

Site and Storage Conditions for Class 4 Substances

Contents

Introduction.....	1
SITE AND STORAGE CONDITIONS	2
Part 1 Flammability Conditions.....	2
Part 2 Stationary Container Systems	12
Part 3 Emergency Management.....	13
Part 4 Signage.....	19
INTERPRETATION	21
SOURCE REGULATIONS AND CONTROLS	26

Introduction

This document sets out the site and storage conditions for class 4 substances with the following HSNO classifications:

- 4.1.1A or 4.1.1B (flammable solids); or
- 4.1.2A, 4.1.2B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F or 4.1.2G (self-reactive flammable solids); or
- 4.1.3A, 4.1.3B or 4.1.3C (solid desensitised explosives); or
- 4.2A, 4.2B or 4.2C (substances liable to spontaneous combustion, pyrophoric and self heating substances); or
- 4.3A, 4.3B or 4.3C (substances dangerous when wet).

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.

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

This document was published July 2006.

Site and Storage Conditions

Part 1 Flammability Conditions

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 requirement of clause 12 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 in Tables 4 and 5 (see clause 12).
- (4) 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.
- (5) When considering quantities under subclauses (1) to (4) the quantities of all hazardous substances must be taken into account, however 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 class 4 substances

Where a class 4 substance is present at a place in a quantity that exceeds that specified for the relevant substance in Table 1 for more than—

- (a) 18 hours, in the case of a 4.1.1A, 4.1.1B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G, 4.1.3B, 4.1.3C, 4.2B, 4.2C, 4.3B or 4.3C substance; or
- (b) 2 hours, in the case of a 4.1.2A, 4.1.2B, 4.1.3A, 4.2A or 4.3A substance—

that substance must be held at a hazardous substance location or, if applicable, at a transit depot.

4 Limits on ignition sources

Except where the ignition of the substance is intended, no class 4 substance may be exposed to any ignition source that may release spark energy in a way that could result in an explosion or fire.

Table 1. Quantities of class 4 substances that activate hazardous substance location and transit depot requirements

HSNO classification	Quantity beyond which conditions apply for closed containers	Quantity beyond which conditions apply when use occurring in open containers
4.1.1A 4.1.2A, 4.1.2B 4.1.3A, 4.1.3B, 4.1.3C 4.2A 4.3A	1 kg	1 kg
4.1.2C, 4.1.2D 4.2B, 4.2C 4.3B	25 kg	25 kg
4.1.2E, 4.1.2F, 4.1.2G 4.3C	50 kg	50 kg
4.1.1B	100 kg	100 kg

5 Specific limits on temperature

- (1) In any place where a class 4.1.3 or 4.2 substance is present, including in or on any motor vehicle, ship, or aircraft, the temperature of the substance must not exceed the control temperature specified in Table 2 unless ignition of the substance is intended.
- (2) In any place where a class 4.1.2 substance is present, there must be a temperature control plan and system in place that—
 - (a) monitors and controls the temperature of the space in which the substance is located; and
 - (b) for cases where the control temperature specified in Table 2 is exceeded, describes the steps and provides the equipment necessary to restore ambient temperature of the substance to below the control temperature in less than the time it would take for the temperature of the substance to reach the emergency temperature specified in that table.

Table 2. Control and emergency temperatures for class 4 substances

HSNO classification	SADT	Control temperature	Emergency temperature
4.1.2A, 4.1.2B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G	20°C or less	20°C less than the SADT	10°C less than the SADT
	between 20°C and 35°C	15°C less than the SADT	10°C less than the SADT
	35°C and above	Lesser of 10°C less than the SADT, or 55°C	5°C less than the SADT
4.1.3A, 4.1.3B, 4.1.3C		50°C	
4.2A, 4.2B, 4.2C		50°C	

6 Requirements to reduce likelihood of unintended ignition of class 4.1.1 substances that may cause fire through friction

Except where the substance is intentionally burned, class 4.1.1 substances that have any of the serial numbers UN 1331, UN 1343, UN 1944, UN 1945, and UN 2254 must not be subject to more than 50% of the minimum amount of friction required to cause ignition of that substance when tested as prescribed in Test Type 3(b), Paragraph 13.5 of the UN Manual of Tests and Criteria.

