

Reprint
as at 1 December 2017



Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

(SR 2001/116)

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001: revoked, on 1 December 2017, by regulation 4(1) of the Hazardous Substances (Health and Safety Reform Revocations) Regulations 2017 (LI 2017/233).

Silvia Cartwright, Governor-General

Order in Council

At Wellington this 28th day of May 2001

Present:

Her Excellency the Governor-General in Council

Pursuant to sections 75 and 76 of the Hazardous Substances and New Organisms Act 1996, Her Excellency the Governor-General, acting on the advice and with the consent of the Executive Council (given on the recommendation of the Minister for the Environment made in compliance with section 141(1) of that Act), makes the following regulations.

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Note

Changes authorised by subpart 2 of Part 2 of the Legislation Act 2012 have been made in this official reprint.
Note 4 at the end of this reprint provides a list of the amendments incorporated.

These regulations are administered by the Ministry for the Environment.

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Regulations

Part 1

Preliminary provisions

- 1 Title**
 These regulations are the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
- 2 Commencement**
 These regulations come into force on 2 July 2001.
- 3 Interpretation**
 In these regulations, unless the context otherwise requires,—
Act means the Hazardous Substances and New Organisms Act 1996
aggregate water capacity means the aggregate or cumulative total volume of 1 or more containers, calculated as the equivalent volume of water at 20°C and at 101.3 kPa
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

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

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

desensitising agent has the same meaning as in regulation 3 of the Hazardous Substances (Classification) Regulations 2001

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

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

hazardous substance location—

- (a) in relation to a class 1 substance—
 - (i) means an area where an amount of the substance that is in excess of the relevant quantity specified in table 5 of Schedule 2 is manufactured, or is located for more than 2 hours:
 - (ii) does not include any designated use zone or designated transfer zone (as defined in regulation 11) or any means of transport within a transfer zone for the purposes of transfer:
 - (iii) 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:
- (b) in relation to a class 2, 3, 4, or 5 substance—

- (i) means an area where an amount of the substance that is in excess of the relevant amount specified in table 4 of Schedule 3, table 1 or table 2 of Schedule 4, or table 1 of Schedule 5 is located for more than—
 - (A) 18 hours, in the case of a substance that is not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001;
 - (B) 2 hours, in the case of a substance subject to the tracking provisions of those regulations;
- (ii) 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—

- (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

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

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

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

safety ammunition means ammunition consisting of a cartridge case fitted with a centre or rim fire primer and containing both a propelling charge and a solid projectile, designed to be fired in weapons of a calibre not larger than 19.1 mm; and includes shotgun cartridges of any calibre

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

transit depot means 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 hazardous 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 substance that is not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001;
 - (ii) 2 hours, in the case of a substance subject to the tracking provisions of those regulations; but
- (b) are in no case more than 3 days

UN Manual of Tests and Criteria has the same meaning as in regulation 3 of the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001

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

vehicle means a motorised land transport vehicle

vulnerable facility means any of the following facilities:

- (a) buildings of 4 storeys or more, of curtain wall construction with panels greater than 1 500 mm square;
- (b) buildings of 4 storeys or more with more than 50% of the wall area glazed;

- (c) any hospital (as defined in the Hospitals Act 1957), early childhood education and care centre (as defined in section 309 of the Education Act 1989), or school (as defined in section 145 of the Education Act 1989):
- (d) public buildings or structures of historic value:
- (e) major traffic terminals such as railway stations and airports handling more than 1 800 people in 24 hours:
- (f) major public utilities whose service could be disrupted by a blast of 5 kPa:
- (g) any similar facilities.

Regulation 3 **rail service vehicle**: revoked, on 20 July 2005, by section 103(4) of the Railways Act 2005 (2005 No 37).

Regulation 3 **safety ammunition**: inserted, on 28 August 2003, by regulation 3(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 3 **vulnerable facility**: added, on 28 August 2003, by regulation 3(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 3 **vulnerable facility** paragraph (c): amended, on 1 December 2008, by section 60(2) of the Education Amendment Act 2006 (2006 No 19).

4 References to class, hazard classifications, etc

Where these regulations refer to a substance or group of substances by reference to any 1 or more numerals and letters, then, unless the context otherwise requires, the combination of numbers and letters constitutes the hazard classification of the substance as follows:

- (a) the first (or only) numeral refers to the class of the substance, indicating the intrinsic hazardous properties of the substance as described in regulation 4(1)(a) of the Hazardous Substances (Classification) Regulations 2001; and
- (b) the second and any subsequent numerals (if any) refer to the subclass of the substance within that class, indicating the type of hazard of the substance as described in regulation 4(1)(b) of those regulations; and
- (c) the letter (if any) refers to the category of the substance indicating—
 - (i) for class 2, 3, 4, 5, 8, and 9 substances, the degree of hazard of the substance as described in regulation 4(1)(c) of those regulations:
 - (ii) for class 1 and 6 substances, the classification described in regulation 4(6) and (7) of those regulations.

