



Government of **Western Australia**
Department of **Mines and Petroleum**
Resources Safety

Dangerous Goods Safety Guidance Note
Licensing and exemptions for storage and handling

January 2015

1 Adelaide Terrace, East Perth WA 6004
Postal address: Mineral House, 100 Plain Street, East Perth WA 6004
Telephone: (08) 9358 8002 Facsimile: (08) 9358 8000
ResourcesSafety@dmp.wa.gov.au
www.dmp.wa.gov.au www.wa.gov.au

Contents

Introduction..... 3

Does the quantity of dangerous goods I have require licensing? 3

Calculating quantity of dangerous goods 3

When is licensing not required? 4

Multiple sub-manifest quantity storages 4

Storage for up to six months of up to three times the manifest quantity..... 4

Rural dangerous goods locations 4

Applying for a licence 4

Major hazard facility (MHF) screening..... 5

Appendix 1 Definitions..... 6

Appendix 2 Technical information for common dangerous goods 7

Appendix 3 Manifest quantities of dangerous goods 9

Appendix 4 Calculation of quantity on a dangerous goods site 10

Appendix 5 Information required in a licence application 12

Appendix 6 Critical quantities for potential MHFs..... 15

Appendix 7 Approved codes of practice 16

Introduction

This guidance note will assist people wishing to store, handle or process dangerous goods in Western Australia to determine whether licensing applies and, if so, what information is required for the licensing process.

The definitive statutory requirements are contained in the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 (the Storage and Handling Regulations). These regulations apply to the manufacture, processing, disposal, storage and use of dangerous goods.

Note: The regulations do not include explosives, infectious substances and radioactive substances.

Some commonly used terms in the determinations are defined in Appendix 1.

Appendix 2 lists some common dangerous goods and related classification information.

All forms referred to in this guidance note are available from the Resources Safety website in the dangerous goods forms section.

Does the quantity of dangerous goods I have require licensing?

Unless otherwise exempted (see "When is licensing not required?"), a site must be licensed if dangerous goods are stored or handled at the site in quantities that exceed the manifest quantities (Appendix 3).

Calculating quantity of dangerous goods

All dangerous goods present, including those in packages, bulk storage, process vessels, pipelines and equipment, must be taken into account when calculating the quantity of dangerous goods on a site.

The calculation used to determine the quantity depends on the type of dangerous goods and how they are contained. An example is given in Appendix 4.

Packaged dangerous goods

- Gases – total capacity of the container (see note below)
- Liquids – capacity of the container
- All other packaged dangerous goods – mass in kilograms of the goods in the container.

Bulk dangerous goods

- Gases – total capacity of the container (see note below)
- Liquids – design capacity of the container
- Uncontained solid dangerous goods – undivided mass in kilograms
- All other bulk dangerous goods – mass in kilograms that the container is designed to hold.

Dangerous goods in storage or handling system other than a container

- Gases and liquids – capacity of the storage or handling system
- Solid dangerous goods – mass of the goods in the system.

Articles or things

- Dangerous goods that are articles or things – net quantity of that part of the articles or things that in itself comprises dangerous goods.

Note: For multiple-element gas containers (MEGCs), capacity is determined as the sum of capacities of all manifolded cylinders.

When is licensing not required?

Multiple sub-manifest quantity storages

Licensing is not required, despite having quantities of dangerous goods in excess of the manifest quantity, if:

- the dangerous goods are stored in more than one area on the site; and
- the quantity of dangerous goods stored in each area is less than the manifest quantity; and
- each area is located outdoors or in a separate building dedicated to storage or handling of the dangerous goods; and
- each such area is separated from every other such area by a distance sufficient to ensure that a dangerous goods incident in one area cannot cause a dangerous goods incident in another area.