7 Requirements to reduce likelihood of unintended ignition of class 4.1.2 substances

- (1) If a class 4.1.2A, 4.1.2B, 4.1.2C, or 4.1.2D substance is required under Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 4 substances to be secured, the substance must be secured in a container (not packaging) that conforms to—
 - (a) the appropriate construction requirements for containers set out in section 3 of AS 2714:1993; or
 - (b) a standard approved by the Authority that provides for substantially similar requirements concerning containers in which such a substance must be secured.
- (2) Where a class 4.1.2A, 4.1.2B, 4.1.2C, 4.1.2D, 4.1.2E, or 4.1.2F substance is contained in packaging or in a container, the packaging or container must be—
 - (a) handled in accordance with the requirements of subclauses (5) and (6) and of clauses 4, 5 and 9; and
 - (b) the maximum capacity and thermal properties of the packaging or container must be such as will not cause or contribute to a fire or explosion when tested as prescribed in Packaging Instruction P520 and Paragraph 4.1.7.1 Chapter 4.1 of the UN Model Regulations.
- (3) At any place where the quantity of a class 4.1.2 substance exceeds the amounts specified in Table 1 (see clause 3), the capacity of an individual package or container may be increased to greater than that applying under subclause (2)(b) so long as—
 - (a) the requirements of subclause (5) are met; and
 - (b) the temperature of the substance is at least 20°C below the modified SADT, where the modified SADT is the SADT obtained by performing the test prescribed in Test Series H, Paragraph 28.2 of the UN Manual of Tests and Criteria for determining a SADT but with the intended larger quantity of the substance used.
- (4) Where a modified SADT is obtained for the purposes of subclause (3), the test result data from the modified SADT test must be available for inspection.
- (5) Except where the ignition of the substance is intended, no class 4.1.2 substance may be subject to any impact or pressure that could result in an explosion or fire.

- (6) A class 4.1.2 substance must not be subjected to more than 50% of the minimum amount of friction required to cause ignition of that substance when tested as prescribed in Test Series 3 type (b), Paragraph 13.5 of the UN Manual of Tests and Criteria.
- (7) A class 4.1.2A substance must not be—
 - (a) packaged or contained in any quantity greater than 500 g per package or container; or
 - (b) transported or consigned for transport by sea or air or on any public road or on any public railway.

8 Requirements to reduce likelihood of unintended ignition of class 4.1.3 substances

The person in charge of a class 4.1.3 substance must—

- (a) identify the minimum concentration of desensitising agent that, when added to the substance, would be sufficient to ensure that the substance so formed did not show a projection, fire, smoke, heat, or noise effect external to itself when tested as prescribed in Test Series 6 type (c), Paragraph 16.6 of the UN Manual of Tests and Criteria; and
- (b) ensure that the amount of desensitising agent present does not fall below 125% of the minimum concentration calculated in subclause (a).

9 Segregation requirements for incompatible substances

- (1) Except where the ignition of a class 4 substance is intended, the person in charge of a class 4 substance must ensure that—
 - (a) the class 4 substance 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 3 are incompatible with class 4 substances.
- (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 3. Substances and materials incompatible with class 4 substances

Incompatible substances and materials	
4.1.1 (readily combustible solids)	All class 1 substances All class 2 substances Class 4.1.2, 4.1.3, 4.2, and 4.3 substances All class 5 substances
4.1.1 (those solids which may cause fire through friction only)	Any substance likely to cause a spark when struck against such a class 4.1.1 substance
4.1.2	All class 1 substances All class 2 substances Class 3.1 and 3.2 substances Class 4.1.3 and 4.2 substances All class 5 substances Catalytic impurities having a detrimental influence on the thermal stability and hazard presented by class 4.1.2 substances
4.1.3	All class 1 substances All class 2 substances Class 3.1 substances Class 4.2 substances All class 5 substances
4.2	All class 1 substances All class 2 substances All class 3 substances Class 4.1.1, 4.1.2, 4.1.3, and 4.3 substances All class 5 substances Air Oxygen
4.3	All class 1 substances All class 2 substances All class 3 substances Class 4.1.1, 4.1.2, 4.1.3, and 4.2 substances All class 5 substances All class 8 substances Water

10 Requirement to establish hazardous substance location

- (1) The person in charge of a place where any class 4 substance is located must establish in that place one or more hazardous substance locations where such substances are to be situated if the substance is present—
- (a) in a quantity exceeding that specified for in it Table 1 (see clause 3); and
 - (b) for a period exceeding—
 - (i) 18 hours, in the case of a 4.1.1A, 4.1.1B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G, 4.1.3B, 4.1.3C, 4.2B, 4.2C, 4.3B or 4.3C substance; or
 - (ii) 2 hours, in the case of a 4.1.2A, 4.1.2B, 4.1.3A, 4.2A or 4.3A substance.
- (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 class 4 substances, of—
- (a) the street address of the place in which the hazardous substance location is located; and

