

Site and Storage Conditions for Compressed Gases

Contents

Introduction.....	1
SITE AND STORAGE CONDITIONS	2
Part 1 Flammability Conditions for Flammable Gases.....	2
Part 2 Conditions Relating to the Unintended Ignition of Flammable Gases not Located at Hazardous Substance Location	15
Part 3 Conditions Relating to the Unintended Ignition of Flammable Gases Present at Hazardous Substance Location	18
Part 4 Oxidising Conditions for Oxidising Gases.....	22
Part 5 Stationary Container Systems	31
Part 6 Emergency Management.....	31
Part 7 Signage.....	35
Part 8 Approved Filler Certificates.....	36
INTERPRETATION	37
SOURCE REGULATIONS AND CONTROLS	42

Introduction

This document sets out the site and storage conditions for compressed gases. These substances may be flammable (class 2.1.1), oxidising (class 5.1.2), toxic (class 6), corrosive (class 8) or ecotoxic (class 9), or they may have a combination of these hazardous properties.

The conditions set out in this document are incorporated into a group standard by reference, and form part of that group standard. A substance must comply with the conditions in this document as part of the group standard approval.

This document has been compiled from the following:

- Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001; and
- Hazardous Substances (Emergency Management) Regulations 2001; and
- Hazardous Substances (Identification) Regulations 2001; and
- Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and
- Hazardous Substances (Compressed Gases) Regulations 2004.

Further information on the source of each condition is given in the section “Source Regulations and Controls”.

If any trigger quantity from any of the above regulations has been amended for a specific substance (e.g. liquid petroleum gas, ammonia) by the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, or any other Transfer Notice, that amended trigger quantity is not given in this document.

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Site and Storage Conditions

Part 1 Flammability Conditions for Flammable Gases

1 Quantities

- (1) In determining whether the requirements for an approved handler, a hazardous substance location, a transit zone, or a test certificate are activated, the relevant quantity has been exceeded if the quantity-ratio sum is greater than 1 when determined in accordance with the following formula:

$$\text{quantity-ratio sum} = \Sigma [qp_i/qa_i]$$

where—

Σ is the symbol for summation (in this case, summation of the calculated ratios for all flammable hazard classifications present for class 2, 3 and 4 substances)

qp_i is the quantity of substance with a particular flammable hazard classification present

qa_i is the quantity of substance of that flammable hazard classification that activates the relevant requirement

- (2) Where a quantity of gas is specified as cubic metres (m³), this volume is determined by taking the contents and conditions of the gas held in a container and then calculating the volume that the gas would occupy at 15°C and 101.3 kPa absolute pressure. Where the quantity of gas is specified in kilograms, this refers to the net weight of the gas in liquefied form as held in its container.
- (3) When considering quantities under subclauses (1) and (2) the quantities of all hazardous substances must be taken into account, howsoever those substances were approved under the Act.

2 Test certification

- (1) Where a test certificate is required for a hazardous substance location, that test certificate must be renewed at intervals of not more than 12 months, unless on request of the person or persons required to obtain the test certificate the Authority specifies a longer time limit for which the test certificate is valid.
- (2) The longer time limit specified by the Authority may not exceed 36 months.
- (3) When specifying the time limit, the Authority must take into account—
- (a) the maximum quantities and types of hazardous substances present or likely to be present at the relevant place; and
 - (b) the review and monitoring systems in place for the management of those substances; and

- (c) the compliance history of the organisation concerned and of the persons in charge of the substances.
- (4) Where there is a requirement to obtain more than one test certificate—
- (a) the test certifier may, on request of the person or persons required to obtain the test certificates, examine at the same time any or all of those matters that require test certification for which the certifier is competent to certify; and
 - (b) where more than one matter has been examined, the report provided by the certifier must indicate whether or not the respective requirements have been met and must give the reasons for any failure to meet those requirements; and
 - (c) a single test certificate may be issued for any or all of those matters where the requirements have been met.

3 General limits on flammable gases

Where a flammable gas is present at a place in a quantity that exceeds 100 m³ (where a permanent gas) or 100 kg (where a non-permanent gas) for more than 18 hours, it must be held at a hazardous substance location or, if applicable, at a transit depot.

4 Controls on fuel gases

- (1) The controls imposed on any fuel gas supplied or used in a distribution system, gas installation, or gas appliance subject to the Gas Act 1992 are the controls imposed under regulations made under that Act.
- (2) For the purposes of subclause (1), the terms distribution system, gas installation, and gas appliance have the same meanings as in the Gas Act 1992.

5 Requirement to establish a hazardous atmosphere zone

At any place containing flammable gases in quantities in excess of 30 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), the person in charge of the flammable gases must ensure that a hazardous atmosphere zone is established that complies with—

- (a) AS/NZS 2430.3; or
- (b) AS/NZS 60079.10: 2004; or
- (c) a code of practice approved by the Authority that specifies hazardous atmosphere zones equivalent to the requirements specified in subclauses (a) and (b) and takes into account the risk of the presence of flammable materials.

6 Application of legislation to electrical systems located in hazardous atmosphere zones

- (1) Where any electrical installation or any electrical appliance within the scope of the Electricity Regulations 1997 is located within a hazardous atmosphere zone, the conditions imposed on that installation or appliance under the Act are the same as the

controls that are included in those parts of the Electricity Act 1992, and regulations, codes and standards made or recognized under that Act, that relate to hazardous areas.

- (2) Where any electrical system is located within an underground mine, the conditions imposed on that electrical system under the Act are the same as the controls that are included in those parts of the Health and Safety in Employment (Mining—Underground) Regulations 1999 that relate to gassy mines.
- (3) Where electrical equipment is installed on a ship, vessel, or boat (other than a pleasure vessel containing connectible installations), the conditions imposed on that electrical equipment under the Act are the same as the controls that are included in those parts of the Maritime Rules made under the Maritime Transport Act 1994 that relate to hazardous areas.
- (4) Where electrical equipment is installed on any train, locomotive, tram, or trolley bus, the conditions imposed on that electrical equipment under the Act are the same as the controls that are included in those parts of the Transport Services Licensing Act 1989 or the Railways Act 2005 or rules made under the Land Transport Act 1998 that relate to hazardous areas.
- (5) Where any electrical equipment is installed on an aircraft that is under the jurisdiction of the Civil Aviation Rules, the conditions imposed on that electrical equipment under the Act are the same as the controls that are included in those parts of the Civil Aviation Rules that relate to hazardous areas.
- (6) Where any electrical equipment is used within a hazardous atmosphere zone around an aircraft but is not installed on the aircraft, the conditions imposed on that electrical equipment under the Act are the same as the controls that are included in those parts of the Electricity Act 1992, and regulations, codes, and standards made or recognised under that Act, that relate to hazardous areas.
- (7) For the purposes of subclause (1), the terms electrical installation, electrical appliance, and hazardous area have the meanings given to them in the Electricity Act 1992.
- (8) For the purposes of subclause (2), the terms electrical system and gassy mine have the meanings given to them in the Health and Safety in Employment (Mining—Underground) Regulations 1999.

7 Requirements to reduce likelihood of unintended ignition of flammable gases

- (1) Unless a flammable gas is intentionally burned, in circumstances where any air or oxygen is present with such a substance the person in charge of the substance must—
 - (a) elect to manage the flammable gas under the sets of conditions specified in any one of clauses 8, 10, 12, 14, and 16; and
 - (b) where clause 8 is elected, manage the flammable gas under the provisions specified in subclause (2) or subclause (6) of that clause; and
 - (c) where clause 10 is elected, manage the flammable gas under the provision specified in either subclause (3) or subclause (4) of that clause; and

- (d) where clause 12 is elected, manage the flammable gas under the provisions specified in either subclause (3) or subclause (4) of that clause; and
 - (e) ensure that the requirements of the chosen clause are complied with in full; and
 - (f) record which clause the flammable gas is being managed under, and have that record available for inspection.
- (2) Despite the requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 2 substances, any person handling a flammable gas under any of clauses 10(4), 12, 14 and 16 must be an approved handler for that substance.

8 Circumstances involving control of ignition sources available to flammable gases

- (1) Every person who elects to manage a flammable gas under clause 7(1), by controlling ignition sources (but not the proportion of flammable gas to air), must ensure that in any place the flammable gas is located the requirements of this clause are met.
- (2) Where a flammable gas is within any hazardous atmosphere zone—
- (a) the temperature of the flammable gas and the temperature of any surface in contact with the flammable gas must not exceed 80% of the auto-ignition temperature in °C for that gas; and
 - (b) any permanently fixed equipment or part of such equipment or containers must be effectively electrically bonded and earthed so that the maximum resistance to earth is—
 - (i) 1 MΩ, for components that have an electrical resistance greater than or equal to 1 MΩ; and
 - (ii) 10 Ω, for components that have an electrical resistance of between 10 Ω and 1 MΩ; and
 - (c) the flammable gas must be managed under one of the three sets of provisions set out in subclauses (3), (4), and (5) respectively.

(3) SET OF PROVISIONS 1

There must be no ignition source present, unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 10% of the minimum ignition energy of the flammable gas in air.

(4) SET OF PROVISIONS 2

- (a) there must be no ignition source present, unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 25% of the minimum ignition energy of the flammable gas in air; and
- (b) persons managing a flammable gas in accordance with subclause (4)(a) must operate in accordance with a code of practice approved under section 78 of the Act as meeting the requirements of that subclause for the purposes of this subclause.

(5) SET OF PROVISIONS 3

In any situation except situations covered by clause 6, any ignition source located in a hazardous atmosphere zone must be protected in such a way that, in the circumstances in which it is installed (including the presence of dust and particulate matter), it cannot ignite any gas/air mixture formed from the flammable gases present.

