Containers for Bulk Dangerous Goods

19 The occupier must ensure that a *container* in which *dangerous goods* are stored in bulk and any associated *pipework* or attachments to that *container*, is located and, where necessary, securely fixed to a stable foundation to prevent damage from relative movement between the *container* and the associated *pipework* or attachments.

Spills and Containment

20 The *occupier must* ensure that:

- (a) any spill, leak or inadvertent release of solid or liquid *dangerous goods* is confined within the *premises*; and
- (b) when a spill, leak or inadvertent release of *dangerous goods* occurs, immediate action is taken to assess and control any *risk* from the spill, leak or inadvertent release; and
- (c) when a spill, leak or inadvertent release of *dangerous goods* occurs or is detected the *dangerous goods* are contained, cleaned up and disposed of, or otherwise made safe, as soon as *practicable*.

Impact Protection

21 The *occupier must* ensure that as far as *practicable* any *pipework*, attachments or containers of *dangerous goods* are protected against damage from impact resulting from activities in or at the *premises*.

Transfer of Dangerous Goods

22 Without limiting the generality of Clause 15, the *occupier must* ensure that the *risks* associated with the *transfer* of *dangerous goods* are eliminated or, where this is not possible, minimised as far as is *practicable*, having regard to the need to –

- (a) avoid spillage or overflow;
- (b) minimise static electricity;

- (c) minimise vapour generation;
- (d) ensure that *transfer* fittings are *compatible* with each other; and
- (e) avoid sources of ignition.

Fire Protection

- 23 The *occupier* of *premises* where *dangerous goods* are stored and *handled* *must* ensure that:
- (a) the *premises* are provided with fire protection and fire fighting equipment which is designed and constructed for the type and quantity of the *dangerous goods* and the conditions under which they are stored and *handled*, having regard to -
 - (i) the fireload of *dangerous goods*;
 - (ii) other exposures;
 - (iii) other *premises*, and
 - (iv) *compatibility* with other goods.
 - (b) that fire protection and fire fighting equipment is installed, tested and maintained; and
 - (c) in the event that the components of the fire protection and fire fighting equipment are rendered unserviceable or inoperative the implications of the loss of serviceable or operative equipment are assessed as soon as possible, and where necessary:
 - (i) alternative means of fire protection are provided to ensure that levels of protection are maintained, or
 - (ii) action is taken to eliminate, as far as *practicable*, the *risks* associated with the storage and *handling* of the *dangerous goods* by modifying processes, storage areas or work practices; and
 - (iii) action is taken as soon as *practicable*, to return the fire fighting and protection equipment to full service and operation.

Emergency Preparedness

- 24 (1) The *occupier*, in relation to the storage and *handling* of *dangerous goods*, *must* ensure that:
- (a) a procedure for dealing with emergencies is developed, implemented, maintained and communicated to persons on the *premises* who may be affected by or respond to an emergency; and
 - (b) equipment is available:
 - (i) for use in an emergency; and
 - (ii) to contain and clean-up reasonably foreseeable incidents.

- (2) The occupier of a premises must ensure that an emergency plan is developed, implemented and maintained and communicated to persons who may be affected by or respond to an emergency, where the:
 - (a) the total quantity of any *class of dangerous goods* exceeds the 'Manifest Quantity' specified in Items 1, 2, or 3 of the Table in Schedule 1 in respect of the particular *Class*, type and *Packing Group* (if any) for the *dangerous goods*; or
 - (b) the quantity of mixed *classes of dangerous goods* exceeds the 'Manifest Quantity' specified in Item 4 of the Table in Schedule 1; or
 - (c) the total quantity of *goods too dangerous to be transported* exceeds the 'Manifest Quantity' specified in Item 5 of the Table in Schedule 1; or
 - (d) the total quantity of *combustible liquids* and *fire risk dangerous goods* stored or *handled* together in any area quantity exceeds the 'Manifest Quantity' specified in Item 6 of the Table in Schedule 1; or
 - (e) the total quantity of C1 *combustible liquids* exceeds the 'Manifest Quantity' specified in Item 7 of the Table in Schedule 1.
- (3) Where an emergency plan is developed under sub clause 24(2), the occupier *must* communicate relevant elements of the plan to persons, on the *premises* and on adjacent *premises* that may be affected by an emergency.
- (4) Where an emergency plan is developed under sub clause 24(2), a copy of the plan *must* be provided to the *emergency services authority*.
- (5) Where the *emergency services authority* provides written advice to the *occupier* regarding the content or effectiveness of the emergency plan, the *occupier* *must* have regard to that written advice.

Ignition Sources in Hazardous Areas

- 25 Without limiting the generality of Clause 15, the *occupier* *must* ensure that, in relation to the storage and *handling* of *dangerous goods*, *ignition sources* in *hazardous areas* are eliminated or, where this is not *practicable*, the *risk* arising from the *ignition source* is controlled.

Safety Equipment

- 26 The *occupier* *must* ensure that where equipment is required to control an identified *risk* in relation to the storage and *handling* of *dangerous goods*, including personal protective equipment and clean up equipment such as neutralisers, decontaminants or pressure relief valves, that such equipment is provided, maintained and accessible.

Control of Hazardous Atmosphere

- 27** The *occupier must* ensure that any health and safety risk of an atmosphere resulting from the storage and *handling* of *dangerous goods* is eliminated, or minimised as far as *practicable*.