5 Distances

Any distances referred to in these regulations are to be read so that the shortest horizontal distance between the relevant points is not less than the distance stated.

6 Quantities

- (1) In determining whether the requirements for an approved handler, a hazardous substance location, a transit zone, a hazardous atmosphere 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 (summation of the calculated ratios for all the hazard classifications present)
- qp_i is the quantity of substance with a particular hazard classification present
- qa_i is the quantity of substance of that hazard classification that activates the relevant requirement.
- (2) Where a requirement in any of regulations 31, 79, 97, and 119 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 7 and 8 of Schedule 3, table 4 of Schedule 4, tables 5 and 6 of Schedule 5 or, in the case of class 1 substances, as given by the appropriate quantity–distance formula.
- (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) Where a quantity refers to a class 1 substance, that quantity must be a net explosive quantity (NEQ), where **NEQ** is the gross weight less the weight of any construction materials of the article in kilograms.

Part 2

Controls applying to all class 1 to 5 substances

7 Test certification

- (1) Where a test certificate is required for a hazardous substance location under any of these regulations other than regulation 40, 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 1 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 1 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.

8 Public transportation of class 1 to 5 hazardous substances

- (1) Substances with the following hazard classifications may not be carried or conveyed on any passenger service vehicle:
 - (a) all class 1 substances, except as allowed under Schedule 1:
 - (b) class 3.1A, 4.1.2A, 4.1.3A, 4.1.3B, 4.1.3C, 4.2A, 4.3A, 5.1.1A, and 5.2A substances.
- (2) A person must not carry or convey any class 1, 2, 3, 4, or 5 substance on any passenger service vehicle, unless the quantities of substances per package within each hazard classification are less than or equal to those specified for the relevant classification in Schedule 1.

- (3) In this regulation, **passenger service vehicle** has the same meaning as in section 2(1) of the Land Transport Act 1998.

Regulation 8(3): amended, on 1 October 2007, by section 95(8) of the Land Transport Amendment Act 2005 (2005 No 77).

9 Exclusion for substances for motive power or control of vehicle, aircraft, or ship

- (1) The requirements of these regulations do not apply to any substance that is required for the motive power or control of a vehicle, aircraft, or ship and that is contained within the fuel system, electrical system, or control system of the vehicle, aircraft, or ship.
- (2) This regulation overrides all other provisions of these regulations.

9A Exclusion for substances when used in combat or training

Nothing in these regulations applies to class 1 to 5 substances when used in combat or in training for combat or when on a vehicle, ship, or aircraft authorised to carry those substances in combat or in training for combat.

Regulation 9A: inserted, on 28 August 2003, by regulation 4 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

9B Exclusion for substances when used in policing

Nothing in these regulations applies to class 1 to 5 substances when used—

- (a) in policing operations by Police tactical groups; or
- (b) on a vehicle, ship, or aircraft authorised to carry class 1 substances in policing operations by Police tactical groups; or
- (c) in any Police training in respect of the activities referred to in paragraph (a) or (b).

Regulation 9B: inserted, on 1 October 2008, by section 129(2) of the Policing Act 2008 (2008 No 72).

Part 3 Controls on class 1 substances

10 General outline of Part 3

The controls on class 1 hazardous substances comprise—

- (a) general controls on class 1 substances, as set out in regulations 13 to 25:
- (b) controls on hazardous substance locations where class 1 substances are present, as set out in regulations 26 to 31:
- (c) controls on specific activities involving class 1 substances such as detonation, pyrotechnic displays, and transfer, as set out in regulations 32 to 52.

11 Definitions specific to Part 3

In this Part, unless the context otherwise requires,—

aerial shell means a pyrotechnic article of class 1.1G, 1.2G, 1.3G, or 1.4G that—