- (6) At any place where the quantities of flammable gases present are not sufficient to require the establishment of a hazardous atmosphere zone but where—
- (a) the concentration of gas may exceed 25% of the LEL; and
 - (b) flammable gases are present in quantities greater than 10% of that required to trigger the hazardous atmosphere zone requirements—

then the following requirements apply:

- (c) there must be no ignition source present, unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 10% of the minimum ignition energy of the flammable gas in air; and
- (d) the temperature of the flammable gas, or the temperature of any surface in contact with the flammable gas must not exceed 80% of the auto-ignition temperature for that gas.

9 Methods of complying with clause 8

- (1) In the case of an electrical ignition source, compliance with one of, or where applicable a combination of, the explosion-protection techniques listed in Table 2.1 of AS 2380.1: 1989 meets the requirements of clause 8(5).
- (2) The requirements of clause 8(2)(a) are met if either—
 - (a) there is compliance with AS/NZS 2381.1: 2005 relating to the matters described in clause 8(2)(a); or
 - (b) any equipment and any surface in contact with the flammable gas conform to the temperatures given in Table 1, and the temperature of the gas is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 meets the requirement of clause 8(2)(b) for the dissipation of static electricity from components that have an electrical resistance of between 10 Ω and 1 MΩ.

Table 1. Maximum surface temperature of equipment that may contact flammable gases of known auto-ignition temperatures

Auto-ignition temperature	Required temperature of surfaces in contact with mixture of flammable vapour evolving from substances and air
More than 562.5°C	<450°C
375 – 562.5°C	<300°C
250 – 375°C	<200°C
169 – 250°C	<135°C
125 – 169°C	<100°C
Less than 125°C	<85°C

10 Circumstances involving control of both proportion of gas to air and amount of energy available

- (1) Every person who elects to manage a flammable gas under clause 7(1), by controlling both the proportion of flammable gas to air, and the amount of energy available, must ensure that in any place the flammable gas is located the requirements of this clause are met.
- (2) A flammable gas must be managed under one of the two sets of provisions set out in subclauses (3) and (4) respectively.
- (3) SET OF PROVISIONS 1
 - (a) The proportion of flammable gas to air at all times must be below 25% of the LEL or above 4 times the UEL; and
 - (b) either—
 - (i) there must be no ignition source present, unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 25% of the minimum ignition energy of the flammable gas in air; or
 - (ii) in any situation except situations covered by clause 6, any ignition source located in an area where flammable gas is present at greater than 10% of the LEL must be protected in such a way that, in the circumstances in which it is installed (including the presence of dust and particulate matter), it cannot ignite any gas/air mixture formed from the flammable gases present.
- (4) SET OF PROVISIONS 2
 - (a) The proportion of flammable gas to air must at all times be below 50% of the LEL; and
 - (b) there must be a system in place to continuously monitor and control the concentration of flammable gas to meet the requirements of subclause (4)(a); and
 - (c) persons managing flammable gases according to this subclause must operate in accordance with a code of practice approved under section 78 of the Act as meeting the requirements of this subclause; and
 - (d) either—
 - (i) there must be no ignition source present, unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 50% of the minimum ignition energy of the flammable gas in air; and there is a system in place to continuously monitor and control the amount of ignition energy present to meet the requirements of this subclause; or
 - (ii) in any situation except situations covered by clause 6, any ignition source located in an area where flammable gas is present at greater than 10% of the LEL must be protected in such a way that, in the circumstances in which it is installed (including the presence of dust and particulate matter), it cannot ignite any gas/air mixture formed from the flammable gases present.

- (5) The temperature of the flammable gas and the temperature of any surface in contact with the flammable gas must not exceed 80% of the auto-ignition temperature for that flammable gas.
- (6) At any place where a flammable gas is present in quantities greater than 30 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), any permanently fixed equipment or container or part of any such equipment or container must be electrically bonded and earthed so that the maximum allowable resistance to earth is—
 - (a) 1 MΩ, for dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 MΩ; and
 - (b) 10 Ω, for the dissipation of static electricity from components that have an electrical resistance of less than 1 MΩ.

11 Methods of complying with clause 10

- (1) In the case of an electrical ignition source, compliance with one of, or where applicable a combination of, the explosion-protection techniques listed in Table 2.1 of AS 2380.1: 1989 meets the requirements of clause 10(3)(b)(ii) and 10(4)(d)(ii).
- (2) The requirements of clause 10(5) are met if either—
 - (a) there is compliance with AS/NZS 2381.1: 2005 relating to the matters described in clause 10(5); or
 - (b) any equipment and any surface in contact with the flammable gas conform to the temperatures given in Table 1 (see clause 9), and the temperature of the flammable gas is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of clause 10(6) for the dissipation of static electricity from components that have an electrical resistance of between 10 Ω and 1 MΩ.

12 Circumstances involving control of proportion of gas to air, but not level of energy

- (1) Every person who elects to manage a flammable gas under clause 7(1), by controlling the proportion of gas to air (but not the level of energy) must ensure that, in any place such a flammable gas is located, the requirements of this clause are met.
- (2) A flammable gas must be managed under one of the two sets of provisions set out in subclauses (3) and (4).
- (3) SET OF PROVISIONS 1

The proportion of flammable gas to air must at all times be kept below 10% of the LEL or above 10 times the UEL.

- (4) SET OF PROVISIONS 2

Where the proportion of flammable gas to air may be greater than 10% of the LEL or less than 10 times the UEL—

- (a) the proportion of flammable gas to air must at all times be kept either below 50% of the LEL or above 2 times the UEL; and
- (b) there must be a system in place to continuously monitor and control the concentration of flammable gas to meet the requirements of subclause (4)(a); and
- (c) persons managing flammable gases according to this subclause must operate in accordance with a code of practice approved under section 78 of the Act as meeting the requirements of this subclause.

13 Methods of complying with clause 12

Compliance with sections 5-2 and 5-4 of NFPA 86, Standard for Ovens and Furnaces, 1999, National Fire Protection Association, USA, relating to the matters described in clause 12(4), is a means of meeting the requirements of clause 12(4).

14 Circumstances where flammable gas present in atmosphere where proportion of oxygen in atmosphere (by volume) greater than 20.9%

- (1) Every person who elects to manage a flammable gas under clause 7(1), within an atmosphere where the proportion of oxygen is greater than 20.9% volume for volume, must ensure that, in any place where such a flammable gas is located, the requirements of this clause are met.
- (2) A $RLEL_{(O)}$ and a $RUEL_{(O)}$ applicable to the proportion of flammable gas to oxygen present must be established by the person in charge of the flammable gas, and—
 - (a) the $RLEL_{(O)}$ and the $RUEL_{(O)}$ must be available for inspection at any time; and
 - (b) at all times the proportion of flammable gas to oxygen in the atmosphere must be either below 25% of the $RLEL_{(O)}$ or above 4 times the $RUEL_{(O)}$; and
 - (c) to meet the requirements of subclause (2)(b), there must be a system in place to continuously monitor and control—
 - (i) the proportion of oxygen present; and
 - (ii) the proportion of flammable gas to oxygen present.
- (3) In a place where the flammable gas is present in concentrations greater than 10% $RLEL_{(O)}$, the requirements of either of the following subclauses must be met:
 - (a) the person in charge must establish a revised minimum ignition energy for the maximum proportion of oxygen to air expected within the system, and—
 - (i) where such a revised minimum ignition energy is established, it must be available for inspection at any time; and
 - (ii) there must be no item capable of generating a flame or spark present unless it can be shown that any release of spark energy would transfer to the mixture of gas to oxygen-enriched air less than 25% of the revised minimum ignition energy; or

- (b) in any situation except situations covered by clause 6, any ignition source located within the area where flammable gas is present must be protected in such a way that, in the circumstances in which it is installed (including the presence of dust and particulate matter), it cannot ignite any gas/air mixture formed from the flammable gases present.
- (4) A revised auto-ignition temperature must be established for the maximum proportion of oxygen to air expected to be experienced within the system, and—
- (a) the revised auto-ignition temperature must be available for inspection at any time; and
 - (b) at all times the temperature of the flammable gas and of any surface in contact with the flammable gas must be below 80% of the revised auto-ignition temperature for that flammable gas and oxygen level; and
 - (c) there must be a system in place to continuously monitor and control the temperature of the flammable gas and of any surface in contact with the flammable gas to meet the requirements of subclause (4)(b).
- (5) At any place where a flammable gas is present in quantities greater than 30 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), any permanently fixed equipment or container at the place, or part of such equipment or container, must be electrically bonded and earthed so that the maximum allowable resistance to earth is—
- (a) 1 MΩ, for gradual dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 MΩ; and
 - (b) 10 Ω, for the dissipation of static electricity from components that have an electrical resistance of less than 1 MΩ.
- (6) The flammable gas must be managed in accordance with a code of practice approved under section 78 of the Act as a method for meeting the requirements specified in subclauses (3) to (5).

15 Methods of complying with clause 14

Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of clause 14(5)(b).