Storage for up to six months of up to three times the manifest quantity

Licensing is not required, despite having quantities of dangerous goods in excess of the manifest quantity, if:

- dangerous goods are stored or handled at the site for not more than six months; and
- dangerous goods are not manufactured or processed at the site; and
- the quantity of dangerous goods does not exceed three times the manifest quantity; and
- the site is not a major hazard facility; and
- the operator of the site has undertaken a risk assessment; and
- the operator of the site has notified the Chief Officer in writing (using the *Notification of temporary storage or handling of dangerous goods form*) of the intention to store or handle the dangerous goods at the site; and
- the operator of the site complies with any directions given by the Chief Officer in relation to the storage and handling of the dangerous goods.

Rural dangerous goods locations

A rural dangerous goods location is specifically excluded from the definition of a dangerous goods site, and hence such locations do not require licensing under the Storage and Handling Regulations.

A rural dangerous goods location is defined as a location:

- outside the limits of the metropolitan area, as defined in the *Planning and Development Act 2005* section 4(1), and is not within a townsite, as defined in the *Land Administration Act 1997* section 3(1); and
- of an area of 5 hectares or larger; and
- used for agricultural, horticultural, floricultural, aquacultural or pastoral purposes; and
- where the dangerous goods stored or handled on the site are not for sale, and are for use on the site in the primary production activities listed above.

Although these locations are not required to be licensed, storage and handling in these locations must comply with relevant requirements in the Storage and Handling Regulations (regulations 123–133).

Applying for a licence

An application for a dangerous goods site licence must be made on the approved form, which is available from the forms section of the Resources Safety website.

You should engage the services of an accredited consultant to assist you in the preparation and endorsement of your application for a licence.

A list of consultants accredited by the Chief Officer to examine applications for compliance with the *Dangerous Goods Safety Act 2004* and Storage and Handling Regulations is available from the Resources Safety website (go to the dangerous goods section and select the storage and handling heading under guidance material).

See Appendix 5 for detailed guidance on how to lodge a licence application. The application form also includes information on the application process.

Major hazard facility (MHF) screening

Stores of licensable quantities of dangerous goods above certain thresholds are subject to assessment to determine if the sites are to be managed as major hazard facilities under the Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007 (the MHF Regulations).

Applications for dangerous goods sites where dangerous goods may be present above a critical quantity of 10% of the major hazard facility threshold are screened by Resources Safety to determine if the storage site should be declared as a major hazard facility. Some critical quantities at which screening is required for dangerous goods sites as potential MHFs are given in Appendix 6 (see the MHF Regulations for a full list). The screening process is initiated when Resources Safety receives an *Operator notification that critical quantity of Schedule 1 substances will be exceeded* form.

Appendix 1 Definitions

ADG Code means the *Australian Code for the Transport of Dangerous Goods by Road and Rail, seventh edition, 2007*.

Bulk, in relation to dangerous goods, means an undivided quantity of dangerous goods exceeding 500 kg, or dangerous goods in a container that has a capacity greater than 500 L or is designed to hold more than 500 kg.

Class or division means the class or division assigned to dangerous goods under the ADG code, subject to Regulation 8 of the Storage and Handling Regulations.

In relation to dangerous goods, *handling* includes to manufacture, process, pack, use, sell, supply, carry (including by pipeline), and treat dangerous goods, including their destruction or disposal.

Intermediate bulk containers (IBCs) are typically containers of 250 to 3,000 L capacity designed for the transport of dangerous goods (other than gases) and for mechanical handling.

Manifest quantity means a quantity of those dangerous goods greater than the quantity specified in relation to those goods in the column headed 'Manifest Quantity' in Schedule 1 of the Storage and Handling Regulations (see Appendix 2).

Multiple element gas containers (MEGCs) are units containing a battery of elements (e.g. gas cylinders) linked by a manifold and mounted on a frame. They are also known as manifold cylinder packs.

Package means a container for dangerous goods or C1 combustible liquids with a capacity of not more than 500 L or 500 kg.

Packing group is the grading of danger within a class or division according to the relative hazard presented by the material. It is represented by the roman numerals, where 'I' = great danger, 'II' = medium danger, or 'III' = minor danger.

Proper shipping name means the name assigned to the dangerous goods in the ADG Code.