- (a) is fired or designed to be fired from a mortar tube; and
- (b) contains a lift charge capable of lifting the article above the firing point before any pyrotechnic display is produced

designated transfer zone—

- (a) means a place used (and required to be designated as such under regulation 46) for the movement of a class 1 substance from one type of transport to another where the movement requires handling of packages or containers; but
- (b) does not include—
 - (i) roll-on roll-off operations in which a vehicle or trailer with its load drives or is driven on to or into another means of transport for the duration of a journey; or
 - (ii) a hazardous substance location; or
 - (iii) a designated use zone

designated use zone—

- (a) means a place used (and required to be designated as such under regulation 32) for the detonation or deflagration of class 1 substances or articles; but
- (b) does not include a hazardous substance location, a designated transfer zone, or a discharge area

discharge area means a place from which class 1 category G substances are to be fired in an outdoor pyrotechnics display or indoor special effects display

electro-explosive device means a device designed to initiate a detonation or deflagration with an electrical impulse; and includes an electrical detonator, an electric initiator, and an electric blasting initiator

exclusion zone means a place that receives debris from an outdoor pyrotechnics display or indoor special effects display, and that requires establishment as an exclusion zone under regulation 36 or 45

hazardous fragment means a projectile produced as the result of a detonation or deflagration which has a kinetic energy of more than 79 J

indoor pyrotechnic display means an indoor display of pyrotechnics

indoor pyrotechnics means class 1 category G substances designed for indoor use that—

- (a) contain no more than a trace of antimony, arsenic, cadmium, chromium, lead, mercury, nickel, selenium, or zinc, or their compounds; and

- (b) have a specified height and duration of operation, and a specified radius within which any burning or burnt material may be expected to fall

lightning interceptor means any permanently located object, including a landscape feature, that is exposed to the atmosphere and is capable of intercepting lightning discharges in the vicinity of any hazardous substance location in which class 1 substances are present

manufacture, in relation to a class 1 substance or article, includes the following processes:

- (a) making an explosive substance or article:
(b) adapting an explosive substance or article to make any other explosive substance or article:
(c) dividing up an explosive article into component parts:
(d) breaking-up or unmaking an explosive article:
(e) remaking or altering or repairing an explosive article:
(f) separating or picking out defective or damaged portions of an explosive article:
(g) assembling, inspecting, or packaging an explosive substance or article

outdoor pyrotechnic display means an outdoor display of pyrotechnics

outdoor pyrotechnics means class 1 category G substances other than—

- (a) indoor pyrotechnics; and
(b) those approved for sale to the public under the Hazardous Substances (Fireworks) Regulations 2001

rocket means a class 1 category G pyrotechnic that is propelled or designed to be propelled into the air on ignition; but does not include model rockets or rockets propelled by a rocket motor with a category C, J, or L classification

salute means a class 1 category G pyrotechnic designed to produce a loud report

substance includes an article.

Regulation 11 **exclusion zone**: amended, on 21 November 2013, by regulation 4(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Regulation 11 **indoor pyrotechnic display**: inserted, on 21 November 2013, by regulation 4(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Regulation 11 **indoor pyrotechnics**: inserted, on 21 November 2013, by regulation 4(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Regulation 11 **outdoor pyrotechnic display**: inserted, on 21 November 2013, by regulation 4(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Regulation 11 **outdoor pyrotechnics**: inserted, on 21 November 2013, by regulation 4(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

12 Exclusion for substances for use in training explosive detector dogs

Nothing in regulations 22 to 31 applies to class 1 substances when used by the New Zealand Customs Service, the New Zealand Police, or the Aviation Security Service for training explosives detector dogs, provided the training is carried out in compliance with a code of practice approved by the Authority.

Regulation 12: substituted, on 28 August 2003, by regulation 5 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

13 Class 1 substances generally to be under control of approved handlers

- (1) Except as provided in subclauses (2) to (6), all class 1 substances in any quantity must be under the personal control of an approved handler.
- (2) The following class 1 substances are not required to be under the personal control of an approved handler:
 - (a) safety ammunition, including pre-primed cartridges and primers, of class 1.4S:
 - (b) airbag initiators and seatbelt pretensioners of class 1.4G or 1.4S:
 - (c) cable cutters of class 1.4S (UN 0070):
 - (d) power device cartridges of class 1.4S (UN 0323):
 - (e) signal tubes or shock tubes of class 1.4S (UN 0349):
 - (f) cassette degradation devices of class 1.4S (UN 0432).
- (3) The following class 1 substances are not required to be under the personal control of an approved handler before the point of their sale to the public:
 - (a) fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001 in amounts less than 500 kg (gross weight):
 - (b) emergency flares and signalling devices in hazard classifications 1.3G, 1.4G, and 1.4S in amounts less than 100 kg (gross weight):
 - (c) model rocket motors of hazard classifications 1.4G and 1.4S in amounts less than 100 kg (gross weight):
 - (d) propellants of hazard classifications 1.3C (UN 0161 and 0499) and 1.1C (UN 0160) in amounts less than 50 kg:
 - (e) gunpowder of hazard classification 1.1D (UN 0027) in amounts less than 50 kg:
 - (f) igniting fuzes of hazard classification 1.4G (UN 0317), in amounts less than 100 kg (gross weight):
 - (g) igniters of hazard classification 1.4S (UN 0454) in amounts less than 50 kg (gross weight).
- (4) The following class 1 substances are not required to be under the personal control of an approved handler beyond the point of their sale to the public:

- (a) fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001;
 - (b) emergency flares and signalling devices in hazard classifications 1.3G, 1.4G, and 1.4S;
 - (c) model rocket motors of hazard classifications 1.4G and 1.4S;
 - (d) propellants of hazard classifications 1.3C (UN 0161 and 0499) and 1.1C (UN 0160), in amounts less than 15 kg;
 - (e) gunpowder of hazard classification 1.1D (UN 0027), in amounts less than 15 kg;
 - (f) igniting fuzes of hazard classification 1.4G (UN 0317);
 - (g) igniters of hazard classification 1.4S (UN 0454).
- (5) Despite subclause (1), a class 1 substance may be handled by a person who is not an approved handler if—
- (a) an approved handler is present at the location where the substance is being handled; and
 - (b) the approved handler has provided guidance to the person in respect of the handling; and
 - (c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person.
- (6) Despite subclause (1), a class 1 substance is not required to be under the personal control of an approved handler where it is secured at a hazardous substance location or designated use zone in a container that meets the requirements of either regulations 23 and 24, or regulation 25.

Regulation 13: substituted, on 28 August 2003, by regulation 5 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

13A General limits on display for sale

Except for fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001 and safety ammunition including pre-primed cartridges and primers of class 1.4S, no class 1 substance may be exhibited for sale or exposed for sale on any premises.

Regulation 13A: inserted, on 28 August 2003, by regulation 5 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

14 General limits on location of class 1 substances

- (1) Except where these regulations exempt quantities and types of class 1 substance from this requirement, every class 1 substance must be—
- (a) at a hazardous substance location; or

- (b) at a designated use zone or, in the case of a class 1 category G substance, a discharge area; or
 - (c) at a designated transfer zone; or
 - (d) on or in a vehicle, ship, or aircraft under the direct control of its driver, master, or pilot that is under the jurisdiction of the Land Transport Rules, Maritime Rules, or Civil Aviation Rules, as the case may be.
- (2) Except where these regulations exempt quantities and types of class 1 substance from this requirement, a class 1 substance must not be—
- (a) at a transit depot; or
 - (b) at a designated transfer zone for more than—
 - (i) 24 hours, in the case of substances of hazard classifications 1.4C, 1.4E, 1.4G, and 1.4S and of fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001:
 - (ii) 8 hours, in the case of all other class 1 substances.

Regulation 14(2)(b): substituted, on 28 August 2003, by regulation 6 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Controls on class 1 substances

15 Limits on impact or pressure shock

Except where initiation of the substance is intended, a class 1 substance must not be subject to any impact or pressure shock that could result in an explosion or fire.

Regulation 15: substituted, on 28 August 2003, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

16 Limits on spark energy

Except where the initiation of the substance is intended, no class 1 substance may be exposed to any ignition source that may release spark energy in a way that could result in an explosion or fire.

Regulation 16: substituted, on 28 August 2003, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

17 Limits on heat and fire

Except where the initiation of the substance is intended, no class 1 substance may be exposed to any ignition source capable of generating heat or fire where that could result in an explosion or fire.

Regulation 17: substituted, on 28 August 2003, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

18 Limits on static electricity in relation to equipment

No class 1 substance may be exposed to the build-up of static electrical charges where that could result in an unintended explosion or fire.

Regulation 18: substituted, on 28 August 2003, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

19 Protection from stray electrical currents

Where any class 1 substance is to be fired using an electrical system other than those firing systems initiated only by electrical currents modulated to specific waveforms or pulse sequences, the area within 2 metres of the uninsulated portion of the electrical firing system must not be subject to stray electrical currents of more than 60 mA.

Regulation 19: substituted, on 28 August 2003, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

20 Protection from electromagnetic radiation

(1) Any electro-explosive device or electrical lead set out for firing a class 1 substance must comply with at least 1 of the following 3 paragraphs:

- (a) it must be protected from a power density of more than,—
 - (i) for continuous wave and pulsed electromagnetic radiation transmission sources of more than 666 pulses per second, that given in Figure 6-II, Part I, Chapter 6 of the *NATO Manual of NATO Safety Principles for the Storage of Ammunition and Explosives*, edition 1, revised 1998; or
 - (ii) for pulsed electromagnetic radiation transmission sources of 666 pulses per second or less, that given by the following formula:

$$Sp = (3 \times 10^{-6})pps/0.13\lambda^2$$

where—

Sp is the safe power density in watts per square metre

pps is the number of pulses per second

λ is the wavelength of the electromagnetic source; or

- (b) it must be located at a distance from an electromagnetic radiation source of not less than the safety distance in metres given by the following formula:

$$\text{safety distance} = [(G \times P)/(4 \times \pi \times Sp)]^{1/2}$$

where—

G is the power ratio gain of the transmitter antennae

P is the mean power in watts fed to the transmitting antenna calculated from the product of peak power \times pps \times pulse width

pps is the number of pulses per second

- Sp is the safe power density given by paragraph (a)(i) or paragraph (a)(ii); or
- (c) in the case of an electro-explosive device, it must be of a type for which either a pre-test or specifications in the electro-explosive device design show that the device would be unable to be initiated by induced current.
- (2) Any equipment for holding or handling an unprotected electro-explosive device during the manufacture of that device must have an earthing system with a resistance of less than 10 Ω .
- (3) Where the safe power density given in subclause (1)(a)(i) or subclause (1)(a)(ii) is less than 10^{-4}W/m^2 , it is sufficient to protect the electro-explosive device or electrical lead from a power density of more than 10^{-4}W/m^2 .

Segregation of incompatible substances

21 Segregation requirements for incompatible substances and materials

Except as provided in table 1 of Schedule 2,—

- (a) a class 1 substance must not be present in the same hazardous substance location, designated transfer zone, or means of transportation as another class 1 substance that is of the same subclass but within a different category classification:
- (b) a class 1 substance of a given subclass that has a category K classification must not be present in the same hazardous substance location, designated transfer zone, or means of transportation as another class 1 substance that also has a category K classification but a different subclass:
- (c) a class 1 substance of a given subclass that has a category L classification must not be present in the same hazardous substance location, designated transfer zone, or means of transportation as another class 1 substance that also has a category L classification but a different subclass.

Securing class 1 substances

22 Securing class 1 substances

- (1) Except as provided in subclauses (2) to (4), class 1 substances specified in table 7 of Schedule 2 must be secured at a hazardous substance location or designated use zone in a container that meets the requirements of either regulations 23 and 24, or regulation 25.
- (2) Despite subclause (1), when a class 1 category G substance at a discharge area is required to be secured, that substance may merely be secured so that a person cannot gain access to the substance without tools, keys, or any other device for operating locks.
- (3) Despite subclause (1), when substances described in regulation 13(2) are left unattended, those substances may merely be secured so that a person cannot

gain access to the substance without tools, keys, or any other device used for operating locks.

- (4) Despite subclause (1), a class 1 substance is not required to be secured if it is under the personal control of an approved handler.

Regulation 22: substituted, on 28 August 2003, by regulation 8 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

23 Requirements for containers securing class 1 substances

- (1) Where table 7 of Schedule 2 requires a substance to be secured in a container that is a magazine, that container, if its construction is started after the commencement of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003,—

- (a) must have the following:
- (i) an outer case with a compressive strength of at least 500 kN/m² and a shear strength of at least 750 kN/m²; and
 - (ii) locking arrangements, for any entry into the container or for those parts of the container through which access is gained to the contents, that have a tensile strength of at least 1250 kN/m²; and
- (b) must also be built to a design that complies with regulation 24.

- (2) Where table 7 of Schedule 2 requires a substance to be secured in a readily moveable container, that container (not being packaging) must—

- (a) have an interior that is unable to generate a spark; and
- (b) have an exterior completely sheathed in fire resistant material; and
- (c) be secured so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks, and have a close fitting lid; and
- (d) be designed and constructed so that it can be readily moved by 1 person in the event of a fire or similar emergency that could put the explosives at a risk of unintended detonation.

- (3) Where table 7 of Schedule 2 requires a substance to be secured under lock and key, that substance may merely be secured in a container used only to secure class 1 substances so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks, provided that the container is located separate from any dwelling.

- (4) This regulation does not apply to containers that, under regulation 25, continue to be subject to an existing licence under the Explosives Act 1957.

Regulation 23: substituted, on 28 August 2003, by regulation 8 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

24 Design of container securing class 1 substances

- (1) The design of any container to which regulation 23(1) applies whose construction is started after the commencement of these regulations must—
 - (a) specify the material type to be used in making the container, its dimensions, and its components, including any part of the container through which access is gained to the contents, the locking arrangements for any such entry, and the arrangements for securing the container against removal; and
 - (b) have a test certificate certifying that the design meets either the requirements for compressive, shear, and tensile strength specified in regulation 23(1)(a) or the requirements of a code of practice approved by the Authority for the construction of magazines.
- (2) Before being used to secure a class 1 substance, any container to which regulation 23(1) applies must have a test certificate certifying that the container is constructed according to either the design specifications of subclause (1) or a code of practice approved by the Authority for the construction of magazines.
- (3) A test certificate under subclause (2) must be obtained at intervals not exceeding 5 years, certifying that the container continues to meet either the design specifications of subclause (1) or a code of practice approved by the Authority for the construction of magazines.
- (4) Before being used to secure a class 1 substance, any container specified in regulation 23(2) must have a test certificate certifying that the container is constructed according to either the design specifications of regulation 23(2) or a code of practice approved by the Authority for the construction of readily moveable containers.
- (5) A test certificate under subclause (4) must be obtained at intervals not exceeding 5 years, certifying that the container continues to meet either the design specifications of regulation 23(2) or a code of practice approved by the Authority for the construction of readily moveable containers.