16 Circumstances where flammable gas may be present and proportion of oxygen in atmosphere (by volume) controlled so as to be below 20.9%

- (1) Every person who elects to manage a flammable gas under clause 7(1), within an atmosphere where the proportion of oxygen present is controlled so as to be below 20.9% (by volume), must ensure that in any place where such a flammable gas is located the requirements of this clause are met.
- (2) In the place, the person in charge of the flammable gas must ensure that either—
 - (a) at all times the proportion of flammable gas to air, is either below 25% of the LEL or above 4 times the UEL; or

- (b) an RLEL_(O) and RUEL_(O) is established applicable to the range of proportions of flammable gas to oxygen present, in which case—
 - (i) that RLEL_(O) and RUEL_(O) must be available for inspection at any time; and
 - (ii) at all times the proportion of flammable gas to oxygen in the atmosphere must be either below 25% of the RLEL_(O), or above 4 times the RUEL_(O); and
 - (iii) there must be a system in place to continuously monitor and control both the proportion of oxygen to air present, and the proportion of flammable gas to oxygen present, to meet the requirements of subclause (2)(b)(ii).
- (3) In the place, the person in charge of the flammable gas must ensure that—
 - (a) there is no ignition source present unless it can be shown that any release of spark energy would transfer to the mixture of gas to air less than 25% of the minimum ignition energy; or
 - (b) in any situation except situations covered by clause 6, any ignition source located in the area where flammable gas is present is protected in such a way that, in the circumstances in which it is installed (including presence of dust and particulate matter), it cannot ignite any gas/air mixture formed from the flammable gases present.
- (4) In the place, the person in charge of the flammable gas must ensure that either—
 - (a) the temperature of the flammable gas and of any surface in contact with the flammable gas does not exceed 80% of the auto-ignition temperature for that flammable gas; or
 - (b) a revised auto-ignition temperature is established for the range of proportions of oxygen expected to be present, in which case—
 - (i) the revised temperature must be available for inspection at any time; and
 - (ii) at all times the temperature of the flammable gas and of any surface in contact with the flammable gas must be below 80% of the revised auto-ignition temperature; and
 - (iii) there must be a system in place to continuously monitor and control the proportion of oxygen to air present, and the temperature of the flammable gas and the temperature of any surface in contract with the flammable gas, to meet the requirements of subclause (4)(b)(ii).
- (5) At any place where a flammable gas is present in quantities greater than 30 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), any permanently fixed equipment or container at the place, or part of any such equipment or container, must be electrically bonded and earthed, so that the maximum allowable resistance to earth is—
 - (a) 1 MΩ, for dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 MΩ; and

- (b) 10 Ω, for the dissipation of static electricity from components that have an electrical resistance of less than 1 MΩ.

17 Methods of complying with clause 16

- (1) In the case of an electrical ignition source, compliance with any one of the explosion-protection techniques, or a combination of the explosion-protection techniques, listed in Table 2.1 of AS 2380.1: 1989 relating to matters described in clause 16(3)(b) are a means of meeting the requirements of clause 16(3)(b).
- (2) The requirements of clause 16(4) are met if either—
 - (a) there is compliance with AS/NZS 2381.1: 2005 relating to the matters described in clause 16(4); or
 - (b) any equipment and any surface in contact with the flammable gas conform to the temperatures given in Table 1 (see clause 9), and the temperature of the flammable gas is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of clause 16(5)(b).

18 Segregation requirements for incompatible substances

- (1) Except where the ignition of a flammable gas is intended, the person in charge of a flammable gas must ensure that—
 - (a) the flammable gas is not in contact with any substance or material with which it is incompatible; and
 - (b) packages of incompatible substances are held separately.
- (2) For the purposes of this clause, substances or materials specified in Table 2 are incompatible with flammable gases.
- (3) This clause does not apply to substances that are—
 - (a) located on a vehicle, ship, or aircraft; and
 - (b) segregated in accordance with the Land Transport Rules, the Maritime Rules, or the Civil Aviation Rules, as the case may be.

Table 2. Substances and materials incompatible with flammable gases

Incompatible substances and materials
Class 1 substances
Class 2.1.2 substances
Class 3 substances
Class 4 substances
Class 5 substances

19 Requirement to establish hazardous substance location where flammable gases present

- (1) The person in charge of a place where any flammable gas is located must establish in that place one or more hazardous substance locations where flammable gases are to be situated if the flammable gases are present in a quantity exceeding 100 m³ (where a permanent gas) or 100 kg (where a non-permanent gas) for a period exceeding 18 hours.
- (2) The person in charge of the hazardous substance location must notify an enforcement officer responsible for the enforcement of the Act in the area where the hazardous substance location is located, at least 30 working days before the commissioning of the hazardous substance location as a place for accommodating flammable gases, of—
 - (a) the street address of the place in which the hazardous substance location is located; and
 - (b) the maximum quantity and the hazard classification of each flammable gas that the hazardous substance location is designed or constructed to accommodate.
- (3) The person in charge of the hazardous substance location must ensure that, where a Group Standard requires a flammable gas to be under the control of an approved handler, the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to that Group Standard relating to class 2 substances are met.
- (4) The person in charge of the hazardous substance location must ensure that—
 - (a) where a test certificate is required under clause 20, a test certificate is obtained that certifies that the requirements of clause 20 are met; and
 - (b) a site plan is available for inspection that shows the physical position, in relation to the legal boundary of the site in which the hazardous substance location or hazardous substance locations are located, of—
 - (i) all hazardous substance locations within the place that contain flammable gases; and
 - (ii) all hazardous atmosphere zones and controlled zones within the place; and
 - (c) where required under clause 5, a hazardous atmosphere zone is established and maintained in accordance with that clause.

20 Test certification requirements where flammable gas present at hazardous substance location or in hazardous atmosphere zone

The person in charge of a hazardous substance location where flammable gases are present must ensure that the location or place has a current test certificate certifying that—

- (a) the notification requirements of clause 19 are complied with; and
- (b) where Part 3 (Approved Handler) of Schedule 1 to a Group Standard relating to class 2 substances, or clause 7(2), require flammable gases to be under the control of an approved handler—

- (i) the person in charge of the hazardous substance location is an approved handler for such flammable gases, or can demonstrate that a person is available who is an approved handler for flammable gases; and
- (ii) the flammable gases can be secured so that a person cannot gain access to the flammable gases without tools, keys, or any other device used for operating locks; and
- (c) if a hazardous atmosphere zone is required by clause 5, a hazardous atmosphere zone has been established in accordance with that clause, and the extent of the hazardous atmosphere zone is documented; and
- (d) the requirements of clause 18 are complied with; and
- (e) the hazardous substance location has signage in place as required by Part 7 of the Site and Storage Conditions; and
- (f) where the quantity of flammable gas requires it, Part 6 of the Site and Storage Conditions is complied with; and
- (g) the requirements of clause 19(4) are complied with; and
- (h) the requirements of Part 2 and Part 3 of the Site and Storage Conditions are complied with.

21 Requirements to be met by transit depot where flammable gases present

- (1) At any transit depot where the quantity of flammable gases exceeds 100 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), the person in charge of the transit depot must—
 - (a) at least 30 working days before the commissioning of the transit depot as a place for accommodating flammable gases, notify an enforcement officer responsible for enforcement of the Act in the area where the transit depot is situated of—
 - (i) the street address of the transit depot; and
 - (ii) the maximum quantity and the hazard classification of each of the flammable gases that the depot is designed to accommodate; and
 - (b) ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 2 substances are met; and
 - (c) ensure that any road vehicle loaded with containers of flammable gas is—
 - (i) not less than 3 m from any other vehicle that is loaded with compatible substances; and
 - (ii) not less than 5 m from any other vehicle that is loaded with incompatible substances; and
 - (iii) not less than 3 m from any place where containers of compatible substances not on a vehicle are located; and

- (iv) not less than 5 m from any place where containers of incompatible substances not on a vehicle are located; and
 - (d) ensure that any containers of flammable gas held in the transit depot but not loaded onto a vehicle are not less than 5 m from containers of incompatible substances; and
 - (e) ensure that all flammable gases located at the transit depot remain within their containers, and that the containers remain closed; and
 - (f) ensure that any electrical equipment at the transit depot is designed and constructed so that in the event of failure of the electrical equipment no resulting ignition source will contact either the flammable gas or its container; and
 - (g) designate and clearly identify with signs that meet the requirements of Part 7 of the Site and Storage Conditions, areas for containment, pending disposal, of any damaged containers.
- (2) Compliance with those parts of the Electricity Act 1992 and regulations made under that Act, the Health and Safety of Employment (Mining Underground) Regulations 1999, or the Civil Aviation Rules that relate to the matter described in subclause (1)(f) are a means of meeting the requirements of subclause (1)(f).

Part 2

Conditions Relating to the Unintended Ignition of Flammable Gases not Located at Hazardous Substance Location

22 Person in charge of flammable gas must comply with this Part

- (1) The person in charge of a flammable gas must ensure that the adverse effects of unintended ignition of the flammable gas are controlled in accordance with this Part.
- (2) Subclause (1) does not apply if a provision of these conditions states that a different person is responsible.

23 Separation of flammable permanent gases from areas of high and low intensity land use

- (1) This clause applies to—
 - (a) one or more cylinders that—
 - (i) is, or are, as the case may be, located together at a place; and
 - (ii) contains, or each contain, as the case may be, a flammable permanent gas in a location that is not a hazardous substance location; or
 - (b) an above ground stationary tank or transportable container or tank wagon that contains a flammable permanent gas in a location that is not a hazardous substance location.
- (2) A vehicle filling point, for a flammable permanent gas, must be separated by a distance of 2.5 m from the place of storage of flammable permanent gas.

- (3) A cylinder to which this clause applies must be separated from—
- (a) an area of high intensity land use by not less than the distance specified in column 2 of Table 3 opposite the aggregate volume of the permanent gas contained in all of the cylinders to which this clause applies located at the same place specified in column 1 of that table; or
 - (b) an area of low intensity land use by not less than the distance specified in column 3 of Table 3 opposite the aggregate volume of the permanent gas contained in all of the cylinders to which this clause applies located at the same place specified in column 1 of that table.
- (4) Subclause (3) does not apply to the storage of flammable permanent gas in quantities not exceeding 100 m³ and which is intended to be used on the premises.
- (5) An above ground stationary tank or transportable container or tank wagon to which this clause applies must be separated from—
- (a) an area of high intensity land use by not less than the distance specified in column 2 of Table 3 opposite the volume of the permanent gas contained in the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or
 - (b) an area of low intensity land use by not less than the distance specified in column 3 of Table 3 opposite the volume of the permanent gas contained in the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.
- (6) A tank fill transfer point that is connected to an above ground stationary tank to which this clause applies must be separated from—
- (a) an area of high intensity land use by not less than the distance specified in column 2 of Table 3 opposite the volume of the permanent gas contained in the above ground stationary tank that is connected to the tank fill transfer point specified in column 1 of that table; or
 - (b) an area of low intensity land use by not less than the distance specified in column 3 of Table 3 opposite the volume of the permanent gas contained in the above ground stationary tank that is connected to the tank fill transfer point specified in column 1 of that table.