Risk assessment for a dangerous goods site is a document that, in relation to the site as it exists or will exist, at the relevant time:

- identifies all hazards relating to dangerous goods at the site;
- for each hazard, assesses
 - the probability of the hazard causing a dangerous goods incident; and
 - the nature of the harm to people, property and the environment that would result from the occurrence of that incident;
- for each hazard, identifies the risk control measures;
- in relation to each judgment required above, explains the methods used to make the judgment and the reasons for the judgment; and
- has been prepared in a form acceptable to the Chief Officer.

Appendix 2 Technical information for common dangerous goods

| Proper shipping name | UN No. | Class or division | Subrisk | Packing group |
|--|--------|-------------------|----------------------------|---------------|
| ACETONE | 1090 | 3 | - | II |
| ACETYLENE, DISSOLVED | 1001 | 2.1 | - | - |
| ARGON, COMPRESSED | 1006 | 2.2 | - | - |
| ALUMINIUM PHOSPHIDE PESTICIDE | 3048 | 6.1 | - | I |
| AMMONIA, ANHYDROUS | 1005 | 2.3 | 8 | - |
| AMMONIUM NITRATE (common explosives grade) | 1942 | 5.1 | - | III |
| AMMONIUM NITRATE BASED FERTILIZER | 2067 | 5.1 | - | III |
| AMMONIUM NITRATE EMULSION or SUSPENSION or GEL | 3375 | 5.1 | - | II |
| AMMONIUM NITRATE, LIQUID (hot concentrated solution) | 2426 | 5.1 | - | - |
| BATTERIES, WET, FILLED WITH ACID, electric storage | 2794 | 8 | - | - |
| BATTERY FLUID, ACID | 2796 | 8 | - | II |
| CARBON DIOXIDE | 1013 | 2.2 | - | - |
| CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine | 1748 | 5.1 | - | II or III |
| CHLORINE | 1017 | 2.3 | 5.1 & 8 | - |
| DIESEL FUEL / DISTILLATE / C1 COMBUSTIBLE LIQUID | - | C1 | - | - |
| ETHANOL (>70%) | 1170 | 3 | - | II |
| ETHYL METHYL KETONE | 1193 | 3 | - | II |
| FERROSILICON with 30% or more but less than 90% silicon | 1408 | 4.3 | 6.1 | III |
| HYDROCHLORIC ACID | 1789 | 8 | - | II or III |
| HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide | 2014 | 5.1 | 8 | II |
| HYPOCHLORITE SOLUTION | 1791 | 8 | - | II or III |
| KEROSENE | 1223 | 3 | - | III |
| LP GAS | 1075 | 2.1 | - | - |
| LUBRICATING OIL / C2 COMBUSTIBLE LIQUID | - | C2 | Not subject to regulations | |
| METHANOL | 1230 | 3 | 6.1 | II |
| NATURAL GAS, COMPRESSED with high methane content | 1971 | 2.1 | - | - |
| NATURAL GAS, REFRIGERATED LIQUID with high methane content (LNG) | 1972 | 2.1 | - | - |
| NITROGEN, COMPRESSED | 1066 | 2.2 | - | - |
| NITROUS OXIDE | 1070 | 2.2 | 5.1 | - |

| Proper shipping name | UN No. | Class or division | Subrisk | Packing group |
|---|--------|-------------------|---------|---------------|
| OXYGEN, COMPRESSED | 1072 | 2.2 | 5.1 | - |
| OXYGEN, REFRIGERATED LIQUID | 1073 | 2.2 | 5.1 | - |
| PETROL | 1203 | 3 | - | II |
| POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour | 2211 | 9 | - | III |
| POTASSIUM HYDROXIDE, SOLID | 1813 | 8 | - | II |
| SODIUM CYANIDE | 1689 | 6.1 | - | I |
| SODIUM HYDROSULFIDE with less than 25% water of crystallisation | 2318 | 4.2 | - | II |
| SODIUM HYDROXIDE, SOLID | 1823 | 8 | - | II |
| SODIUM NITRATE | 1498 | 5.1 | - | III |
| SULFUR | 1350 | 4.1 | - | III |
| SULFUR DIOXIDE | 1079 | 2.3 | 8 | - |
| SULFURIC ACID (with more than 51% acid) | 1830 | 8 | - | II |
| TOLUENE | 1294 | 3 | - | II |
| TOLUENE DIISOCYANATE (TDI) | 2078 | 6.1 | - | II |
| XANTHATES | 3342 | 4.2 | - | II or III |