Lighting

- 28** The *occupier must* ensure that, in relation to the storage and *handling* of *dangerous goods*, sufficient and suitable lighting is provided to:
- (a) enable safe access within and to and from the *premises*; and
 - (b) ensure that a person working in an area where *dangerous goods* are stored or *handled* is able to do so safely.

Access

- 29** The *occupier must* ensure that, in relation to the storage and *handling* of *dangerous goods*:
- (a) safe means of access within and to and from the *premises* is provided and maintained; and
 - (b) that authorised persons have access at all times while on the *premises* to where:
 - (i) decontamination materials and their associated equipment are kept; and
 - (ii) fire fighting equipment is located.

Security

- 30** The *occupier*, in relation to the storage and *handling* of *dangerous goods*, *must* ensure that unauthorised access and activity on the *premises* is prevented as far as *practicable*.

Decommissioning/Abandoning/Disposal

- 31** The *occupier must* ensure that all *plant*, equipment and *containers* are *free from dangerous goods* as far as *practicable* or otherwise made safe where the *plant*, equipment or *containers* are:
- (a) no longer intended to be used in connection with *dangerous goods*; or
 - (b) to be disposed of.

PROVISION OF INFORMATION

General

Dangerous Goods

- 32 The *occupier must* ensure that information that will enable informed health and safety procedures to be adopted for the *dangerous goods* stored and *handled* on the *premises*:
- (a) is obtained; and
 - (b) for a person on the premises likely to be affected by those goods is:
 - (i) communicated to that person; and
 - (ii) made available to such a person on request from that person; and
 - (c) while not limiting the generality of sub-clause 32(b), if information is communicated in the form of safety signs that warn persons of a specific *hazard* or their responsibilities, these are displayed in a prominent, visible location adjacent to the hazard.

Plant and Structures Used for Storage and Handling

- 33 The *occupier must* ensure that a person who operates, accesses, maintains, repairs, inspects or tests *plant* or structures used for the storage and *handling* of *dangerous goods* is provided with information on the suitability of the *plant*, structures and their associated procedures for their safe operation.

Specific

Identification

- 34 (1) An *occupier* who receives *dangerous goods* in circumstances where the *occupier* could be reasonably expected to know that the label, placard or marking does not comply with the *ADG Code*, *must* :
- (a) not accept receipt of those goods from the supplier, or
 - (b) accept receipt and ensure that the *dangerous goods* are labelled, placarded or marked in accordance with -
 - (i) the *ADG Code* where they are contained in a *package*; or
 - (ii) the *ADG Code* where they are contained in a portable *tank* or *IBC*.
- (2) The occupier must ensure that:
- (a) prior to using *dangerous goods* on the *premises*, those goods are labelled to protect the safety and health of persons;

- (b) where dangerous goods are stored on a *premises*, they are placarded in accordance with clause 38 of this national standard where they are in *bulk storage*;
 - (c) labels, placards and markings are maintained while goods are on the *premises*; and
 - (d) any *container* labelled for particular *dangerous goods* is used only for those *dangerous goods*.
- (3) The provisions of sub-clause 34(2)(a) does not apply to *combustible liquids*, however, the *occupier must* ensure that *combustible liquids* are identified.
- 35 (1) The *occupier* need not label a *container* into which *dangerous goods* have been *transferred* if the *dangerous goods* in the *container* are to be used immediately and the *container* rendered *free from dangerous goods* immediately after use.
- (2) For the purposes of sub-clause 35(1), *free from C2 combustible liquids* must be determined in accordance with the interpretation of *free from dangerous goods*.

Placards

General

- 36 (1) Where placards for *dangerous goods* stored and *handled on premises* are required, the *occupier must* ensure that those *premises* are placarded in accordance with Clauses 37, 38 and 39.
- (2) The *occupier must* ensure that all placards are:
- (a) accurate; and
 - (b) revised as soon as *practicable* if a change to the *Class* and quantity of *dangerous goods* stored on the *premises* requires different information to be displayed.
- (3) The *occupier* may make alternative arrangements for the placement of the placards specified in the standard, provided that any agreements reached between the *emergency service authorities* and the *occupier* are:
- (a) formalised; and
 - (b) limited to the placement of placards.

Outer Warning Placards

- 37 The *occupier must* ensure that a 'HAZCHEM' Outer Warning Placard as specified in Schedule 2 is provided for those entrances to the *premises* where emergency services may gain entry to the *premises* where the aggregate quantity exceeds the 'Placarding Quantity' in Schedule 1, in relation to:
- (a) any *Class* of *dangerous goods* specified in Items 1, 2 or 3 of the Table in Schedule 1 in respect to the particular *Class*, type and *Packing Group* (if any) for the *dangerous goods*; or

- (b) mixed classes of dangerous goods to which Item 4 of the Table in Schedule 1 applies; or
- (c) goods too dangerous to be transported to which Item 5 of the Table in Schedule 1 applies; or
- (d) combustible liquids and fire risk dangerous goods that are stored or handled together in any area—to which Item 6 of the Table in Schedule 1 applies; or
- (e) C1 combustible liquids when stored and handled in isolation from dangerous goods to which Item 7 of the Table in Schedule 1 applies.