Table 3. Calculation of distances

Volume of permanent gas (m ³)	Area of high intensity land use (m)	Area of low intensity land use (m)
Column 1	Column 2	Column 3
Less than 100	5	5
100 to less than 500	10	5
Equal to or greater than 500	15	5

24 Separation of cylinders containing flammable liquefiable gases from areas of high and low intensity land use

- (1) One or more cylinders containing a flammable liquefiable gas, located together in a location that is not a hazardous substance location, must each be separated from—
 - (a) an area of high intensity land use by not less than the distance specified in column 2 of the Table 4 opposite the aggregate quantity of liquefiable gas contained in all of the cylinders located at the place specified in column 1 of that table; or
 - (b) an area of low intensity land use by not less than the distance specified in column 3 of Table 4 opposite the aggregate quantity of liquefiable gas contained in all of the cylinders located at the place specified in column 1 of that table.
- (2) Cylinders which are located within 1 m of a building and which, individually or in aggregate, as the case may be, contain up to 100 kg of a flammable liquefiable gas must not have any opening located—
 - (a) below the top of the cylinder; and
 - (b) within 1 m of any cylinder.
- (3) Subclause (1)(a) does not apply to one or more cylinders located together at a place that contains, or each contain in aggregate, as the case may be, greater than 100 kg and up to 300 kg of flammable liquefiable gas if—
 - (a) there are no buildings within 2 m of the cylinder or cylinders; or
 - (b) there are one or more buildings within 2 m of the cylinder or cylinders and—
 - (i) the walls of the buildings behind and 2 m either side of the cylinders are constructed of fire resisting materials; and
 - (ii) the building does not have any opening located—
 - (I) below the top of any cylinder; and
 - (II) within 2 m of any cylinder.

Table 4. Calculation of distances

Aggregate quantity of liquefiable gas in cylinders only (kg) Column 1	Area of high intensity land use (m) Column 2	Area of low intensity land use (m) Column 3
Up to 100	0	0
300	2	0
500	2	2
2,000	3	2
5,000	5	3
10,000	7	4
50,000	8	5
More than 50,000	15	8

25 Separation of above ground stationary tank, transportable container or tank wagon and transfer point for flammable liquefiable gas from areas of high and low intensity land use

- (1) An above ground stationary tank or transportable container or tank wagon that contains a flammable liquefiable gas, and each transfer point connected to them, where present at a location that is not a hazardous substance location, must be separated from—
 - (a) an area of high intensity land use by not less than the distance specified in column 2 of Table 5 opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or
 - (b) an area of low intensity land use by not less than the distance specified in column 3 of Table 5 opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.
- (2) Notwithstanding the above, a tank fill zone need not be separated from the boundary of the controlled zone by any more than 15 m.

Table 5. Calculation of distances

Water capacity of tank or container (L) Column 1	Area of high intensity land use (m) Column 2	Area of low intensity land use (m) Column 3
Up to 500	2	2
1,000	3	3
5,000	8	5
10,000	11	7
20,000	15	9
50,000	17	10
100,000	21	12
200,000 or more	28	14

Part 3

Conditions Relating to the Unintended Ignition of Flammable Gases Present at Hazardous Substance Location

26 Person in charge of flammable gas must comply with this Part

- (1) The person in charge of a flammable gas must ensure that the adverse effects of unintended ignition of the flammable gas are controlled in accordance with this Part.
- (2) Subclause (1) does not apply if a provision of these conditions states that a different person is responsible.

27 Requirement to establish controlled zone

- (1) The person in charge of a hazardous substance location at which a flammable gas is present must—
 - (a) establish a controlled zone around the hazardous substance location that complies with clauses this Part.

- (b) exclude all non-authorized personnel from that controlled zone.
- (2) Subclause 1(b) does not apply if the controlled zone—
 - (a) includes one or more areas for the retail sale of a flammable gas to which the public have access; and
 - (b) warning signs are provided that are visible to persons in the controlled zone that specify that no ignition source may be brought within that controlled zone.

28 Separation of flammable permanent gas from boundary of controlled zone

- (1) This clause applies to—
 - (a) one or more cylinders present at a hazardous substance location, that contains, or each contain, as the case may be, a flammable permanent gas; or
 - (b) an above ground stationary tank or transportable container or tank wagon present at a hazardous substance location that contains a flammable permanent gas.
- (2) A vehicle filling point, for a flammable permanent gas, must be separated by a distance of 2.5 m from the place of storage of flammable permanent gas.
- (3) A cylinder to which this clause applies must be separated from the boundary of the controlled zone by not less than—
 - (a) if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of Table 3 (see clause 23) opposite the aggregate volume of the permanent gas contained in all of the cylinders to which this clause applies specified in column 1 of that table; or
 - (b) if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of Table 3 (see clause 23) opposite the aggregate volume of the permanent gas contained in all of the cylinders to which this clause applies specified in column 1 of that table.
- (4) Subclause (3) does not apply to the storage of flammable permanent gas in quantities not exceeding 100 m³ and which is intended to be used on the premises.
- (5) An above ground stationary tank or transportable container or tank wagon to which this clause applies must be separated from the boundary of the controlled zone by not less than—
 - (a) if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of Table 3 (see clause 23) opposite the volume of the permanent gas contained in the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or
 - (b) if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of Table 3 (see clause 23) opposite the volume of the permanent gas contained in the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.

- (6) A tank fill transfer point that is connected to an above ground stationary tank to which this clause applies must be separated from the boundary of the controlled zone by not less than—
- (a) if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of Table 3 (see clause 23) opposite the volume of the permanent gas contained in the above ground stationary tank that is connected to the tank fill transfer point specified in column 1 of that table; or
 - (b) if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of Table 3 (see clause 23) opposite the volume of the permanent gas contained in the above ground stationary tank that is connected to the tank fill transfer point specified in column 1 of that table.

29 Separation of cylinders containing flammable liquefiable gas from boundary of controlled zone

- (1) One or more cylinders containing a flammable liquefiable gas present at a hazardous substance location, must be separated from the boundary of the controlled zone by not less than—
- (a) if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of Table 4 (see clause 24) opposite the aggregate quantity of liquefiable gas contained in all of the cylinders at the hazardous substance location specified in column 1 of that table; or
 - (b) if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of Table 4 (see clause 24) opposite the aggregate quantity of liquefiable gas contained in all of the cylinders at the hazardous substance location specified in column 1 of that table.
- (2) Cylinders which are located within 1 m of a building and which individually or in aggregate, as the case may be, contain up to 100 kg of a flammable liquefiable gas must not have any opening located—
- (a) below the top of the cylinder; and
 - (b) within 1 m of any cylinder.
- (3) Subclause (1)(a) does not apply to one or more cylinders present at a hazardous substance location that contains, or each contain in aggregate, as the case may be, greater than 100 kg and up to 300 kg of flammable liquefiable gas if—
- (a) there are no buildings within 2 m of the cylinder or cylinders; or
 - (b) there are one or more buildings within 2 m of the cylinder or cylinders and—
 - (i) the walls of the buildings behind and 2 m either side of the cylinders are constructed of fire resisting materials; and
 - (ii) the building does not have any opening located—
 - (I) below the top of any cylinder; and
 - (II) within 2 m of any cylinder.

- (4) Subclause (1)(a) does not apply to cylinders present at a hazardous substance location that contain greater than 300 kg and up to 1,000 kg of flammable liquefiable gas if—
- (a) there are no buildings within 2 m of the cylinder or cylinders; or
 - (b) there are one or more buildings within 2 m of the cylinder or cylinders and—
 - (i) the wall of the building (or a wall between the cylinders and the building) is—
 - (I) vapour tight; and
 - (II) has a minimum fire resistance rating of 60/60/60 minutes for the length of the wall directly behind the cylinders and extending at each end to a distance of at least 2 m from the end of the bank of cylinders; and
 - (ii) any building within 2 m of the cylinder or cylinders does not have any opening located—
 - (I) below the top of the cylinder; and
 - (II) within 2 m either side of the cylinder.
- (5) In the case of direct-fired vaporisers the requirements set out in clause 55(2) of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

30 Separation of above ground stationary tank, transportable container or tank wagon and tank fill transfer point for flammable liquefiable gas from boundary of controlled zone

- (1) An above ground stationary tank or transportable container or tank wagon that contains a flammable liquefiable gas, and each tank fill transfer point connected to them, where present at a hazardous substance location, must be separated from the boundary of the controlled zone by not less than—
- (a) if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of Table 5 (see clause 25) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or
 - (b) if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of Table 5 (see clause 25) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.
- (2) Notwithstanding the above, a tank fill zone need not be separated from the boundary of the controlled zone by any more than 15 m.

31 Separation of cylinder filling stations for flammable liquefiable gas from boundary of controlled zone

Cylinder filling stations are to be installed so as to ensure a separation distance of at least—

- (a) 15 m from an area of high intensity or low intensity land use, where the quantity of flammable liquefiable gas stored in cylinders at the filling station is 1,000 kg or greater; or
- (b) 8 m from an area of high intensity or low intensity land use, where the quantity of flammable liquefiable gas stored in cylinders at the filling station is more than 100 kg but less than 1,000 kg; or
- (c) 6 m from an area of high intensity land use and 3 m from an area of low intensity land use where the quantity of flammable liquefiable gas stored in cylinders at the filling station, is less than 100 kg.