Appendix 3 Manifest quantities of dangerous goods

| Item | Description of dangerous goods | Packing group | Placarding quantity | Manifest quantity |
|------|---|---|---------------------|-------------------|
| 1 | Division 2.1 except aerosols* | Not applicable | 500 L | 5 000 L |
| 2 | Division 2.2 except aerosols | Not applicable | 1 000 L | 10 000 L |
| 3 | Division 2.3 | Not applicable | 50 L | 500 L |
| 4 | Division 2.1 and 2.2 aerosols | Not applicable | 5 000 L | 10 000 L |
| 5 | Any one of Class 3, Division 4.1, 4.2 or 4.3, Division 5.1 or 5.2, Division 6.1, Class 8 or Class 9, or any combination of those classes or divisions | I | 50 kg or L | 500 kg or L |
| | | II and III (aggregate) | 1 000 kg or L | 10 000 kg or L |
| | | I, II and III (aggregate) where quantity of goods in packing group I does not exceed 50 kg or L | 1 000 kg or L | 10 000 kg or L |
| 6 | Goods too dangerous to transport | Not applicable | 5 kg or L | 50 kg or L |
| 7 | C1 combustible liquids with fire risk dangerous goods | Not applicable | 1 000 L | 10 000 L |
| 8 | Other C1 combustible liquids | Not applicable | 10 000 L | 100 000 L |

* Excludes empty tanks [regulation 25(6)]

Note: These quantities are extracted from Schedule 1 of the Storage and Handling Regulations

Note: For the purposes of item 5:

- all Type B Division 4.1 Self Reactive Substances that do not have a packing group assigned to them are to be taken as assigned to packing group I;
- all Types C to F Division 4.1 Self Reactive Substances that do not have a packing group assigned to them are to be taken as assigned to packing group II;
- all Type B Division 5.2 Organic Peroxides that do not have a packing group assigned to them are to be taken as assigned to packing group I;
- all Types C to F Division 5.2 Organic Peroxides that do not have a packing group assigned to them are to be taken as assigned to packing group II;
- Class 9 dangerous goods that do not have a packing group assigned to them are to be taken as assigned to packing group III; and
- all other articles and things that do not have a packing group assigned to them are to be taken as assigned to packing group II.

Note: Item 7 applies if:

- C1 combustible liquids are stored in the same spill compound as fire risk dangerous goods (e.g. flammable liquids) in an aboveground storage facility (e.g. drum or tank storage); or
- flammable liquids and C1 combustible liquids are stored in multiple-compartment tanks.

This item does not apply if C1 combustible liquids and flammable liquids are stored in separate underground tanks. For example, a site storing 9 kL of petrol (Class 3 PGII) and 9 kL of diesel (C1 combustible liquid) in separate underground tanks would not require licensing.

Appendix 4 Calculation of quantity on a dangerous goods site

In the following example, the dangerous goods listed in the table are present on a site.

The first step is determining the quantities of dangerous goods in the various Classes and Divisions. These quantities are then compared with the manifest quantities in Schedule 1 of the Storage and Handling Regulations (see Appendix 3).

The combinations of dangerous goods must also be considered:

- The manifest quantity of a dangerous good may be decreased because of increased risk. In the following example, the manifest quantity for the diesel is 10,000 L as there are other fire-risk dangerous goods present of Division 2.1, Class 3 and Division 5.1 (see item 7 in Appendix 3).
- Schedule 1 also applies a manifest quantity to the aggregate quantity of Class 3, Divisions 4.1, 4.2, 4.3, 5.1, 5.2, 6.1 and Class 8. In the following example, this requires an aggregate quantity to be calculated for Class 3, Division 5.1 and Class 8 (see item 5 in Appendix 3).