- (b) the maximum quantity and hazard classification of each class 4 substances 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 class 4 substance (other than a class 4.1.2A, 4.1.2B, 4.1.2C, or 4.1.2D substance) 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 a class 4 substance are met.
- (4) The person in charge of the hazardous substance location must ensure that—
- (a) where a test certificate is required under clause 14, a test certificate is obtained that certifies that the requirements of clause 14 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 class 4 substances; and
 - (ii) all hazardous atmosphere zones and controlled zones within the place.

11 Requirements to reduce likelihood of unintended ignition of class 4 substances present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established by clause 10 must ensure that—
- (a) except where the ignition of the substance is intended, all class 4 substances are isolated from any ignition source by—
 - (i) a wall—
 - (I) with a fire resistance rating of 240/240/240 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) a distance of not less than 3 m; and
 - (b) any electrical equipment is designed and constructed—
 - (i) to prevent the ingress of moisture or combustible particulate matter to the electrical equipment; and
 - (ii) so that in the event of failure of the electrical equipment, no resulting ignition source will contact either the substance or its package; and
 - (c) all items of fixed equipment that are at any time in contact with the substance are electrically bonded and earthed so that the maximum allowable resistance to earth is—

- (i) 1 MΩ, for dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 MΩ; and—
 - (ii) 10 Ω for the dissipation of static electricity from components that have an electrical resistance of less than 1 MΩ; and
 - (d) the requirements of clause 9 are met.
- (2) Compliance with those parts of the Electricity Act 1992 and regulations made under that Act, or of the Health and Safety in Employment (Mining—Underground) Regulations 1999 or the Civil Aviation Rules, that relate to the matters described in subclause (1) are a means of meeting the requirements of subclause (1)(b).
- (3) One means of meeting the requirements of subclause (1)(d) is by separating the class 4 substance from any substance with which it is incompatible by—
- (a) a wall with a fire resistance rating of 120/120/120 minutes; or
 - (b) a distance of not less than 3 m, unless otherwise provided in these conditions.

12 Requirements to control adverse effects of unintended ignition of class 4 substances present at hazardous substance location

- (1) The person in charge of a hazardous substance location at which a class 4 substance is present must—
- (a) establish a controlled zone around the location that complies with subclauses (2) and (3); and
 - (b) ensure that clauses 6 to 9 are complied with within the location; and
 - (c) exclude all non-authorized personnel from the controlled zone.
- (2) Where class 4 substances are at the location, the controlled zone must be of sufficient size so that, should there be a fire involving those substances, no area beyond the controlled zone is exposed to more than 80% of the heat radiation described by the following formula:
- $$Q = 1.7 + 60 t^{-0.9}$$
- 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.
- (3) In addition to the requirements of subclause (2), where class 4.1.2 substances are present at the location, the controlled zone must be of sufficient size so that, should there be a fire or an explosive decomposition involving those substances, no area beyond the controlled zone is exposed to a blast overpressure of—
- (a) more than 9 kPa if the area beyond the controlled zone is an area of low intensity land use; or

- (b) more than 5 kPa if the area beyond the controlled zone is an area of high intensity land use.
- (4) The hazardous substance location complies with subclause (2) if the boundary of the controlled zone is a wall with a fire resistance rating of 240/240/240 minutes where it abuts an area of high intensity land use, and of 120/120/120 minutes where it abuts an area of low intensity land use.
- (5) The hazardous substance location complies with subclauses (2) and (3) if—
- (a) the boundary of the controlled zone is at a distance from the substance of not less than the relevant distance specified in Table 4 or Table 5; or
- (b) the location complies with a code of practice approved by the Authority as a method of meeting the requirements of subclauses (2) and (3).