Part 4

Oxidising Conditions for Oxidising Gases

32 Quantities

- (1) In determining whether the requirements for an approved handler, a hazardous substance location, a transit zone, or a test certificate are activated, the relevant quantity has been exceeded if the quantity-ratio sum is greater than 1 when determined in accordance with the following formula:

$$\text{quantity-ratio sum} = \Sigma [qp_i/qa_i]$$

where—

Σ is the symbol for summation (in this case, summation of the calculated ratios for all oxidising hazard classifications present for class 5 substances)

qp_i is the quantity of substance with a particular class 5 hazard classification present

qa_i is the quantity of substance of that class 5 hazard classification that activates the relevant requirement

- (2) Where a requirement to control the adverse effects of unintended ignition, combustion or explosion of a HSNO class 5.1 or 5.2 substance is activated by or is based on a quantity of a particular hazard classification, and where the substances present are of different hazard classifications, the quantity must be determined as if the total quantity of substances present is of the most hazardous classification of any of the substances present.
- (3) For the purposes of subclause (2)—
- (a) the most hazardous classification is determined as the most hazardous category in any class (where category A has the highest degree of hazard); and

- (b) where different compatible subclasses are present, the most hazardous subclass is that indicated by the greatest separation distance specified in Table 4 of this Site and Storage Conditions document and Tables 3, 8 and 9 of the document entitled *Site and Storage Conditions for Class 5.1.1 Oxidising Substances and Class 5.2 Organic Peroxides*, July 2006.
- (4) Unless otherwise specified, the quantity of an organic peroxide must be determined by mass.
- (5) Where a quantity of gas is specified as cubic metres (m³), this volume is determined by taking the contents and conditions of the gas held in a container and then calculating the volume that the gas would occupy at 15°C and 101.3 kPa absolute pressure. Where the quantity of gas is specified in kilograms, this refers to the net weight of the gas in liquefied form as held in its container.
- (6) When considering quantities under subclauses (1) to (5) the quantities of all hazardous substances must be taken into account, howsoever those substances were approved under the Act.

33 Test certification

- (1) Where a test certificate is required for a hazardous substance location, that test certificate must be renewed at intervals of not more than 12 months, unless on request of the person or persons required to obtain the test certificate the Authority specifies a longer time limit for which the test certificate is valid.
- (2) The longer time limit specified by the Authority may not exceed 36 months.
- (3) When specifying the time limit, the Authority must take into account—
 - (a) the maximum quantities and types of hazardous substances present or likely to be present at the relevant place; and
 - (b) the review and monitoring systems in place for the management of those substances; and
 - (c) the compliance history of the organisation concerned and of the persons in charge of the substances.
- (4) Where there is a requirement to obtain more than one test certificate—
 - (a) the test certifier may, on request of the person or persons required to obtain the test certificates, examine at the same time any or all of those matters that require test certification for which the certifier is competent to certify; and
 - (b) where more than one matter has been examined, the report provided by the certifier must indicate whether or not the respective requirements have been met and must give the reasons for any failure to meet those requirements; and
 - (c) a single test certificate may be issued for any or all of those matters where the requirements have been met.

34 General limits on oxidising gases

- (1) Where greater than 200 m³ (where a permanent gas) or 100 kg (where a non-permanent gas) of an oxidising gas is present at a place for more than 18 hours and where the container is to be kept closed at all times, that oxidising gas must be held at a hazardous substance location or, if applicable, at a transit depot.
- (2) Where greater than 50 m³ (where a permanent gas) or 50 kg (where a non-permanent gas) of an oxidising gas is present at a place for more than 18 hours and substances are manufactured or used at that place, that oxidising gas must be held at a hazardous substance location or, if applicable, at a transit depot.
- (3) Unless the circumstances of clause 44 apply, the person in charge of an oxidising gas must ensure that at all times the substance remains in a container of a type that—
 - (a) prevents the oxidising gas coming into contact with any incompatible substance or ignition source; and
 - (b) enables the requirements of clause 35 to be met.

35 Requirements to reduce likelihood of unintended combustion or explosion of oxidising gases

- (1) Every oxidising gas—
 - (a) must be kept separate from any other substance or material with which it is incompatible; and
 - (b) must not come into contact with any ignition source; and
 - (c) must be stored in a sealed container; and
 - (d) can be secured so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks,

unless contact with the incompatible substance, material, or ignition source is intended, in which case the effects of this contact must be managed within the limits prescribed in clause 44.

- (2) The temperature of an oxidising gas must not exceed the lesser of—
 - (a) 15°C less than the substance's decomposition temperature; or
 - (b) 50°C,

unless a higher temperature is intended, in which case the effects of this higher temperature must be managed to within the limits prescribed in clause 44.

36 Requirements to establish hazardous substance location where oxidising gases present

- (1) The person in charge of a place where any oxidising gases are present must establish in that place one or more hazardous substance locations where such oxidising gases are to be situated, or to be manufactured or used, if—

- (a) the oxidising gases are to be present for a period exceeding 18 hours; and
 - (b) the oxidising gases are to be present in quantities exceeding—
 - (i) 200 m³ (where a permanent gas) or 100 kg (where a non-permanent gas) where the containers are kept closed at all times; or
 - (ii) 50 m³ (where a permanent gas) or 50 kg (where a non-permanent gas) where the oxidising gases are being manufactured or used.
- (2) Separate hazardous substance locations must be established for—
- (a) places where oxidising gases are to be kept in containers that are closed at all times; and
 - (b) places where oxidising gases are to be manufactured or used.
- (3) The person in charge of a hazardous substance location must notify an enforcement officer responsible for the enforcement of the Act in the area where the hazardous substance location is situated, at least 30 working days before the commissioning of the hazardous substance location as a place for accommodating oxidising gases, of—
- (a) the street address of the place in which the hazardous substance location is located; and
 - (b) the maximum quantity and the hazard classification of oxidising gases that the hazardous substance location is designed or constructed to accommodate; and
 - (c) any manufacturing or use involving oxidising gases that may occur at the location.
- (4) The person in charge of a hazardous substance location must ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 5.1.2 substances are met.
- (5) The person in charge of a hazardous substance location must further ensure that—
- (a) where a test certificate is required under clause 40, a test certificate is obtained that certifies that the requirements of that clause are met; and
 - (b) a site plan is available for inspection showing, in relation to the legal boundary of the site in which the hazardous substance location is situated, the physical location of—
 - (i) all hazardous substance locations within the place that contain oxidising gases; and
 - (ii) all controlled zones within the place.
- (6) For the purposes of this Part, use includes removing an oxidising gas from, or putting it into, a cylinder or other container.

37 Requirements to reduce likelihood of unintended ignition where oxidising gases present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established by clause 36 must ensure that—
 - (a) the temperature of the immediate area around the oxidising gases complies with the relevant requirements of clause 35(2); and
 - (b) the area around the oxidising gases is free of incompatible substances and separated from these by—
 - (i) a wall—
 - (I) with a fire resistance rating of 120/120/120 minutes; and
 - (II) that is constructed to prevent a fire on one side of the wall from coming into contact with any such substances on the other side of the wall; or
 - (ii) the applicable distance specified in Table 6, or, where the amount of oxidising gas is less than the amount specified in that table, not less than 3 m; or
 - (iii) a set of arrangements that meets the requirements of a code of practice approved under section 78 of the Act as meeting the requirements of subclauses (1)(b)(i) or (1)(b)(ii) of this subclause and of clause 39; and
 - (c) the oxidising gas is separated from ignition sources, but excluding electrical equipment, by the appropriate distance specified in Table 7, or by a wall as described in subclause (1)(b)(i) of this subclause; and
 - (d) any area where an oxidising gas is likely to form (including any ventilation outlet or aperture) is separated from any ignition source to the degree provided in subclause (1)(c); and
 - (e) arrangements are in place so that—
 - (i) every person entering the location is free of any incompatible material; and
 - (ii) direct contact by any person inside the location with an oxidising gas is prevented; and
 - (iii) accumulation of an oxidising gas on clothing or on or in any equipment inside the location is prevented, unless—
 - (I) the equipment or clothing complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (II) any material that has so accumulated is collected and removed from the location immediately; and
 - (iv) the accumulation of incompatible substances within the location is prevented; and

- (f) the location is designed and managed so that any moisture or any oxidising gas does not present a hazard in respect of electrical equipment that may be present.
- (2) Except as clause 38(1)(a) otherwise allows, every container containing an oxidising gas within a hazardous substance location must be kept closed at all times (except for any permanently open vent in the container).

Table 6. Hazardous substance location requirements – Minimum separation distances from incompatible substances

Quantity	Minimum distance from incompatible substance (m)
Up to 200 m ³ or 250 kg	3
More than 200 m ³ or 250 kg	5

Table 7. Hazardous substance location requirements – Minimum separation distances from ignition sources and from other hazardous substance locations

Minimum separation distance where containers kept closed (m)	Minimum separation distance where substances manufactured or used (m)
3	5

38 Extra requirements for hazardous substance location where oxidising gas to be manufactured or used

- (1) The person in charge of a hazardous substance location where oxidising gases are manufactured or used must ensure that, in addition to the requirements of clause 37, the following requirements are met in relation to the location:
- (a) within the location, every container containing an oxidising gas must be kept closed except for when the oxidising gas is being taken from or put into its container; and
 - (b) no person is exposed to an oxidising gas unless protected by clothing or equipment that meets the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (c) arrangements are in place that will ensure that every person leaving the hazardous substance location is free of oxidising gases.
- (2) The person in charge of a hazardous substance location where oxidising gases are manufactured or used must ensure that it is separated from any other hazardous substance location by—
- (a) a distance of not less than that specified in Table 7 (see clause 37); or
 - (b) a wall—
 - (i) with a fire resistance rating of 120/120/120 minutes; and
 - (ii) that is constructed to prevent a fire on one side of the wall from coming into contact with any such substances on the other side of the wall.