Unless an exemption applies, dangerous goods present in amounts about the manifest quantities are subject to licensing.

Colour coding used in following example

| | |
|--|--|
| | Division or Class of dangerous goods |
| | Total quantity of Division or Class equals or is less than manifest quantity |
| | Total quantity of Division or Class exceeds the manifest quantity |
| | Manifest quantity |

Calculation of quantities

| Division 2.1 | |
|---|----------------|
| 4 x cylinders of acetylene (water capacity of each cylinder ~ 50 litres) | 200 L |
| 5 x 45 kg LPG cylinders (water capacity of each cylinder ~ 110 litres) | 550 L |
| 1 x multi-element gas container of compressed hydrogen (water capacity of entire MEGC ~ 870 litres) | 870 L |
| Total Division 2.1 | 1,620 L |
| Manifest quantity | 5,000 L |

| Division 2.2 / Subrisk 5.1 | |
|--|-----------------|
| 2 x multi-element gas containers of compressed oxygen (water capacity of entire MEGC ~ 730 litres) | 1,460 L |
| Total Division 2.2/5.1 | 1,460 L |
| Manifest quantity | 10,000 L |

| Division 2.3 | |
|--|----------------|
| An ammonia refrigeration system comprising: | |
| Receiver | 800 L |
| Piping, accumulator, heat exchangers and other system components | 440 L |
| Total Division 2.3 | 1,240 L |
| Manifest quantity | 500 L |

| Class 3 | |
|--|-----------------|
| 4 x 200 litre drums of petrol [Class 3, Packing Group II] | 800 L |
| 2 x 200 litre drums of kerosene [Class 3, Packing Group III] | 400 L |
| A solvent [Class 3, Packing Group III] recovery unit comprising: | |
| Filter unit | 200 L |
| Boiling vessel | 2,500 L |
| Pipework | 40 L |
| Receiver | 2,000 |
| Total Class 3 | 5,940 L |
| Manifest quantity | 10,000 L |

| Division 5.1 | |
|---|-----------------|
| 300 litres of 18% hydrogen peroxide solution in mechanised cleaning equipment [Division 5.1, Packing Group III] | 300 L |
| Total Division 5.1 | 300 L |
| Manifest quantity | 10,000 L |

| Class 8 | |
|--|-----------------------|
| 40 x 25 kg bags of caustic soda (sodium hydroxide) [Class 8, Packing Group II] | 1,000 kg |
| 1 x 2,000 litre tank of 32% hydrochloric acid [Class 8, Packing Group II] | 2,000 L |
| 1 x 1,500 litre tank of 9% sodium hypochlorite solution [Class 8, Packing Group III] | 1,500 L |
| Total Class 8 | 4,500 kg or L |
| Manifest quantity | 10,000 kg or L |

| C1 combustible liquid (in presence of other fire-risk dangerous goods) | |
|---|-----------------|
| 1 x 12,000 litre diesel tank | 12,000 L |
| Total C1 combustible liquid | 12,000 L |
| Manifest quantity | 10,000 L |

Aggregation of classes and divisions

| Aggregate of Class 3, Division 5.1 and Class 8 | |
|---|-----------------------|
| Total Class 3 | 5,940 L |
| Total Division 5.1 | 300 L |
| Total Class 8 | 4,500 kg or L |
| Total aggregate of Class 3, Division 5.1 and Class 8 | 10,740 kg or L |
| Manifest quantity | 10,000 kg or L |

Licensing requirements

In this example, Division 2.3 (ammonia) and C1 combustible liquid (diesel) are present in quantities that exceed the manifest quantity, so they must be licensed.

The aggregate of Class 3, Division 5.1 and Class 8 exceeds the manifest quantity and licensing is required unless otherwise exempted (see "When is licensing not required?").