Regulation 24: substituted, on 28 August 2003, by regulation 8 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

25 Continuation of existing container requirements

- (1) The requirements in regulation 23(1) do not apply for a period of 10 years from the commencement of these regulations where any container to which that provision applies was, immediately before the commencement of these regulations,—
 - (a) approved by the Chief Inspector of Explosives to store explosives under a storage licence controlled by Part 5 of the Explosives Regulations 1959; or
 - (b) approved by the Authority under Part 15 of the Act.

- (2) The requirements in regulation 23(2) do not apply for a period of 10 years from the commencement of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 where any container to which regulation 23(2) applies was, immediately before the commencement of those regulations,—
- (a) a container as specified by regulation 38 of the Explosives Regulations 1959 to hold explosives for sale, approved by the Chief Inspector of Explosives under a licence to sell under Part 6 of the Explosives Regulations 1959; or
 - (b) a container as specified by regulation 38 of the Explosives Regulations 1959 to hold the explosives for sale, approved by the Authority under Part 15 of the Act.

Regulation 25: substituted, on 28 August 2003, by regulation 8 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Controls on hazardous substance locations where class 1 substances present

26 Requirements to establish a hazardous substance location

- (1) The person in charge of a place (other than a designated use zone or a designated transfer zone) where any class 1 substance is present for more than 2 hours in an amount equal to or more than the quantity specified for the relevant classification in table 5 of Schedule 2 must establish in that place 1 or more hazardous substance locations within which such substances are to be located.
- (1A) Despite subclause (1), a hazardous substance location is not required to be established for the following class 1 substances in quantities below 10 000 kg (gross weight):
- (a) safety ammunition, including pre-primed cartridges and primers, of class 1.4S:
 - (b) airbag initiators and seatbelt pretensioners of class 1.4G or 1.4S:
 - (c) cable cutters of class 1.4S (UN 0070):
 - (d) power device cartridges of class 1.4S (UN 0323):
 - (e) signal tubes or shock tubes of class 1.4S (UN 0349):
 - (f) cassette degradation devices of class 1.4S (UN 0432).
- (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 situated, at least 30 working days before the commissioning of the hazardous substance location as an area for accommodating class 1 substances, of—
- (a) the street address of the place in which the hazardous substance location is situated; and

- (b) the maximum quantity and hazard classification of each class 1 substance that the hazardous substance location is designed or constructed to accommodate.
- (3) The person in charge of the hazardous substance location must ensure that—
 - (a) they personally are an approved handler for the relevant substances, or can demonstrate that a person is available who is an approved handler for the substances (where regulation 13 requires the class 1 substance to be under the control of an approved handler); and
 - (b) any container or building used to hold the substance is secured as required by regulation 22.
- (4) The person in charge of the hazardous substance location must ensure that—
 - (a) where a test certificate is required under regulation 30, a test certificate is obtained that certifies that the requirements of that regulation are met; and
 - (b) a site plan is available for inspection showing, in relation to the legal boundary of the site where the hazardous substance location is situated, the physical position of—
 - (i) all hazardous substance locations within the place that contain class 1 substances; and
 - (ii) all controlled zones within the place.

(5) *[Revoked]*

Regulation 26(1A): inserted, on 28 August 2003, by regulation 9(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 26(3): substituted, on 28 August 2003, by regulation 9(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 26(5): revoked, on 28 August 2003, by regulation 9(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

27 Requirements to reduce likelihood of unintended initiation at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established by regulation 26 must ensure that—
 - (a) all handling systems and equipment used in relation to class 1 substances meet the requirements of regulation 15; and
 - (b) any piece of fixed equipment or part of the facility structure that is capable of producing a spark or transferring spark energy to any class 1 substance meets the requirements of regulation 16; and
 - (c) any piece of equipment or part of the facility structure that is capable of generating heat or fire meets the provisions of regulation 17; and
 - (d) no readily combustible material is present within 5 m of the outside of the hazardous substance location; and