Table 4. Separation distances for class 4.1.2 and 4.1.3 substances

Aggregate quantity (kg or L)	Minimum separation distance between hazardous substance location and area where any person may legally be outside hazardous substance location (m)	
	Area of high intensity land use	Area of low intensity land use
≤2,000	16	8
>2,000 ≤10,000	20	10
>10,000 ≤100,000	25	12.5
>100,000 ≤500,000	30	15
>500,000	As determined by risk assessment in accordance with section 3.4.2.2 & Appendix C Fifth Committee Draft AS/NZ Draft Standard 9832.CDR and AS/NZS 4360	

Table 5. Separation distances for class 4.1.1, 4.2 and 4.3 substances

Aggregate quantity (kg or L)	Minimum separation distance between hazardous substance location and area where any person may legally be outside hazardous substance location (m)					
	Area of high intensity land use			Area of high intensity land use		
	4.2A 4.3A 4.1.1A	4.2B 4.3B 4.1.1B	4.2C 4.3C 4.2A	4.3A 4.1.1A 4.2B	4.3B 4.1.1B	4.2C 4.3C
≤2,000	10	6	6	5	3	3
>2,000 ≤10,000	12	10	6	6	5	3
>10,000 ≤100,000	16	12	8	8	6	4
>100,000 ≤500,000	20	16	10	10	8	5
>500,000	As determined by risk assessment in accordance with section 3.4.2.2 & Appendix C Fifth Committee Draft AS/NZ Draft Standard 9832.CDR and AS/NZS 4360					

13 Method of complying with clause 12

For the purposes of clause 12—

- (a) a reinforced concrete wall 100 mm thick meets the requirements for a firewall with a fire resistance rating of 120/120/120 minutes; and
- (b) a reinforced concrete wall 150 mm thick meets the requirements for a firewall with a fire resistance rating of 240/240/240 minutes.

14 Test certification requirements where class 4 substance present at hazardous substance location

The person in charge of a hazardous substance location where class 4 substances are present must ensure that the hazardous substance location has a current test certificate certifying that—

- (a) the notification requirements of clause 10 are complied with; and
- (b) where Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 4 substances requires class 4 substances to be under the control of an approved handler—
 - (i) the person in charge of the hazardous substance location is an approved handler for class 4 substances, or can demonstrate that a person is available who is an approved handler for such substances; and
 - (ii) the class 4 substances can be secured so that a person cannot gain access to the substances without tools, keys, or any other device used for operating locks; and
- (c) where clause 5 requires temperature control, there is a temperature control plan and system in place that meets the requirements of that clause; and
- (d) where the boundary of the controlled zone—
 - (i) is defined by a barrier as required in clause 12; or
 - (ii) is defined by separation distances as specified in Table 4 or Table 5 (see clause 12); or
 - (iii) meets the requirements of an approved code specified in clause 12, that boundary complies with the barrier, distance, or code requirements; and
- (e) the requirements of clause 10(4) are complied with; and
- (f) the requirements of clauses 6 to 9 are complied with; and
- (g) the hazardous substance location has signage in place as required by Part 4 of the Site and Storage Conditions; and
- (h) where the quantity of the class 4 substance requires it, Part 3 of the Site and Storage Conditions is complied with.

15 Requirements to be met by transit depot

- (1) At any transit depot where the quantity of class 4 substances exceeds that specified for the relevant hazard classification in Table 1 (see clause 3), the person in charge of the transit depot must—
 - (a) at least 30 working days before the commissioning of transit depot as a place for accommodating class 4 substances, 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 class 4 substances 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 4 substances are met; and
 - (c) ensure that any road vehicle loaded with containers of class 4 substance 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 class 4 substances held in the transit depot but not loaded onto a vehicle are not less than 5 m from the containers of incompatible substances; and
 - (e) ensure that all class 4 substances 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 substance or its package; and
 - (g) designate and clearly identify with signs that meet the requirements of Part 4 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 requirements of subclause (1)(f).

Part 2 Stationary Container Systems

16 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 3 Emergency Management

17 Fire extinguishers required

- (1) Every place must have the number of fire extinguishers specified in Table 6 if the quantity of class 4 substances present, or likely to be present, exceed the quantities listed in Table 6.
- (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 6. Trigger quantities requiring fire extinguishers

HSNO classification	Description	Quantity	No. of fire extinguishers
4.1.1A	Solid	250 kg	2
4.1.1B	Solid	500 kg	2
4.1.2A, 4.1.2B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G	Liquid	50 L 200 L	1 2
	Solid	50 kg 200 kg	1 2
4.1.3A, 4.1.3B, 4.1.3C	Liquid	50 L 200 L	1 2
	Solid	50 kg 200 kg	1 2
4.2A	Liquid	50 L 200 L	1 2
	Solid	50 kg 200 kg	1 2
4.2B	Solid	250 kg	2
4.2C	Solid	500 kg	2
4.3A	Liquid	50 L 200 L	1 2
	Solid	50 kg 200 kg	1 2
4.3B	Liquid	250 L	2
	solid	250 kg	2
4.3C	Liquid	500 L	2
	solid	500 kg	2