39 Requirements to be met by person in charge of hazardous substance location to control adverse effects of unintended combustion or explosion of an oxidising gas

- (1) The person in charge of a hazardous substance location where oxidising gases are present must establish a controlled zone around the location such that—
 - (a) any person not personally authorised to be there by the person in charge is excluded from the zone; and
 - (b) within the controlled zone, no person is exposed to more than the heat radiation limit described in clause 44, except where the requirements of Part 5 (Equipment) of Schedule 1 to the Group Standard, are met; and
 - (c) one of the following requirements or sets of requirements is met:
 - (i) the requirements of clause 37(1)(b)(i) and (c); or
 - (ii) the requirements of clause 37(1)(b)(ii) and (c); or
 - (iii) no place outside the controlled zone is exposed to more than the level of heat radiation specified in clause 44.
- (2) The person in charge of the hazardous substance location must also ensure that, within the controlled zone, the requirements of clause 37(1)(d), (e), and (f) or, if applicable, clause 38, are met.
- (3) The person in charge of the hazardous substance location must ensure that the interior of any proximate building that is a place of regular habitation and not dedicated to the use or manufacture of the oxidising gas or any place where a person may legally be which would otherwise be within the controlled zone, must be separated from the hazardous substance location by—
 - (a) a wall that offers the same protection as that required in clause 37(1)(b)(i); or
 - (b) a distance that corresponds to the distance from incompatible substances described in clause 37(1)(b)(ii); or
 - (c) any other set of arrangements that ensures that no person would be exposed to more than the heat radiation limit described in clause 44.

40 Test certification requirements at hazardous substance location where oxidising gases present

Every hazardous substance location where more than 200 m³ (where a permanent gas) or 100 kg (where a non-permanent gas) of an oxidising gas are present must have a current test certificate that certifies compliance with the requirements specified in clause 41, or, where applicable, clause 42.

41 Matters to be certified for hazardous substance location where containers of oxidising gases kept closed at all times or containers designed to be vented

Where a test certificate is required for a hazardous substance location under clause 40, the certificate must certify that, for the hazardous substance location—

- (a) the notification requirements of clause 36 are complied with, and the maximum quantities as notified are not exceeded; and
- (b) the person in charge of the hazardous substance location is an approved handler for oxidising gases, or can demonstrate that there is available a person who is an approved handler for oxidising gases; and
- (c) the oxidising gases can be secured so that a person cannot gain access to the oxidising gases without tools, keys, or any other device for operating locks; and
- (d) a site plan is available for inspection that complies with the requirements of clause 36(5)(b); and
- (e) the requirements of clause 37(1)(a) to (d) and (f) and 37(2) are complied with; and
- (f) the requirements of clause 39 are complied with; and
- (g) any fixed structure or installed equipment within the location is constructed from compatible material and is not an ignition source; and
- (h) any equipment or clothing present complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
- (i) there are documented procedures to ensure that the requirements of clause 37(1)(e) are complied with; and
- (j) the location has signage in place as required by Part 7 of the Site and Storage Conditions; and
- (k) where the quantity of oxidising gas requires, the requirements for emergency management specified in Part 6 of the Site and Storage Conditions are met.

42 Matters to be certified for hazardous substance location where oxidising gases manufactured or used

Where a test certificate is required for a hazardous substance location under, clause 40 and where that hazardous substance location or any part of that location is one where oxidising gases are manufactured or used, the test certificate must, in addition to certifying the matters specified in clause 41, also certify that there are documented procedures to ensure that every person leaving the location is free of any substance.

43 Requirements to be met by transit depot where oxidising gases present

At any transit depot where the quantity of oxidising gases exceeds 200 m³ (where a permanent gas) or 100 kg (where a non-permanent gas), the person in charge of the transit depot must—

- (a) at least 30 working days before the commissioning of the transit depot as a place for accommodating oxidising gases, notify an enforcement officer responsible for the enforcement of the Act in the area where the transit depot is situated of—
 - (i) the street address of the transit depot; and
 - (ii) the maximum quantity and the hazard classification of each of the oxidising gases that the depot is designed or constructed to accommodate; and
- (b) ensure that all oxidising gases remain within their closed containers; and
- (c) ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class.5.1.2 substances are met; and
- (d) ensure that any road vehicle loaded with containers of oxidising gas is—
 - (i) not less than 3 m from any other vehicle that is loaded with compatible substances; and
 - (ii) not less than 5 m from any other vehicle that is loaded with incompatible substances; and
 - (iii) not less than 3 m from any place where containers of compatible substances not on a vehicle are located; and
 - (iv) not less than 5 m from any place where containers of incompatible substances not on a vehicle are located; and
- (e) ensure that any containers of oxidising gas held in the transit depot, but not loaded onto a vehicle are not less than 5 m from containers of incompatible substances; and
- (f) ensure that any electrical wiring or equipment within the depot is designed and installed—
 - (i) so as to prevent the ingress of moisture or combustible particulate matter or vapour or gas to any such wiring or equipment; and
 - (ii) so that in the event of failure of the electrical equipment, no resulting ignition source will contact either the oxidising gas, or its container; and
- (g) designate, and clearly identify with signs that meet the requirements of Part 7 of the Site and Storage Conditions, areas for containment, pending disposal, of any damaged containers.

44 Requirements to control adverse effects where combustion of oxidising gas intended, or contact with incompatible substances or ignition sources or exposure to temperature anticipated

- (1) This clause applies in circumstances where—
- (a) an oxidising gas is to be deliberately contacted with an incompatible substance or an ignition source; or
 - (b) an oxidising gas is to be exposed to a temperature that exceeds the limits specified in clause 35(2); or
 - (c) it is reasonable to expect that the circumstances referred to in subclauses (1)(a) and (1)(b), or the level of exposure referred to in subclause (2), might accidentally occur.
- (2) In the circumstances described in subclause (1), no person, unless protected by clothing or equipment as required by Part 5 (Equipment) of Schedule 1 to the Group Standard, may be exposed to more than 80% of the level of heat radiation described by the following formula:

$$Q = 1.7 + 60t^{-0.9}$$

where—

Q is the heat radiation measured in kilowatts per square metre

t is the time of exposure to the heat radiation measured in seconds.

Part 5 Stationary Container Systems

45 Stationary Container Systems

Any stationary container system that contains, or is intended to contain, a hazardous substance must comply, to the extent applicable, with the controls for stationary container systems as set out in Parts 1 to 19 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, notwithstanding clause 1(1) of that Schedule.

Part 6 Emergency Management

46 Fire extinguishers required

- (1) Every place must have the number of fire extinguishers specified in Table 8 if the quantity of flammable or oxidising gases present, or likely to be present, exceed the quantities listed in Table 8.
- (2) If substances of two or more hazard classifications are held in the place, or reasonably likely to be held in it on occasion—
- (a) the numbers of fire extinguishers are not cumulative; and
 - (b) it is enough to have the highest of the numbers of fire extinguishers specified for substances of the various classifications.

Table 8: Quantities requiring fire extinguishers

HSNO classification	Description	Quantity	No of fire extinguishers
2.1.1A	non-permanent gas	50 kg	1
	permanent gas	30 m ³	1
2.1.1B	non-permanent gas	200 kg	2
	permanent gas	120 m ³	2
5.1.2A	non-permanent gas	10 kg	1
		50 kg	2
	permanent gas	10 m ³	1
		50 m ³	2

47 Location of fire extinguishers

- (1) In the case of a motor vehicle transporting flammable or oxidising gases, the fire extinguishers required by clause 46 must be in or on the vehicle.
- (2) In any other case, every fire extinguisher required by clause 46 must be so located that the distance of travel between it and the flammable or oxidising gases concerned is no more than 30 m.

48 Capability of fire extinguishers

Each fire extinguisher required by clause 46 must be able, when used by one person, to meet the Class C performance test requirements of AS/NZ 1850:1997 or an equivalent standard.

49 Duties of person in charge of places in relation to emergency response plans

- (1) This clause applies to a place if—
 - (a) there is held in it, or reasonably likely to be held in it on occasion, an aggregate quantity of hazardous substances of a particular hazard classification greater than the quantity specified in Table 9; and
 - (b) it is not an aircraft subject to the Civil Aviation Act 1990 or a ship subject to the Maritime Transport Act 1994.
- (2) A person in charge of a place to which this clause applies must ensure that the requirements of clauses 50 to 57 are complied with.

50 When emergency response plans required

A place to which clause 49 applies must have in it a single emergency response plan if the aggregate quantity of hazardous substances of a particular hazard classification held in it or reasonably likely to be held in it is greater than the quantity specified in Table 9.

Table 9. Trigger quantities for emergency response plans

HSNO classification	Description	Quantity
2.1.1A	non-permanent gas permanent gas	300 kg 200 m ³
2.1.1B	non-permanent gas permanent gas	1,000 kg 600 m ³
5.1.2A	non-permanent gas permanent gas	100 kg 100 m ³
6.1A, 6.1B, 6.1C 8.2A	non-permanent gas permanent gas	5 kg 2.5 m ³
6.1D, 6.5A, 6.5B, 6.7A 8.2B	non-permanent gas permanent gas	50 kg 25 m ³
6.1E, 6.3A/B, 6.4A, 6.6A/B, 6.7B, 6.8A/B/C, 6.9A/B 8.2C, 8.3A Class 9	non-permanent gas permanent gas	1,500 kg 900 m ³

51 Plans to warn of likely emergencies

An emergency response plan must describe all of the reasonably likely emergencies that may arise from the breach or failure of the conditions on substances of the hazard classifications concerned.