- (e) any equipment or part of the facility structure that is capable of accumulating a static electrical charge meets the requirements of regulation 18; and
 - (f) where the quantity of class 1 substance requires, there is a lightning conducting system in place that meets the requirements of regulations 28 and 29; and
 - (g) where an electro-explosive device or class 1 category A substance is being manufactured or is unprotected, or where a class 1 category B substance is being manufactured,—
 - (i) every entrance to the immediate area where the device or substance is present is equipped with a means of grounding any person who enters, and every person who enters must be grounded; and
 - (ii) any person handling the substance in that area wears clothing and footwear or has earthing systems that meet the requirements of subclause (2); and
 - (h) where there are unprotected electro-explosive devices,—
 - (i) the hazardous substance location meets the requirements for limits on power density specified in regulation 20, and has in place documented procedures to exclude devices that are sources of electromagnetic radiation unless the requirements specified in regulation 20 continue to be met when the device is operating; and
 - (ii) any equipment for holding or handling an unprotected electro-explosive device meets the requirements of regulation 20(2).
- (2) The earthing systems referred to in paragraph (g)(ii) must either—
- (a) have a resistance of between $10^5 \Omega$ and $10^6 \Omega$; or
 - (b) be unable to accumulate a static charge capable of producing a discharge of greater than—
 - (i) 0.001 J to a class 1 category A substance; and
 - (ii) 0.2 J to a class 1 category B article or to an electro-explosive device.
- (3) If a thunderstorm approaches a hazardous substance location,—
- (a) any loading or unloading of a class 1 substance into or out of the hazardous substance location must cease; and
 - (b) any manufacturing involving a class 1 substance must cease; and
 - (c) all persons must be evacuated to a distance in metres from the substance of not less than that calculated in accordance with the following formula:

$$D = 10 \times NEQ^{1/3}$$

where—

D is the distance in metres

NEQ (net quantity of class 1 substance) is the gross weight of the article less the weight of any construction materials of the article, in kilograms.

- (4) The person in charge of the hazardous substance location must ensure that no class 2, 3, 4, 5, 6, 8, or 9 substance is present in the hazardous substance location, other than a substance used to manufacture a class 1 substance.
- (5) Despite subclause (3), inspecting and packaging may continue for any—
- (a) fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001; and
 - (b) class 1.4 substances.
- (6) Subclause (3)(c) does not apply to class 1.4S substances.

Regulation 27(1)(b): substituted, on 28 August 2003, by regulation 10(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 27(1)(c): substituted, on 28 August 2003, by regulation 10(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 27(1)(d): substituted, on 28 August 2003, by regulation 10(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 27(1)(e): substituted, on 28 August 2003, by regulation 10(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 27(5): added, on 28 August 2003, by regulation 10(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 27(6): added, on 28 August 2003, by regulation 10(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

28 Protection from lightning strike

- (1) At any hazardous substance location in which class 1 substances are present otherwise than as provided in subclause (2), there must be—
- (a) an earthing system between the atmosphere above the hazardous substance location and earth that—
 - (i) has a resistance to earth of less than 10 Ω prior to any bonding of any metallic structures and service conduits to the earthing system; and
 - (ii) is separated from any class 1 substance so that any build up of electrostatic charge along the earthing system cannot produce a discharge from the earthing system to the substance; and
 - (b) lightning interceptors as provided in regulation 29.
- (2) Unless the quantity of class 1 substances present exceeds the following quantity limits, the requirements of this regulation do not apply:
- (a) 50 kg of substances in class 1.1 or class 1.5; or
 - (b) 100 kg of substances in class 1.2 or class 1.6; or

- (c) 200 kg of substances in class 1.3.

29 Requirements for lightning interceptors

- (1) If a hazardous substance location requires lightning protection then, subject to subclause (2), it must have lightning interceptors that comply with the following requirements:
- (a) the hazardous substance location must fall completely within the space of a cone or plane projected at 30° from the vertical from the top of the lightning interceptors; or
 - (b) the lightning interceptors must be positioned so as to ensure that the hazardous substance location completely falls outside an arc generated by a 20 m radius sphere rolled over the hazardous substance location and the lightning interceptors, as illustrated by figures 4.1 and 4.2 of section 4 in Joint Australian and New Zealand Standard AS/NZS 1768: 1991 *Lightning Protection*.
- (2) A hazardous substance location does not require separate lightning interceptors if the complete outer shell of the location acts as the lightning earthing system.