18 Location of fire extinguishers

- (1) In the case of a motor vehicle transporting class 4 substances, the fire extinguishers required by clause 17 must be in or on the vehicle.
- (2) In any other case, every fire extinguisher required by clause 17 must be so located that the distance of travel between it and the class 4 substances concerned is no more than 30 m.

19 Capability of fire extinguishers

Each fire extinguisher required by clause 17 must be able, when used by one person, to meet the Class D performance test requirements of AS/NZS 1850:1997 or an equivalent standard.

20 Duties of person in charge of places in respect of emergency response plans and secondary containment

- (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 7; 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 21 to 35 are complied with.

Table 7. Trigger quantities for emergency response plans

HSNO classification	Description	Quantity
4.1.2A, 4.1.2B	liquid solid	50 L 50 kg
4.1.2C, 4.1.2D 4.1.3A, 4.1.3B, 4.1.3C 4.2A 4.3A 6.1A, 6.1B, 6.1C 8.2A 9.1A	liquid solid	100 L 100 kg
4.1.2E, 4.1.2F, 4.1.2G	liquid solid	200 L 200 kg
4.1.1A 4.2B	solid	1,000 kg
4.1.1B 4.2C	solid	10,000 kg
4.3B 6.1D, 6.5A, 6.5B, 6.7A 8.2B 9.1B, 9.1C	liquid solid	1,000 L 1,000 kg
4.3C 6.6A, 6.7B, 6.8A, 6.9A 8.2C, 8.3A 9.1D	liquid solid	10,000 L 10,000 kg

21 When emergency response plans required

A place to which clause 20 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 7.

22 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.

23 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.

24 Extra information required in some cases

An emergency response plan must—

- (a) specify the type and location of the fire extinguishers provided under clause 17, and any extra firefighting equipment, materials, and systems provided, if any of the reasonably likely emergencies identified in the plan is a fire; and
- (b) provide for the retention of any flammable liquid to prevent its contacting any incompatible substance.

25 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.

26 Availability of plans

- (1) An emergency response plan must be available to every person identified under clause 23(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.

27 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.

28 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.

29 Secondary containment systems for pooling substances

- (1) A place to which clause 20 applies must have a secondary containment system if the aggregate quantity of pooling substances of a particular hazard classification held in it is equal to or greater than the quantity specified in Table 7.
- (2) Subclause (1) does not apply to a place that is a vehicle.
- (3) The secondary containment system must comply with clauses 30 to 33 depending on—
 - (a) the capacities of the container or containers in which the substances are held; and
 - (b) whether they are held in a place above or below ground.
- (4) If two or more containers of different capacities (as described in clauses 30 to 32) are held at one place, the system must have a capacity of at least the sum of each container category.
- (5) The purposes of this clause, and clauses 30 to 33, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it—
 - (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and
 - (b) is not required to be located in a secondary containment system.
- (6) In this clause, pipework—
 - (a) means piping that—
 - (i) is connected to a stationary container; and
 - (ii) is used to transfer a substance into or out of the stationary container; and
 - (b) includes a process pipeline or a transfer line.

30 Surface containers of up to 60 L

If the pooling substances are held in a place above ground and are in containers each of which has a capacity of 60 L or less—

- (a) if the total volume at the place is less than 5,000 L, the secondary containment system must have a capacity of at least half that total pooling potential; or

- (b) if the total volume at the place is 5,000 L or more, the secondary containment system must have a capacity of the greater of—
 - (i) 2,500 L; and
 - (ii) a quarter of that total pooling potential.

31 Surface containers of over 60 and up to 450 L

If the pooling substances are held in a place above ground and are in containers one or more of which have a capacity of more than 60 L but none of which has a capacity of more than 450 L—

- (a) if the total volume at the place is less than 5,000 L, the secondary containment system must have a capacity of at least that total pooling potential; or
- (b) if the total volume at the place is 5,000 L or more, the secondary containment system must have a capacity of the greater of—
 - (i) 5,000 litres; and
 - (ii) half that total pooling potential.