52 Contents of plans

An emergency response plan must, for each reasonably likely emergency—

- (a) describe the actions to be taken to—
 - (i) warn people at the place, and in surrounding areas that may be adversely affected by the emergency, that an emergency has occurred; and
 - (ii) advise those people about the actions they should take to protect themselves; and
 - (iii) help or treat any person injured in the emergency; and
 - (iv) manage the emergency so that its adverse effects are first restricted to the area initially affected, then as soon as practicable reduced in severity, then if reasonably possible eliminated; and
 - (v) if any of the substances concerned remain, re-establish the conditions imposed on it when it was approved; and
- (b) identify every person with responsibility for undertaking any of the actions described in subclause (a) (or any part of any of those actions) and give information on—
 - (i) how to contact the person; and
 - (ii) any skills the person is required to have; and
 - (iii) any actions that person is expected to take; and

- (c) specify—
 - (i) how to obtain information about the hazardous properties of and means of controlling the substance or substances that may be involved; and
 - (ii) actions to be taken to contact any emergency service provider; and
 - (iii) the purpose and location of each item of equipment or material to be used to manage the emergency; and
 - (iv) how to decide which actions to take; and
 - (v) the sequence in which actions should be taken.

53 Extra information required in some cases

An emergency response plan must specify the type and location of the fire extinguishers provided under clause 46, and any extra firefighting equipment, materials, and systems provided, if any of the reasonably likely emergencies identified in the plan is a fire.

54 Availability of equipment, materials, and people

All equipment and materials described in an emergency response plan, and all responsible people described in an emergency response plan who are on duty, must—

- (a) be present at the location concerned; or
- (b) be available to reach the location of the substance within the times specified in the plan; or
- (c) in the case of a trained person, be available to provide the advice or information specified in the plan within a time specified in the plan.

55 Availability of plans

- (1) An emergency response plan must be available to every person identified under clause 52(b) as being responsible for executing the plan or a specific part of it, and to every emergency service provider identified in it.
- (2) The information in an emergency response plan must meet the standards of presentation required for information imposed by clause 1 of Part 1 (Information Requirements) of Schedule 1 to the Group Standard.

56 Testing plans

- (1) An emergency response plan must be tested at least every 12 months; and the test must demonstrate that every procedure or action in the plan is workable and effective.
- (2) If there is a change to the persons, procedures, or actions specified in an emergency response plan, the plan must be tested within 3 months of the change; and the test must demonstrate that—

- (a) the changed persons can perform their functions under the plan; and
 - (b) each changed procedure of action is workable and effective.
- (3) The carrying out and the results of every test must be documented; and the documentation must be retained for at least 2 years.

57 Plan can be part of other management documentation

An emergency response plan can be part of any other management documentation for an emergency whether—

- (a) required by the Hazardous Substances and New Organisms Act 1996 or some other Act; or
- (b) undertaken by a person or organisation for some other reason.

Part 7 Signage

58 Duties of persons in charge of places in respect of signage

- (1) This clause applies to a place if—
- (a) there is held in it, or reasonably likely to be held in it on occasion, an aggregate quantity of hazardous substances of a particular hazard classification greater than the quantity specified in Table 10; and
 - (b) it is not an aircraft subject to the Civil Aviation Act 1990 or a ship subject to the Maritime Transport Act 1994 or a vehicle subject to the Land Transport Act 1998.
- (2) A person in charge of a place to which this clause applies must ensure that—
- (a) signage required by clause 59 is provided; and
 - (b) its content, presentation and positioning comply with that clause; and
 - (c) it meets the general information requirement imposed by clause 1 of Part 1 (Information Requirements) of Schedule 1 to the Group Standard.

Table 10. Trigger quantities requiring signage

HSNO classification	Description	Quantity
2.1.1A	non-permanent gas permanent gas	250 kg 100 m ³
2.1.1B	non-permanent gas permanent gas	500 kg 200 m ³
5.1.2A	non-permanent gas permanent gas	250 kg 500 m ³
6.1A, 6.1B, 6.1C 8.2A	non-permanent gas permanent gas	5 kg 2.5 m ³
8.2B	non-permanent gas permanent gas	50 kg 25 m ³

59 Signage requirements

- (1) If hazardous substances are located in a building (but not a particular room or compartment within it) there must be positioned at every vehicular and pedestrian access to the building, and every vehicular and pedestrian access to land where the building is located, signage that—
 - (a) states that hazardous substances are present; and
 - (b) describes the general type of hazard of each of them; and
 - (c) advises the action to be taken in an emergency.
- (2) If hazardous substances are located in a particular room or compartment within a building, there must be positioned at each entrance to the room or compartment signage complying with subclause (4).
- (3) If hazardous substances are located in an outdoor area, there must be positioned immediately next to that area signage complying with subclause (4).
- (4) Signage required by subclauses (2) or (3) must—
 - (a) state that hazardous substances are present; and
 - (b) describe the general type of hazard of each of them; and
 - (c) describe—
 - (i) if the hazardous substances include flammable gases, the precautions necessary to prevent unintended ignition of a flammable gas; and
 - (ii) if the hazardous substances include oxidising gases, the precautions necessary to prevent unintended combustion, acceleration of a fire, or thermal decomposition of an oxidising gas; and
 - (d) advise the action to be taken in an emergency.

Part 8 Approved Filler Certificates

60 Validity of approved filler certificates

An approved filler certificate issued under regulation 60 of the Hazardous Substances (Compressed Gases) Regulations 2004 in respect of a compressed gas remains valid for a period of 5 years from the date of issue.

61 Renewal of approved filler certificates

Before renewing an existing approved filler certificate in relation to compressed gases the test certifier must be satisfied that the filler meets the requirements of regulation 60(2) of the Hazardous Substances (Compressed Gases) Regulations 2004 in respect of any changes to working practices, regulations, or codes of practice which have occurred since the previous certificate was issued.

Interpretation

Act means the Hazardous Substances and New Organisms Act 1996

approved handler means a person who has a test certificate that certifies that the person meets the competency requirements for approved handlers specified in the Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

area of high intensity land use, in relation to an area beyond the boundary of a place where a hazardous substance location is sited, includes an area of regular habitation, any other hazardous substance location, and a high density traffic route, but does not include a small office constructed of non-combustible materials associated with a hazardous substances location that is used by persons authorised to be at the location by the person in charge of that location

area of low intensity land use, in relation to an area beyond the boundary of a place where a hazardous substance location is sited, includes an area where any person may legally be present occasionally, and also includes a public park or reserve and a traffic route of low or medium traffic density, but does not include an area of regular habitation

area of regular habitation includes any dwelling, hospital, school, airport, commercial premises, office, or other area where people regularly congregate

AS refers to the Australian Standard

AS/NZ 1850:1997 means the standard on: Portable fire extinguishers – Classification, rating and performance testing

AS 2380.1: 1989 means the Australian standard on: Electrical equipment for explosive atmospheres—Explosion protection techniques, Part 1: General requirements

AS/NZS refers to the Joint Australian and New Zealand Standard

AS/NZS 1020: 1995 means the standard on: The control of undesirable static electricity

AS/NZ 2381.1: 2005 means the standard on: Electrical equipment for explosive gas atmospheres – Selection, installation and maintenance – General requirements

AS/NZS 2430.3 refers to the following:

- (a) AS/NZS 2430.3.1: 2004 Classification of hazardous areas: examples of area classification: General:
- (b) AS/NZS 2430.3.2: 2004 Classification of hazardous areas: examples of area classification: Vehicle workshops, vehicle parking, fuel dispensing stations and aircraft hangars:
- (c) AS/NZS 2430.3.3: 2004 Classification of hazardous areas: examples of area classification: Flammable liquids:

- (d) AS/NZS 2430.3.4: 2004 Classification of hazardous areas: examples of area classification: Flammable gases:
- (e) AS/NZS 2430.3.5: 2004 Classification of hazardous areas: examples of area classification: Refineries and major installations:
- (f) AS/NZS 2430.3.6: 2004 Classification of hazardous areas: examples of area classification: Laboratories including fume cupboards and flammable medical agents:
- (g) AS/NZS 2430.3.7: 2004 Classification of hazardous areas: examples of area classification: Landfill gas, sewage treatment and sewage pumping plants:
- (h) AS/NZS 2430.3.8: 2004 Classification of hazardous areas: examples of area classification: Surface coatings and adhesives:
- (i) AS/NZS 2430.3.9: 2004 Classification of hazardous areas: examples of area classification: Miscellaneous

AS/NZS 60079.10: 2004 means the standard on: Electrical apparatus for explosive gas atmospheres – Classification of hazardous areas

ASTM, when followed by numbers, means the document identified by those numbers that is published by the American Society of Testing and Materials

auto-ignition temperature means the minimum temperature at which a mixture of flammable vapour and air, or gas and air, is marginally self-igniting when tested in accordance with—

- (a) ASTM Standard E 659-78 (1978; reconfirmed 1994) Standard test method for Autoignition Temperature of Liquid Chemicals; or
- (b) AS 1896 (1976) Gas vapour ignition: Ignition Temperature; or
- (c) IEC 79-4 (1975) Method of test for ignition temperature

compatible means that the substance—

- (a) is chemically inert if brought into contact with any other substance for the range of temperatures and pressures at which the substances are brought into contact; or
- (b) if it is chemically reactive when brought into contact with any other substance, it does not—
 - (i) cause combustion; or
 - (ii) generate an explosion; or
 - (iii) generate a new hazardous substance of a different class, subclass or category

condition means any obligation or restriction imposed upon a substance by a Group Standard

controlled zone means an area abutting a hazardous substance location that is regulated so that—