Placards for Dangerous Goods in Bulk

- 38 (1) The occupier must ensure that, where dangerous goods are stored in bulk, they are placarded in accordance with Schedule 2, except where those goods are:
- (a) contained in an IBC or in a bulk container intended for transport;
 - (b) C1 combustible liquids in a quantity not exceeding 10,000 L in isolation from dangerous goods; or
 - (c) dangerous goods of Class 2.1 or 3, or C1 combustible liquids when stored in an underground tank at a service station.
- (2) The occupier must ensure that where a placard for bulk dangerous goods or C1 combustible liquids is required, it is placed in a prominent, visible location on, or adjacent to, the bulk storage.

Placards for Packaged Dangerous Goods

- 39 (1) The occupier must ensure that, except for liquefied petroleum gas stored in cylinders outside a building and connected by piping to gas consuming appliances within the building:
- (a) a placard is displayed where the aggregate quantity of—
 - (i) any Class of dangerous goods exceeds the 'Placarding Quantity' specified in Items 1, 2 or 3 of the Table in Schedule 1 in respect to the particular Class, type and Packing Group (if any) for the dangerous goods; or
 - (ii) mixed classes of dangerous goods exceeds the 'Placarding Quantity' specified in Item 4 of the Table in Schedule 1; or
 - (iii) goods too dangerous to be transported exceeds the 'Placarding Quantity' specified in Item 5 of the Table in Schedule 1; or
 - (iv) combustible liquids and fire risk dangerous goods that are stored or handled together in any area exceeds the 'Placarding Quantity' specified in Item 6 of the Table in Schedule 1; and

- (b) this placard incorporates the *Class labels* for each of the *dangerous goods* in the area in accordance with sub-clause 39(2) subject to the provisions of sub-clause 39(3), as specified in Schedule 2.

Use of Class Labels

- (2) A placard for *packaged dangerous goods* must display a:
 - (a) A *Class label* for any *class of dangerous goods* in a quantity that exceeds the 'Placarding Quantity' specified in Items 1, 2 or 3 in the Table in Schedule 1 for the Class, type and Packing Group (if any) for the dangerous goods; or
 - (b) If there is more than one *Class*, a *Class label* for any *Class of dangerous goods* if the aggregate quantity of the *Class* and all other *dangerous goods* which have a *Subsidiary Risk* corresponding to that *Class*, exceeds 1,000 kg or L; or
 - (c) If there are mixed classes of *dangerous goods* to which Item 4 of the Table in Schedule 1 applies and the quantity exceeds the amount specified in Item 4, a *Class label* for each *Class of dangerous goods* that exceeds 50% of the 'Placarding Quantity' specified in Items 1, 2 and 3 of the Table in Schedule 1; or
 - (d) A Class 3 *Class label* if the quantity of *combustible liquids* and *fire risk dangerous goods* exceeds the 'Placarding Quantity' specified in Item 6 of the Table in Schedule 1; or
 - (e) A placard for *goods too dangerous to be transported* in a quantity that exceeds the 'Placarding Quantity' specified in Item 5 of the Table in Schedule 1. [See Implementation Note below]

Implementation Note:

The design of an appropriate placard for 'Goods Too Dangerous To Transport' will be completed in 2001

Use of Mixed Class Labels

- (3) A mixed *Class label* must be displayed where:
 - (a) the aggregate quantity of *dangerous goods* exceeds the mixed *Classes* quantity specified in Item 4 of the Table in Schedule 1; and
 - (b) no *Class label* is required by the application of sub-clause 39(2).

Combustible Liquid Placards

- (4) The *occupier* must ensure that a *combustible liquids* placard as specified in Schedule 2, is displayed when the quantity of C1 *combustible liquids* stored and handled in isolation from *dangerous goods*, exceeds the 'Placarding Quantity' specified in Item 7 of the Table in Schedule 1 in relation to *packages*, or *packages and bulk*.

Positioning of Placards

- (d) Subject to the provisions of sub-clause 36(3), the *occupier must* ensure that where a placard for *packaged dangerous goods* or C1 *combustible liquids* is required, the placard *must* be positioned:
- (a) so that it is:
 - (i) clearly visible from normal approaches; and
 - (ii) adjacent to an outside storage area; and
 - (b) at:
 - (i) the main entrance to a building; and
 - (ii) either at every entrance to the area or adjacent to those goods.

Manifest and Site Plan of the Premises

- 40 (1) The *occupier must* ensure that a manifest:
- (a) is prepared and recorded for the *premises*, where the total quantity of:
 - (i) any *class of dangerous goods* exceeds the 'Manifest Quantity' specified in Items 1, 2 or 3 of the Table in Schedule 1 in respect to the particular *class*, type and *Packing Group* (if any) for the *dangerous goods*; or
 - (ii) mixed *classes of dangerous goods* exceeds the 'Manifest Quantity' specified in Item 4 of the Table in Schedule 1 applies; or
 - (iii) *goods too dangerous to be transported* exceeds the 'Manifest Quantity' in Item 5 of the Table in Schedule 1;
 - (iv) *combustible liquids* and *fire risk dangerous goods* that are stored or *handled* together in any area exceeds the 'Manifest Quantity' specified in Item 6 of the Table in Schedule 1; or
 - (v) C1 *combustible liquids* exceeds the 'Manifest Quantity' specified in Item 7 of the Table in Schedule 1; or
 - (b) is located in a position determined in consultation with the *emergency services authority*;
 - (c) is readily accessible to the *Authority* or *emergency services authority*; and
 - (d) is revised to reflect significant changes in any information required by sub-clauses 40(2 and 3) as soon as *practicable*, and in any event within seven days.