32 Surface containers of over 450 L

- (1) If the pooling substances are held in a place above ground and are in containers one or more of which have a capacity of 450 L or more, the secondary containment system must have a capacity of at least 110% of the capacity of the largest container.
- (2) Subclause (1) applies to a container that is so connected to some other container or containers that leakage from it will cause the other container or containers to empty, as if its capacity is the sum of the capacities of all the connected containers.

33 Below ground containers

- (1) If the pooling substances are held in a place and are in one or more below ground containers, the secondary containment system must have a capacity at least equal to the total pooling potential.
- (2) In subclause (1), below ground container—
 - (a) means a container that is situated below ground; and
 - (b) includes—
 - (i) a container below ground, the level of which has been raised to provide cover for the container; and
 - (ii) a container covered by other incombustible material instead of ground.

34 Particular controls on secondary containment systems

There must be instituted or capable of being instituted in or in respect of a secondary containment system required by this Part, controls that—

- (a) if class 4 substances must be contained, exclude any energy source capable of igniting them or causing them to decompose thermally; and
- (b) if toxic or biological corrosive substances must be contained, prevent people from being directly exposed to them; and
- (c) prevent the substances retained from being contaminated by incompatible substances and materials.

35 Variation to requirements of clause 32

- (1) The capacity that a secondary containment system is required to have to comply with clause 32 may be reduced either—
 - (a) by the Authority upon application by any person and subject to such conditions as the Authority thinks fit; or
 - (b) in accordance with a code of practice approved by the Authority under section 78 of the Act for the purposes of this clause.
- (2) The Authority may not approve a capacity under subclause (1) that is less than 100% of the capacity of the largest stationary container located in the secondary containment system to which the application relates.
- (3) In considering an application under subclause (1) the Authority must take into account any means provided to prevent the capacity of the secondary containment system to which the application relates being taken up by rainwater.

Part 4 Signage

36 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 8; 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 37 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 to Part 1 (Information Requirements) of Schedule 1 to the Group Standard.

Table 8. Trigger quantities requiring signage

HSNO classification	Description	Quantity ¹
4.1.2A, 4.1.2B 6.1A 8.2A	liquid solid	50 L 50 kg
9.1A, 9.2A, 9.3A, 9.4A	liquid solid	100 L 100 kg
4.1.1A	solid	250 kg
4.1.2C, 4.1.2D 6.1B 8.2B	liquid solid	250 L 250 kg
4.1.1B	solid	1,000 kg
4.1.2E, 4.1.2F, 4.1.2G 6.1C 8.1A 8.2C, 8.3A 9.1B, 9.1C, 9.2B, 9.2C, 9.3B, 9.4B, 9.4C	liquid solid	1,000 L 1,000 kg
6.1D 9.1D, 9.2D, 9.3C	liquid solid	10,000 L 10,000 kg

1. These are the trigger quantities given in the Hazardous Substances (Emergency Management) Regulations 2001. If no trigger quantity for a particular hazard classification is given in Part 2 (Site and Storage) of Schedule 1 to a Group Standard (as may be the case for class 9.2, 9.3 and 9.4 hazards), then there is no requirement for signage for these hazards.

37 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 the precautions necessary to prevent unintended ignition of a class 4 substance; and
 - (d) advise the action to be taken in an emergency.

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

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

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 class 4 substance means—

- (a) an area where an amount of the class 4 substance that is in excess of the relevant amount specified in Table 1 (see clause 3) is located for more than—
 - (i) 18 hours, in the case of a 4.1.1A, 4.1.1B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G, 4.1.3B, 4.1.3C, 4.2B, 4.2C, 4.3B or 4.3C substance; or
 - (ii) 2 hours, in the case of a 4.1.2A, 4.1.2B, 4.1.3A, 4.2A or 4.3A substance:
- (b) 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

ignition source means—

- (a) 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

inspection means inspection under Part 7 of the Act

liquid has the same meaning as in regulation 3 of the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001

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

modified SADT means the SADT (self-accelerating decomposition temperature) obtained by performing a modified version of the tests for determining the SADT such that, instead of the prescribed test quantity, the intended larger quantity of the substance is used

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

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

pooling substance means a hazardous substance that—

- (a) is a liquid; or
- (b) is likely to liquefy in a fire

process container means a stationary container that contains or is intended to contain a hazardous substance in the course of manufacture or use of the hazardous substance (for example, a mixing container, reaction vessel, distillation column, drier, or dip tank)

quantity-ratio has the same meaning given to it by regulation 6 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