Appendix 5 Information required in a licence application

All relevant fields must be completed on the application form and the form must be accompanied by:

- location plan showing the position of the dangerous goods site relative to any roads, railways or buildings;
- draft of the site manifest;
- draft of the site plan;
- written report prepared by the applicant or an approved person, which demonstrates that the site can be operated in accordance with the regulations and with minimal risk to people, property and the environment; and
- payment of relevant fees.

Note: The written report must include a risk assessment in relation to the dangerous goods site.

Location plan

The location plan must show the position of the dangerous goods site relative to protected works such as nearby roads, railways and buildings. It should indicate distances to each item shown from the dangerous goods storage/s.

Site manifest

The site manifest must contain:

- name of the operator of the site;
- address of the site;
- date of preparation or last revision of the manifest;
- contact information for at least two people (or one person if that person is available at all times) who may be contacted in an emergency for information on the nature and quantity of dangerous goods on the site; and
- summary information about dangerous goods, specifying the maximum quantity of:
 - each packing group of each class or division of dangerous goods that has packing groups;
 - each class or division of dangerous goods that does not have packing groups,
 - C1 combustible liquids, and
 - each type of goods too dangerous to transport on the site.

Dangerous goods in bulk

For each bulk storage of dangerous goods on the site (other than in IBCs), the manifest must contain:

- any identification number of the container or storage area;
- type of container or manner of storage;
- quantity of dangerous goods present;
- proper shipping name, UN number and class or division of the goods (for goods other than C1 combustible liquids);
- for C1 combustible liquids – product name and the words “COMBUSTIBLE LIQUID”;
- for goods too dangerous to be transported – name of the goods specified in appendix A of the ADG Code; and
- for Packing Group I – the packing group.

Dangerous goods in packages and IBCs

For each storage location containing dangerous goods in packages or IBCs in quantities exceeding the placard quantity the manifest must contain the identification number or code for the storage location; and

- for dangerous goods of Packing Group I or Division 2.3:
 - proper shipping name of the dangerous goods,
 - class or division and packing group, and
 - current aggregate quantity or maximum quantity in that location;
- for goods too dangerous to be transported:
 - name of the goods specified in appendix A of the ADG Code
 - statement “GOODS TOO DANGEROUS TO BE TRANSPORTED”
 - current aggregate quantity or maximum quantity in that location
- for other dangerous goods:
 - where assigned, class or division for the dangerous goods,
 - words “COMBUSTIBLE LIQUIDS” for combustible liquids,
 - in any case, current aggregate or maximum quantity of each class or division of dangerous goods and C1 combustible liquids in the storage location.

Dangerous goods in manufacture or process

For each location where dangerous goods are manufactured or processed, the manifest must contain the identification number or code for the manufacturing or processing location, and:

- for dangerous goods with an assigned class or division:
 - class or division of each type of dangerous goods present, and
 - maximum quantity of each class or division handled in the location;
- for goods too dangerous to be transported:
 - the statement “GOODS TOO DANGEROUS TO BE TRANSPORTED”, and
 - maximum quantity of those goods that can be handled in the location;
- for C1 combustible liquids:
 - the words “C1 COMBUSTIBLE LIQUID”, and
 - maximum quantity of C1 combustible liquid than can be handled at that location.

Dangerous goods in transit

For dangerous goods in transit, the manifest summary information and detailed information for bulk and packaged or IBC dangerous goods may be provided in the form of a compilation of dangerous goods transport documents, where those documents comply with the ADG Code.

Site plan

The site plan must be drawn to scale and include:

- scale bar;
- north arrow;
- name of the operator of the site;

- address of the site;
- date of preparation or last revision of the plan
- site boundaries;
- any buildings on the site along with a written description of them;
- locations of dangerous goods in bulk, and include a written description of them (see note below);
- storage locations of dangerous goods in packages and IBCs, and include a written description of them (see note below);
- locations where dangerous goods are manufactured or processed, and include a written description of them (see note below);
- location of:
 - main entry and all other entry points to the site,
 - essential site services, such as fire services, isolation points for fuel, gas, water and power,
 - manifest, and
 - all drains;
 - written description of where transit storage of dangerous goods may occur; and
 - written description of the nature of the occupancy of adjacent sites.