- (2) The *occupier must* ensure the manifest contains the:
- (a) date when the information was prepared;
 - (b) name of the *occupier* and address of the *premises*;
 - (c) contact information for two people who may be contacted in case of emergency;
 - (d) location and type of storages of:
 - (i) *dangerous goods*;
 - (ii) *combustible liquids* stored with *fire risk dangerous goods* where the *combustible liquids* are:
 - in *bulk*; or
 - *packaged combustible liquids* in an aggregate quantity greater than 1,000 kg or L in a storage area; and
 - (iii) C1 *combustible liquids* when stored and *handled* in isolation from *dangerous goods*;
 - (e) *Class and Packing Group of dangerous goods at the premises*;
 - (f) for *bulk containers*, excluding *IBCs*, the number and capacity of each *container*;
 - (g) for *packages, containers* and *IBCs*, the current aggregate quantity of each *Class of dangerous goods* or the maximum and average quantities of each *Class of dangerous goods*;
 - (h) *Proper Shipping Name or product name* and *UN Number* for all *bulk* storages of *dangerous goods* other than *IBCs*;
 - (i) *Proper Shipping Name or product name* and *UN Number* for all *Class 2.3 dangerous goods* and *Packing Group I dangerous goods*; and
 - (j) a plan of the *premises*.
- (3) The *occupier must* ensure the site plan of the *premises* contains the:
- (a) location of essential site services including fire services and isolation points for fuel and power;
 - (b) location of the manifest for the *premises*;
 - (c) main entrance and other entry points to the *premises*;
 - (d) *classes of dangerous goods*;
 - (e) location of:
 - (i) *dangerous goods*;

- (ii) combustible liquids stored and handled with fire risk dangerous goods where the combustible liquids are:
 - in bulk; or
 - packaged combustible liquids in an aggregate quantity greater than 1,000 kg or L in a storage area; and
 - (iii) C1 combustible liquids when stored and handled in isolation from dangerous goods;
 - (f) storages and how they are identified;
 - (g) manufacturing and process areas;
 - (h) location of all drains on the site; and
 - (i) nature of adjoining sites or premises.
- (4) For dangerous goods in transit, items in sub-clauses 40(2)(e, f, g, h and i) may be provided in the form of a compilation of dangerous goods shipping documents complying with the ADG Code.

DANGEROUS OCCURRENCES

- 41 The occupier, in relation to the storage and handling of dangerous goods, must ensure that:
- (a) a system for investigating and recording dangerous occurrences and near misses is established, maintained and communicated to persons likely to be affected by such occurrences;
 - (b) dangerous occurrences and near misses are:
 - (i) investigated; and
 - (ii) reported to persons:
 - responsible for taking corrective action for such occurrences; and
 - who have been affected by such occurrences.
 - (c) a record of each dangerous occurrence or near miss is:
 - (i) made;
 - (ii) kept for the life of the facility; and
 - (iii) readily available, on request, to the relevant Authority; and
 - (d) where a dangerous occurrence or a near miss is identified and corrective action is necessary:
 - (i) immediate action is taken to assess and control any risk and make

the system and surrounding area safe as far as *practicable*;

- (ii) only persons essential to carrying out the corrective action specified in sub-clause 41(d)(i) are present; and
- (iii) the safety and health of each person who carries out the corrective action specified in sub-clause 41(d)(i) is ensured as far as *practicable*.

Reporting

- 42 The *occupier must* ensure that, in respect of a *dangerous occurrence* at the *premises*, the *Authority* and *emergency services authority* are alerted of that *dangerous occurrence* as soon as possible.
- 43 The *occupier must* ensure that:
 - (a) within 14 days of a *dangerous occurrence*, a written report is sent to the *Authority* in respect of that occurrence; and
 - (b) the report specified in sub-clause 43(a) includes, as far as is known at the time that the report is submitted, the following, but need not be limited to:
 - (i) the date, time and location of the *dangerous occurrence*;
 - (ii) the type, quantity and containment or *handling* method for the *dangerous goods* involved;
 - (iii) a description of the relevant events leading to, during and of the *dangerous occurrence*;
 - (iv) details of any injury, death, hospitalisation or evacuations;
 - (v) details of damage to equipment, property and the environment;
 - (vi) an assessment of the causal factors; and
 - (vii) specific actions which the *occupier* intends to take to prevent the occurrence of any similar or related incidents.
- 44 The *occupier must* ensure that any additional information as requested by the *Authority* to establish the cause or effects of the incident is provided within 14 days of the request being made or as otherwise requested.

NOTIFICATION

Premises

- 45 The *occupier must* ensure that:
 - (a) the *Authority* is notified in writing when *premises* are likely to contain:

- (i) a total quantity of any *Class* of *dangerous goods* that exceeds the 'Manifest Quantity' specified in Items 1, 2 or 3 of the Table in Schedule 1 in respect to the particular *Class*, type and *Packing Group* (if any) for the *dangerous goods*; or
 - (ii) a total quantity of mixed *classes* of *dangerous goods* that exceeds the 'Manifest Quantity' specified in Item 4 of the Table in Schedule 1; or
 - (iii) goods *too dangerous to be transported* that exceed the 'Manifest Quantity' specified in Item 5 of the Table in Schedule 1, except where those goods are produced as transient products in a process in which they are converted to goods that are no longer *goods too dangerous to be transported*; or
 - (iv) a total quantity of *combustible liquids* and *fire risk dangerous goods* stored or *handled* together in any area exceeds the 'Manifest Quantity' specified in Item 6 of the Table in Schedule 1; or
 - (v) C1 *combustible liquids* that exceed the 'Manifest Quantity' specified in Item 7 of the Table in Schedule 1.
- (b) notification to the *Authority* occurs prior to commencement of such storage and *handling* activities and includes:
- (i) details of the *Class* and the average and maximum quantity of the *dangerous goods* to be stored and *handled*; and
 - (ii) descriptions and details and the average and maximum quantity of the *combustible liquids* to be stored and *handled*;
- (c) the *Authority* is re-notified:
- (i) at 12 monthly intervals or at longer intervals if stipulated by the *Authority*;
 - (ii) where there is a significant increase in *risk* on or beyond the *premises*; or
 - (iii) if *dangerous goods* are no longer stored or *handled* on the *premises*; and
- (d) any further relevant information requested by the *Authority* is provided.
- 46 The *Authority* *must* acknowledge the receipt of notification in writing within a reasonable period of time.

DUTIES OF PERSONS IN A WORKPLACE

EMPLOYERS

Consultation

- 47 The employer must, in relation to the storage and *handling* of *dangerous goods* in a workplace, consult with employees who are likely to be affected by the *dangerous goods* and with their employee representatives regarding:
- (a) Induction, Training, Information Provision, Supervision, Hazard Identification, Risk Assessment and Risk Control; and
 - (b) any proposed changes likely to affect the safety and health of persons.

Induction, Information, Training and Supervision

- 48 The employer must ensure:
- (a) that a person involved with the storage and *handling* of *dangerous goods* on *premises*, (including a person commissioning, operating, maintaining, cleaning, repairing or decommissioning a *plant* or structure used for the storage and *handling*), is provided with induction, information, training and supervision that is:
 - (i) in a language or manner appropriate to the person involved; and
 - (ii) appropriate to the *risks* identified and the tasks undertaken;
 - (b) the induction, information and training *must* include instruction in the:
 - (i) nature of the *hazards* and properties of the *dangerous goods* and the processes used for the identification, assessment and control of the *risks* relevant to the person's duties;
 - (ii) use and maintenance of the measures for the control of those *risks*;
 - (iii) safety systems (where applicable), the systems of work and the safe management of, and conduct in, the *premises* in so far as they apply to *dangerous goods*;
 - (iv) effective operation of the emergency plans for the *premises* and any procedures and equipment which may be required for use in the event of an emergency; and
 - (v) proper use, fitting and maintenance of personal protective equipment; and
 - (c) that a *record* of induction and training activities is made and kept for a minimum of 5 years.

- 49** The *employer must* ensure that a copy of the current *risk assessment*, made in accordance with sub-clause 15(2) of this national standard, is readily available to *employees* who are likely to be affected by the *dangerous goods* and to their *employee representatives*.

Visitors

- 50** The *employer must* ensure that a visitor who is likely to be affected on the *premises* by the *dangerous goods* that are stored and *handled* on the *premises* is provided with appropriate information and supervision.

Material Safety Data Sheets

- 51 (1)** The *employer must* ensure that a *MSDS*:

- (a) is obtained on or before the first supply of the *dangerous goods* to their *premises* or, where this is not possible, as soon as possible thereafter;
- (b) provided by the *supplier* is available for all *dangerous goods* stored and *handled* and is readily accessible to an *employee*, *emergency services authority* personnel and any other person who is likely to be affected on the *premises*; and
- (c) from a supplier is not altered except where an overseas *MSDS* is to be reformatted by the *employer*.

- (2)** The *employer must* ensure that information relevant to the safety and health aspects of the *dangerous goods* is available for any *dangerous goods* which are manufactured and subsequently stored and re-used on the *premises*.

- (3)** The provisions in sub-clause 51(1)(a and b) do not apply where *dangerous goods* are stored and *handled* as :

- (a) *dangerous goods in transit*; or
- (b) *packaged dangerous goods* as consumer *packages* by a *retailer* that are intended for supply for use at another *premises* and not intended to be opened on the *premises* (except for the purposes of tinting paint or taking samples).

However, the *employer* is required to have readily accessible information relevant to the safety and health aspects of the *dangerous goods in transit* or, in the case of a *retailer*, for *dangerous goods in packaged dangerous goods* as consumer *packages*.

- (4)** Where an *employee* (and/or their representative) who is involved with the storage and *handling* of *dangerous goods* requests a *MSDS*, the *employer must* ensure that the relevant *MSDS* is provided to that *employee* and/or their representative.

Register for Dangerous Goods

- 52 (1) The *employer* at a *workplace* where *dangerous goods* are stored and *handled* must ensure that:
- (a) a register is kept and maintained for the *dangerous goods* stored and *handled*;
 - (b) the register contains a list of all *dangerous goods* stored and *handled* at the *premises* and, where required by this standard, a *MSDS* for each of the *dangerous goods*; and
 - (c) the register is readily accessible to an *employee* (and/or their representative) and any other person who is likely to be affected by the *dangerous goods* on the *premises*.
- (2) Sub-clause 52(1) does not apply to *dangerous goods* contained in *packages* of a size that in accordance with the *ADG Code* do not have to be marked.
- (3) The provisions of sub-clause 52(1)(b) do not apply to *dangerous goods in transit*, however, the *employer* is required to have readily accessible information relevant to the safety and health aspects of those *dangerous goods*.