SADT (self-accelerating decomposition temperature) has the same meaning as in Schedule 2 of the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001

secondary containment system, in relation to a place, means—

- (a) a system or systems—
 - (i) in which pooling substances held in the place will be contained if they escape from the container or containers in which they are being held; and
 - (ii) from which they can, subject to unavoidable wastage, be recovered; and
- (b) includes a system or systems that comply with a code of practice approved by the Authority under section 78 of the Act

stationary container system means a stationary tank or process container and its associated equipment, pipework, and fittings, up to and including all transfer points

stationary tank—

- (a) means a tank that is—
 - (i) used or intended to be used for the storage or supply of one or more hazardous substances; and
 - (ii) normally located at a specific place; and
- (b) includes—
 - (i) all parts and materials (for example, coatings) that contribute to maintaining the structural and functional integrity of the tank; and
 - (ii) any means of closing the tank (for example, a lid or fitted cover); and
 - (iii) any component of the tank intended to protect the contents of the tank from harm (for example, lightning protection); and
 - (iv) any other component that is an integral part of the tank (for example, a liquid height indicator, heating coil, or internal valve); but
- (c) does not include—
 - (i) packaging to which Part 4 (Packaging) of Schedule 1 to the Group Standard applies; or
 - (ii) packaging to which chapter 6.5, chapter 6.6, and chapter 6.7 of the UN Model Regulations apply; or
 - (iii) a cylinder to which the Hazardous Substances (Compressed Gases) Regulations 2004 apply

total pooling potential, in relation to a place, means the aggregate quantity of all pooling substances held in the place

transit depot means, in the case of class 4 substances, 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 class 4 substances in containers that remain unopened during the time that they are present at the depot for periods that—

- (a) are more than—
 - (i) 18 hours, in the case of a 4.1.1A, 4.1.1B, 4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F, 4.1.2G, 4.1.3B, 4.1.3C, 4.2B, 4.2C, 4.3B or 4.3C substance; or
 - (ii) 2 hours, in the case of a 4.1.2A, 4.1.2B, 4.1.3A, 4.2A or 4.3A substance—
- (b) are in no case more than 3 days

UN Manual of Tests and Criteria means the fourth revised edition of the *Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria*, published in 2003 by the United Nations (New York and Geneva)

UN Model Regulations means the 14th revised edition of the *Recommendations on the Transport of Dangerous Goods Model Regulations*, published in 2005 by the United Nations

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 class 4 substances.

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 71
5	Classes 1 to 5 Controls – Regulation 72, with changes to the regulation by the Dangerous Goods Transfer Notice ² (Schedule 5 to the notice)
6	Classes 1 to 5 Controls – Regulation 73
7	Classes 1 to 5 Controls – Regulation 74
8	Classes 1 to 5 Controls – Regulation 75
9	Classes 1 to 5 Controls – Regulation 76
10	Classes 1 to 5 Controls – Regulation 77
11	Classes 1 to 5 Controls – Regulation 78
12	Classes 1 to 5 Controls – Regulation 79
13	Classes 1 to 5 Controls – Regulation 80
14	Classes 1 to 5 Controls – Regulation 82
15	Classes 1 to 5 Controls – Regulation 83
16	Dangerous Goods Transfer Notice – Schedule 8
17	Emergency Management ³ – Regulation 21
18	Emergency Management – Regulation 22
19	Emergency Management – Regulation 23
20	Emergency Management – Regulation 25
21	Emergency Management – Regulation 27
22	Emergency Management – Regulation 28
23	Emergency Management – Regulation 29
24	Emergency Management – Regulation 30
25	Emergency Management – Regulation 31
26	Emergency Management – Regulation 32
27	Emergency Management – Regulation 33
28	Emergency Management – Regulation 34
29	Emergency Management – Regulation 36, with changes to the regulation by the Dangerous Goods Transfer Notice – Schedule 5
30	Emergency Management – Regulation 37
31	Emergency Management – Regulation 38
32	Emergency Management – Regulation 39
33	Emergency Management – Regulation 40
34	Emergency Management – Regulation 41
35	Dangerous Goods Transfer Notice – Schedule 9, Clause 3

Clause in this document	Relevant regulation/transfer notice
36	Identification ⁴ – Regulation 51
37	Identification – Regulation 52; 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.