Note: The site plan must include an identification number or code for these locations and provide a legend for identification numbers or codes.

Written report

A written report is required to demonstrate that the dangerous goods site can be operated safely, in compliance with the Act and regulations, and with minimal risk to people, property and the environment.

Risk assessment

A risk assessment must be included in the written report required with the licence application. The risk assessment must document how the proposed facility will operate with minimal risk to people, property and the environment. Part of the risk assessment may take the form of documentation of the compliance of the proposed facility and operations with the requirements of an approved code or codes of practice (see Appendix 7).

For facilities where dangerous goods are processed, applicants are advised to contact Resources Safety for further advice on issues to address in a risk assessment.

Fees

The two main types of fees are:

- licence fees — on a two-tiered scale based on the quantity of dangerous goods stored and handled on the site; and
- examination fees — if an application is not submitted through an accredited consultant, it must be examined by a dangerous goods officer prior to a licence being issued. Fees for this examination are additional to the licence fee, and are on a tiered scale based on the quantity of dangerous goods stored and handled on the site.

The latest schedule of fees and charges for dangerous goods licensing is available on the Resources Safety website.

Appendix 6 Critical quantities for potential MHFs

Some of the critical quantities for dangerous goods are listed below.

| Proper shipping name | UN no. | Critical quantity (tonnes) |
|-----------------------------------|--------|----------------------------|
| Ammonia, anhydrous | 1005 | 20 |
| Ammonium nitrate | 1942 | 250 |
| Ammonium nitrate based fertiliser | 2067 | 500 |
| Ammonium nitrate emulsion | 3375 | 20 |
| Chlorine | 1017 | 2.5 |
| LP gas | 1075 | 20 |
| Petrol | 1203 | 5000 |
| Sodium cyanide | 1689 | 2 |

Appendix 7 Approved codes of practice

Some of the codes of practice relating to the storage and handling of dangerous goods and approved under Section 20 of the *Dangerous Goods Safety Act 2004* are listed below.

Department of Mines and Petroleum, Resources Safety Division

- Storage and handling of dangerous goods – code of practice
- Safe storage of solid ammonium nitrate – code of practice

Australian Standards

- AS/NZS 1596 The storage and handling of LP gas
- AS 1692 Steel tanks for flammable and combustible liquids
- AS 1894 The storage and handling of non-flammable cryogenic and refrigerated liquids
- AS 1940 (2004 edition) The storage and handling of flammable and combustible liquids
Note: Subsection 11.2(b) of AS 1940 does not apply as it is in conflict with Regulation 73 "Fire Protection" of the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.
- AS 2022 Anhydrous ammonia - storage and handling
- AS 2507 The storage and handling of agricultural and veterinary chemicals
- AS 2714 The storage and handling of hazardous chemical materials – Division 5.2 substances (organic peroxides)
- AS/NZS 2927 The storage and handling of liquefied chlorine gas
- AS 3780 The storage and handling of corrosive substances
- AS/NZS 3833 The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers
- AS 3961 The storage and handling of liquefied natural gas
- AS/NZS 4081 The storage and handling of liquid and liquefied polyfunctional isocyanates
- AS 4326 The storage and handling of oxidizing agents
Note: AS 4326 is not applicable to solid ammonium nitrate. Refer to Resources Safety's code of practice on the safe storage of solid ammonium nitrate.
- AS 4332 The storage and handling of gases in cylinders
- AS/NZS 4452 The storage and handling of toxic substances
- AS/NZS 4681 Storage and handling of Class 9 (miscellaneous) dangerous goods

Australian Explosives Industry and Safety Group Inc.

- Australian Explosives Manufacturer's Safety Committee (AEMSC) Code of good practice – Precursors for explosives, Edition 1 (1999)