EMPLOYEES

- 53 (1) *Employees* must comply, to the extent that they are capable, with the instructions given by the employer in accordance with the provisions of this national standard.
- (2) An *employee* must promptly report to his or her supervisor or *employer*:
- (a) any matter that, to the knowledge of the *employee*, will affect the *employer's* ability to comply with the provisions of this national standard; and
 - (b) *near misses*.

DUTIES OF ALL PERSONS

- 54 A person who is on or at the *premises* where *dangerous goods* are stored and *handled* must:
- (a) comply with training, instructions and notices given or displayed by the *occupier* that relate to safety associated with dangerous goods;
 - (b) not willfully remove, cover, block, erase, mutilate or otherwise interfere with any sign, label or marking that is erected or affixed in accordance with this national standard or otherwise misuse anything provided in the interests of safety and health;
 - (c) to the extent that they are capable, prevent incidents associated with *dangerous goods* to ensure the safety and health of persons and prevent damage to property and the environment; and
 - (d) not act in a willful, mischievous, irresponsible or malicious manner that could, or does, adversely affect the safety and health of persons or cause damage to property or the environment.

DUTIES OF OWNERS AND OPERATORS OF PIPELINES

GENERAL

- 55 (1) The owner of a *pipeline* must ensure that:
- (a) the *pipeline* is appropriately designed, manufactured, installed, commissioned, operated, maintained and decommissioned so that any *hazard* is eliminated or, where this is not *practicable*, the *risk* is reduced as far as *practicable*;
 - (b) as far as *practicable*, activities, structures, equipment or substances which do not form part of the *pipeline* do not affect the *dangerous goods* or the *pipeline* in a manner that increases *risk*.
- (2) The operator of a *pipeline* must ensure that controls are put in place to reduce *risk* as far as *practicable* to or from the *pipeline* and its contents at:
- (a) *workplaces* associated with the *pipeline*; and
 - (b) areas associated with the *pipeline* which the public is normally permitted to access.

NOTIFICATION

- 56 (1) The owner of a *pipeline* must ensure that the *Authority* is notified:
- (a) prior to the construction of the *pipeline*, as to:
 - (ii) the name of the prospective owner and operator of the *pipeline*;
 - (iii) the *pipeline* specifications, procedures for operation and maintenance, renewal or relaying; and
 - (iii) emergency response procedures;
 - (b) prior to commissioning, when the *pipeline* is likely to contain a quantity of *dangerous goods*;
 - (c) when there is any change in the items previously notified under this clause, including prior to major modifications to the *pipeline* or relaying and renewing or making safe the *pipeline*; and
 - (d) when part or all of the *pipeline* is removed, decommissioned, closed or abandoned.
- (2) The operator of a *pipeline* must ensure that the *Authority* is notified, as to the:
- (a) supplier and receiver for any *dangerous goods* to be *transferred* by the *pipeline*; and

- (b) *Class* and quantity of each *Class of dangerous goods* and a description and the quantity of *combustible liquids* to use the *pipeline*.
- 57 The *Authority* must acknowledge the receipt of notification in writing within a reasonable period of time.

SCHEDULE 1

QUANTITIES OF DANGEROUS GOODS FOR SPECIFIC CLAUSES

Item	Dangerous Goods and Combustible Liquids	Packing Group	Placarding Quantity	Manifest Quantity
1.	Class 2 • Class 2.1 • Class 2.2 - Subsidiary Risk 5.1 • Class 2.2 – Other • Class 2.3 Aerosols Cryogenic Fluids	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable	500 L 2,000 L 5,000 L 50 L 5,000 L 1,000 L	5,000 L 10,000 L 10,000 L 500 L 10,000 L 10,000 L
2.	Any one of Class 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1 or 8	I	50 kg or L	500 kg or L
		II	250 kg or L	2500 kg or L
		III	1,000 kg or L	10,000 kg or L
		Mixed Packing Groups in a single Class of dangerous goods where none of the Packing Groups present exceeds the quantities specified in Item 2 of this Table.	1,000 kg or L	10,000 kg or L
3.	Class 9	II	1,000 kg or L	10,000 kg or L
		III	5,000 kg or L	10,000 kg or L
		Mixed Packing Groups in a single Class of dangerous goods where none of the Packing Groups present exceeds the quantities specified in Item 3 of this Table.	5,000 kg or L	10,000 kg or L
4(a).	Mixed Classes of dangerous goods where none of the Classes, types and Packing Groups (if any) present exceeds the quantities specified in Items 1, 2 and 3 of this Table.	Not Applicable	2,000 kg or L Where the quantity specified in this Schedule for each of the Classes is 2,000 kg or L or less.	10,000 kg or L

Item	Dangerous Goods and Combustible Liquids	Packing Group	Placarding Quantity	Manifest Quantity
4(b).	Mixed Classes of dangerous goods where none of the Classes, types and Packing Groups (if any) present exceeds the quantities specified in Items 1, 2 and 3 of this Table.	Not Applicable	5,000 kg or L Where the quantity specified in this Schedule for one or more of the Classes is 5,000 kg or L and Placarding is not required for Items 1, 2, 3, and 4a.	
5.	Goods Too Dangerous To Be Transported	Not Applicable	5 kg or L	50 kg or L
6.	Combustible liquids with fire risk dangerous goods	Not Applicable	1,000 kg or L Includes both C1 and C2	10,000 kg or L Includes both C1 and C2
7.	C1 Combustible liquids	Not Applicable	10,000 L <i>In bulk containers</i> 50,000 L <i>In packages</i> 50,000 L <i>Bulk and packaged</i> combined provided the quantity of C1s in <i>bulk</i> does not exceed 10,000 L.	100,000 L Bulk or packaged.