- (a) within the zone, the adverse effects of a hazardous substance are reduced or prevented; and
- (b) beyond the zone, members of the public are provided with reasonable protection from those adverse effects

fire resistance rating, in relation to an object or item, means that the object or item is able to maintain its stability, insulation, and integrity, and is able to offer protection against heat radiation for the time specified by the relevant rating in minutes, where **stability**, **insulation**, and **integrity**, respectively, have the meanings ascribed to them in clause A2 of Schedule 1 of the Building Regulations 1992. Where an oxidising gas is present at a hazardous substance location in circumstances where these conditions require a wall with a fire resistance rating of 120/120/120 minutes, a reinforced concrete wall 100 mm thick is a means of meeting this requirement

fuel gas means any fuel that is supplied through pipes or in containers and is a gas at 15°C and at 101.3 kPa absolute pressure; and includes—

- (a) biogas, coal gas, natural gas, oil gas, producer gas, refinery gas, reformed natural gas, and liquefied petroleum gas; and
- (b) any gaseous substance that the Governor-General declares by Order in Council made under the Gas Act 1992 to be a gas for the purposes of that Act; and
- (c) any gas that is of a composition that complies with regulations made pursuant to the Gas Act 1992 for use as a fuel

general type, in relation to a hazardous substance, means a general indication of its subclass (for example, “dangerous when wet”) whether given in words or by any other means

Group Standard means an approval for a hazardous substance issued by the Authority under Part 6A of the Act

hazardous substance location in relation to a flammable gas or oxidising gas—

- (a) means an area where an amount of the flammable gas that is in excess of the relevant amount specified in clause 3 is located for more than 18 hours; or
- (b) means an area where an amount of the oxidising gas that is in excess of the relevant amount specified in clause 34 is located for more than 18 hours; and
- (c) does not include a vehicle, ship, or aircraft while it remains under the direct control of its driver, master, or pilot and under the jurisdiction of the Land Transport Rules, the Maritime Rules, or the Civil Aviation Rules, as the case may be

high density, in relation to a public traffic route, means greater than medium density

IEC, when followed by numbers, means the document identified by those numbers that is published by the International Electrotechnical Commission; and **IEC 79-4:1975** means the document on the Method of test for ignition temperature

ignition source—

- (a) means any agency or agent (including any item, product, part of a facility structure, or piece of equipment) capable of igniting a flammable gas, vapour, or other form of combustible substance; and
- (b) includes a fire, flame, or spark, or anything capable of producing a fire, flame, or spark

incompatible, in relation to a class 5.1.2 substance, means another substance or material that is not compatible with the class 5.1.2 substance, and includes—

- (a) a substance that is not a class 5.1.2 substance but that is classified in class 5.2, or in any of classes 1, 2, 3, 4, 6.1A to 6.1C, or 8:
- (b) any organic matter, or substance that contains carbon, in a form that will combust with the class 5.1.2 substance:
 - (a) zinc or magnesium in any form, and any other metal in powdered form:
 - (b) any substance or material that will combust with air, or will combust with or catalyse the decomposition of a class 5.1.2 substance.

inspection means inspection under Part 7 of the Act

LEL means lower explosive limit, being the concentration of flammable gas, vapour, or mist in standard air, below which an explosive gas atmosphere will not be formed at 20°C and at 101.3 kPa absolute pressure

low density, in relation to a public traffic route, means up to an average per 24 hours of—

- (a) 1,000 vehicles on a road; or
- (b) 50 rail wagons on a railway; or
- (c) 400 people on a waterway; or
- (d) 200 people along a public right of way

medium density, in relation to a public traffic route, means greater than low density and up to an average per 24 hours of—

- (a) 5,000 vehicles on a road; or
- (b) 250 rail wagons on a railway; or
- (c) 1,800 people on a waterway; or
- (d) 900 people along a public right of way

NFPA refers to documents published by the National Fire Protection Association, Quincy, Massachusetts, USA; and **NFPA 86 (1999)** refers to the Standard for ovens and furnaces

NZS refers to the New Zealand Standard published by the Standards Association of New Zealand

permanent gas means a gas that has a critical temperature at or below 0°C, where **critical temperature** is the temperature above which the gas cannot be liquefied by increasing the pressure

person in charge, in relation to a place, a hazardous substance location, a transit depot, or a place of work, means a person who is—

- (a) the owner, lessee, sublessee, occupier, or person in possession of the place, location, or depot, or any part of it; or
- (b) any other person who, at the relevant time, is in effective control or possession of the relevant part of the place, location, or depot

place includes any vehicle, ship, aircraft, or other means of transport

revised minimum ignition energy means the minimum amount of ignition energy required to ignite a mixture of flammable gas, vapour, or mist in an atmosphere containing a different proportion of oxygen than standard air, when that mixture is within a flammable range

revised auto-ignition temperature means the minimum temperature required to ignite a mixture of flammable gas, vapour, or mist in an atmosphere containing a different proportion of oxygen than standard air, when that mixture is within a flammable range

RLEL_(O) means revised lower explosive limit, being the concentration of flammable gas, vapour, or mist in an atmosphere containing a different proportion of oxygen than standard air, below which an explosive gas atmosphere will not be formed

RUEL_(O) means revised upper explosive limit, being the concentration of flammable gas, vapour, or mist in an atmosphere containing a different proportion of oxygen than standard air, above which an explosive gas atmosphere will not be formed

standard air means air containing 20.9% oxygen (by volume)

transit depot means, in the case of 2.1.1 flammable gases or 5.1.2 oxidising gases, a permanent place (excluding a means of transport, and excluding any place where the substances are held for sale or supply) used as a transport depot that is designed to hold flammable or oxidising gases in containers that remain unopened during the time that they are present at the depot for periods that—

- (a) are more than 18 hours, and
- (b) are in no case more than 3 days

UEL means upper explosive limit, being the concentration of flammable gas, vapour, or mist in standard air, above which an explosive gas atmosphere will not be formed

vehicle means a motorised land transport vehicle

Source Regulations and Controls

This section links each clause specified in this document to the source regulation or transfer notice from which the clause is based. The requirements of these regulations and controls have been incorporated as conditions verbatim, save for simplification to remove redundant text that does not apply to compressed gases.

Clause in this document	Relevant regulation/transfer notice
1	Classes 1 to 5 Controls ¹ – Regulation 6
2	Classes 1 to 5 Controls – Regulation 7
3	Classes 1 to 5 Controls – Regulation 55
4	Classes 1 to 5 Controls – Regulation 57
5	Classes 1 to 5 Controls – Regulation 58
6	Classes 1 to 5 Controls – Regulation 59
7	Classes 1 to 5 Controls – Regulation 60
8	Classes 1 to 5 Controls – Regulation 61
9	Classes 1 to 5 Controls – Regulation 62
10	Classes 1 to 5 Controls – Regulation 63
11	Classes 1 to 5 Controls – Regulation 64
12	Classes 1 to 5 Controls – Regulation 65
13	Classes 1 to 5 Controls – Regulation 66
14	Classes 1 to 5 Controls – Regulation 67
15	Classes 1 to 5 Controls – Regulation 68
16	Classes 1 to 5 Controls – Regulation 69
17	Classes 1 to 5 Controls – Regulation 70
18	Classes 1 to 5 Controls – Regulation 76
19	Classes 1 to 5 Controls – Regulation 77
20	Classes 1 to 5 Controls – Regulation 81
21	Classes 1 to 5 Controls – Regulation 83
22	Dangerous Goods Transfer Notice ² – Schedule 10, Clause 4
23	Dangerous Goods Transfer Notice – Schedule 10, Clause 6
24	Dangerous Goods Transfer Notice – Schedule 10, Clause 7
25	Dangerous Goods Transfer Notice – Schedule 10, Clause 8
26	Dangerous Goods Transfer Notice – Schedule 10, Clause 4
27	Dangerous Goods Transfer Notice – Schedule 10, Clause 18
28	Dangerous Goods Transfer Notice – Schedule 10, Clause 19
29	Dangerous Goods Transfer Notice – Schedule 10, Clause 20
30	Dangerous Goods Transfer Notice – Schedule 10, Clause 21
31	Dangerous Goods Transfer Notice – Schedule 10 Clause 21A
32	Classes 1 to 5 Controls – Regulation 6
33	Classes 1 to 5 Controls – Regulation 7
34	Classes 1 to 5 Controls – Regulation 88
35	Classes 1 to 5 Controls – Regulation 91
36	Classes 1 to 5 Controls – Regulation 94
37	Classes 1 to 5 Controls – Regulation 95

Clause in this document	Relevant regulation/transfer notice
38	Classes 1 to 5 Controls – Regulation 96
39	Classes 1 to 5 Controls – Regulation 97
40	Classes 1 to 5 Controls – Regulation 98
41	Classes 1 to 5 Controls – Regulation 99
42	Classes 1 to 5 Controls – Regulation 100
43	Classes 1 to 5 Controls – Regulation 101
44	Classes 1 to 5 Controls – Regulation 102
45	Dangerous Goods Transfer Notice – Schedule 8
46	Emergency Management ³ – Regulation 21
47	Emergency Management – Regulation 22
48	Emergency Management – Regulation 23
49	Emergency Management – Regulation 25. The trigger quantities listed in Table 9 incorporate those given in the Compressed Gases Regulations ⁵
50	Emergency Management – Regulation 27
51	Emergency Management – Regulation 28
52	Emergency Management – Regulation 29
53	Emergency Management – Regulation 30
54	Emergency Management – Regulation 31
55	Emergency Management – Regulation 32
56	Emergency Management – Regulation 33
57	Emergency Management – Regulation 34
58	Identification ⁴ – Regulation 51. The trigger quantities listed in Table 10 incorporate those given in the Compressed Gases Regulations
59	Identification – Regulation 52; and Emergency Management – Regulation 42.

1 Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.

2 Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

3 Hazardous Substances (Emergency Management) Regulations 2001.

4 Hazardous Substances (Identification) Regulations 2001.

5 Hazardous Substances (Compressed Gases) Regulations 2004.