Notes:

1. Schedule 1 is referenced in the following clauses and sub-clauses of this national standard:

24(2) 40(1)	Emergency Preparedness Manifests	37, 39 45(a)	Placarding Notification
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2. For dangerous goods that are articles, the quantity of gas or liquid in L or solid in kg that comprise those articles must be taken into account when determining a threshold quantity of dangerous goods for the application of this Schedule.
3. For the purposes of applying this Schedule, the dangerous goods specified in this Schedule do not include dangerous goods that:
 - (a) are specified in sub-clause 4(3) of this national standard; and
 - (b) are or are in fire fighting equipment or first aid kits.
4. Where no Packing Group is assigned refer to Addendum 1 of Appendix 2 of the *ADG Code* for *Packing Group* Criteria, if unable to determine *Packing Group* from criteria consult the *Authority*. In the case of *Class 9 dangerous goods*, where no *Packing Group* is assigned consider those goods *Packing Group III*.

SCHEDULE 2

REQUIREMENTS FOR PLACARDS

The purpose of this schedule is to specify the form of placards required by this national standard.

1 Placards for *Bulk Dangerous Goods*

A placard for *bulk dangerous goods* must conform with the following requirements:

- (1) The placard *must* be of dimensions not less than those shown in Figure 1 or in accordance with the *ADG Code* in respect of Emergency Information Panels.
- (2) For the *bulk dangerous goods* the following particulars *must* be shown in the spaces corresponding to those designated (p), (q), (r) and (s) in Figure 1:
 - (a) in space (p), the *Proper Shipping Name*;
 - (b) in space (q), the *UN Number*;
 - (c) in space (r), the *Hazchem Code*;
 - (d) in space (s), the *Class label*, and *Subsidiary Risk label* if any; and
 - (e) for more than one *Subsidiary Risk label* the width of the right hand portion of the placard may be extended.
- (3) The numerals and letters used for showing the *Proper Shipping Name*, *UN Number* and *Hazchem Code* *must* be:
 - (a) black on a white background, except where a letter of the *Hazchem Code* is white on a black background; and
 - (b) at least 100 mm high, except where the *Proper Shipping Name* requires two lines to be used, in which case the lettering *must* be at least 50 mm high.
- (4) The *Class label* *must*:
 - (a) be of the form and colouring specified in the *ADG Code*; and
 - (b) have sides of not less than 250 mm or, if a *Subsidiary Risk label* is also shown, have sides of not less than 200 mm.
- (5) The *Subsidiary Risk label*, if any, *must*:
 - (a) be of the form and colouring specified in the *ADG Code*; and
 - (b) have sides of not less than 150 mm.

Placard Template and Sample Placard

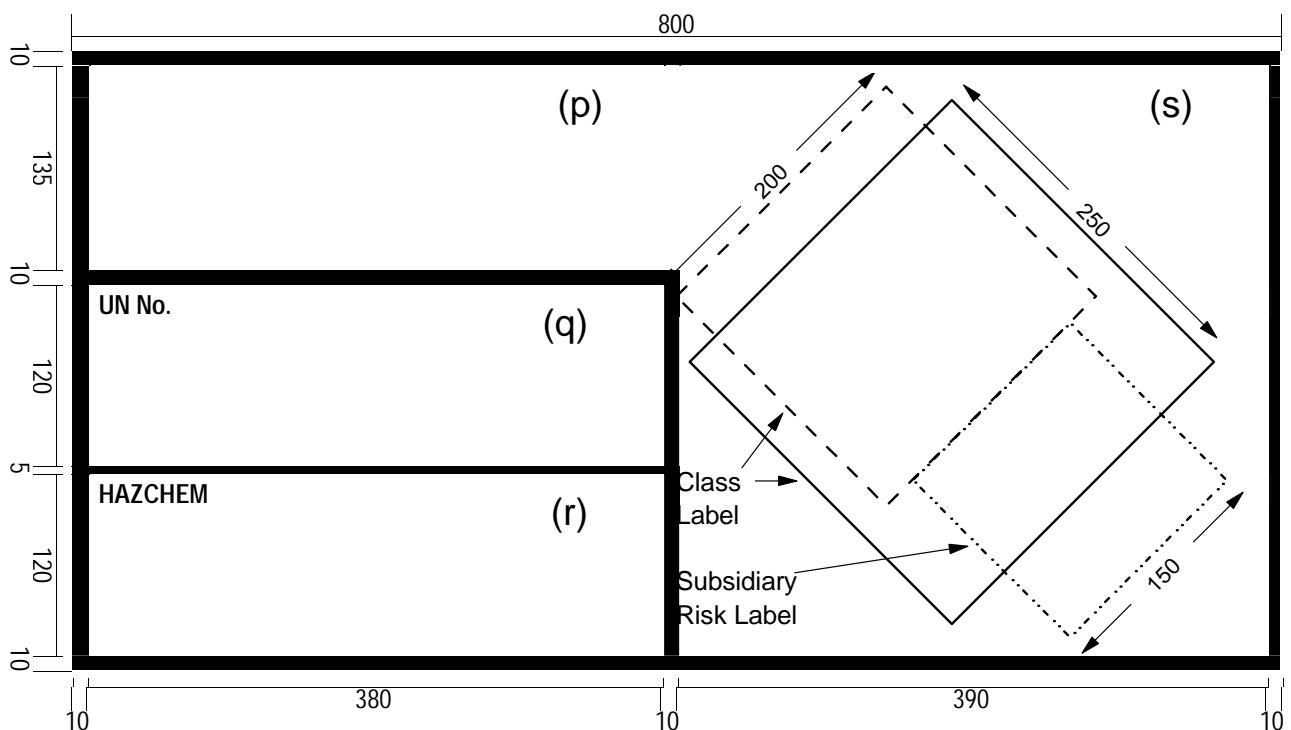


Figure 1 - Template for a placard for *bulk dangerous goods*



Figure 2 - Sample of a placard for a *bulk dangerous goods*

2 C1 Combustible Liquids Placard

A *Combustible liquid* placard for C1 *combustible liquids* must display the words 'COMBUSTIBLE LIQUID' as shown in Figure 3 in black letters of that style and not less than 100 mm high, shown on a white or silver background.



Figure 3 - Combustible Liquid Placard for C1 combustible liquids

3 Placards for *Packaged Dangerous Goods*

A placard for a *dangerous goods* stored in *packages* must conform to the following requirements:

- (1) Display the *Class label* or labels appropriate to the *Class* or *Classes* in respect of all the *dangerous goods* stored in the building, structure, room, compartment or outdoor storage areas to which the placard relates.
- (2) Be of the form and colouring specified in the *ADG Code* and *must* have sides not less than 100 mm in length.

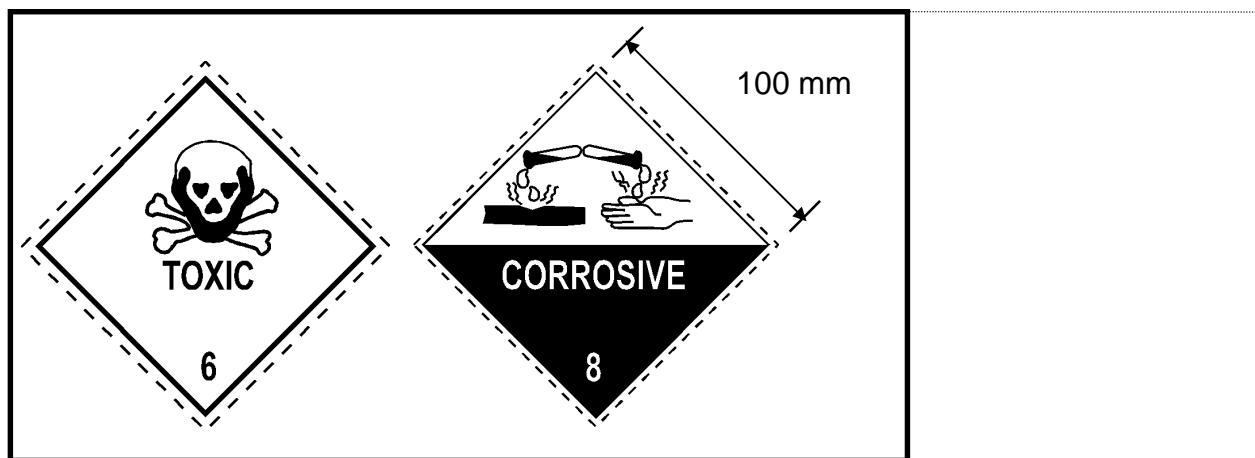


Figure 4 - Form and dimensions of a placard for a dangerous goods stored in packages

4 Outer Warning Placard

An Outer Warning Placard for *dangerous goods* and/or *combustible liquids* must conform with the following requirements:

- (1) The placard *must* not be less than the dimensions shown in Figure 5.
- (2) The placard *must* be lettered 'HAZCHEM' as shown in Figure 5, in red letters of that style and not be less than 100 mm high, shown on a white or silver background.



Figure 5 - Form and dimensions of an Outer Warning Placard

5 Goods too Dangerous to be Transported Placard

A placard for *goods too dangerous to be transported* must display ...[see Note below] as shown in Figure [].

Implementation Note:

The design of an appropriate placard for 'Goods Too Dangerous To Transport' will be completed in 2001

REFERENCED DOCUMENTS

1. Standards Australia, AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*, ISBN 0726285455
2. Standards Australia, AS 2430.1 *Classification of Hazardous Areas – Explosive Gas Atmospheres*, AS/NZS 61241.3 Electrical Apparatus for use in the presence of Combustible Dust - *Classification of Areas where Combustible Dusts are or may be present*, and AS 2430.3 *Classification of Hazardous Areas Parts 1 to 9*.
3. National Occupational Health and Safety Commission, *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOSH:1003(1995)] ISBN 0644451475
4. *International Civil Aviation Organization (ICAO)-Technical Instructions for the Safe Transport of Dangerous Goods by Air*, published by the International Civil Aviation Organization (ICAO) ISBN 0940394189
5. *International Air Transport Association (IATA) - IATA Regulations*, published by the International Air Transport Association ISBN 9290356391
6. *International Marine Organization - International Maritime Dangerous Goods Code (IMDG Code)*, published by the International Marine Organization (IMO)
7. *United Nations Recommendations on the Transport of Dangerous Goods*, published by the United Nations ISBN 9211390486
8. *Australian Code for the Transport of Dangerous Goods by Road and Rail*.
9. *Road Transport Reform (Dangerous Goods) Act 1995*