30 Test certificate requirement for hazardous substance location

- (1) Except as provided in subclauses (2) and (3), the person in charge of a hazardous substance location where a class 1 substance is present must ensure that the hazardous substance location has a current test certificate certifying that the location complies with the requirements of regulations 21, 22, 26(2), 26(3), and 27.
- (2) The requirements of subclause (1) do not apply to a hazardous substance location where the only class 1 substances present are present in amounts less than the quantity specified for the relevant classification in table 6 of Schedule 2.
- (3) The requirements of subclause (1) do not apply to the following substances:
- (a) safety ammunition, including pre-primed cartridges and primers, of class 1.4S:
 - (b) airbag initiators and seatbelt pretensioners of class 1.4G or 1.4S:
 - (c) cable cutters of class 1.4S (UN 0070):
 - (d) power device cartridges of class 1.4S (UN 0323):
 - (e) signal tubes or shock tubes of class 1.4S (UN 0349):
 - (f) cassette degradation devices of class 1.4S (UN 0432).

Regulation 30(1): amended, on 28 August 2003, by regulation 11(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 30(3): added, on 28 August 2003, by regulation 11(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

31 Requirements to control adverse effects of unintended initiation at hazardous substance location

- (1) Except as provided in subclause (4), the person in charge of a hazardous substance location must—
- (a) authorise to be in the hazardous substance location or its abutting controlled zone only—
 - (i) those persons necessary for the handling of class 1 substances; and
 - (ii) for limited periods only, persons carrying out maintenance, inspection, or management purposes, or site visitors under the direct supervision of an approved handler; and
 - (b) exclude from the hazardous substance location and controlled zone persons not authorised to be there.
- (2) The person in charge of a hazardous substance location must manage all class 1 substances present within the location to ensure that, in the event of an unintended initiation occurring,—
- (a) public traffic routes of low density, and places where people may occasionally be present in numbers up to 200 persons on average in any 24-hour period, are not subject to more than any of the following:
 - (i) a blast overpressure of 13 kPa; or
 - (ii) 80% of the 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; or
 - (iii) 2 hazardous fragments per 60 m² of surface area; and
 - (b) public traffic routes of medium density, places where people may occasionally be present in numbers up to 900 persons on average in any 24-hour period, and the interior of any proximate building within the boundary of the place where people not directly handling explosive substances are present, are not subject to more than any of the following:
 - (i) a blast overpressure of 9 kPa; or
 - (ii) 80% of the 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; or
- (iii) 2 hazardous fragments per 60 m² of surface area; and
- (c) public traffic routes of high density, areas of high intensity land use, or any area where a person may be legally present inside the boundary of the place where the hazardous substance location is located are not subject to more than any of the following:
- (i) a blast overpressure of 5 kPa; or
- (ii) 80% of the 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; or
- (iii) 1 hazardous fragment per 60 m² of surface area.
- (d) vulnerable facilities are not subject to more than a blast overpressure of 2 kPa, in the case of a hazardous substance location established after the commencement of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003.
- (2A) A hazardous substance location complies with subclause (2) if—
- (a) the total quantity and type of class 1 substances are limited to meet the prescribed blast overpressure, heat radiation, and hazardous fragment limits of subclause (2) at the boundary of the hazardous substance location; or
- (b) the distances between the class 1 substances and the boundary of the hazardous substance location are set to meet the prescribed blast overpressure, heat radiation, and hazardous fragment limits of subclause (2); or
- (c) the person in charge complies with a code of practice approved by the Authority as meeting the requirements of subclause (2).
- (3) The person in charge of a hazardous substance location that is used solely for securing and holding a class 1 substance must limit the quantities of any class 1 substance at the location to ensure that, in the event of an unintended initiation occurring,—
- (a) the interior of any proximate building where class 1 substances are manufactured would not be subject to a blast overpressure of more than 24 kPa; and
- (b) the exterior of any proximate building where a class 1 substance is manufactured would not be subject to more than 3 hazardous fragments per 60 m² of exterior surface area.

- (4) The requirements of this regulation do not apply to a hazardous substance location if the amounts of class 1 substances present do not exceed the quantities for the relevant classifications specified in table 5 of Schedule 2.

Regulation 31(2): amended, on 28 August 2003, by regulation 12(1)(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2)(a): amended, on 28 August 2003, by regulation 12(1)(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2)(a)(i): amended, on 28 August 2003, by regulation 12(1)(c) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2)(b): amended, on 28 August 2003, by regulation 12(1)(d) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2)(c): amended, on 28 August 2003, by regulation 12(1)(e) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2)(d): added, on 28 August 2003, by regulation 12(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 31(2A): inserted, on 28 August 2003, by regulation 12(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Controls on intended detonation and deflagration of class 1 substances

32 Requirements to be met by person in charge of detonation or deflagration of class 1 substances

- (1) At any place where a class 1 substance, other than those substances described in regulation 13(2) is to be intentionally detonated or deflagrated, the person in charge of the detonation or deflagration must—
- (a) where regulation 13 requires the substance to be under the personal control of an approved handler, ensure that there is an approved handler personally in control of the substance, or that the substance is secured as specified in regulation 22; and
 - (b) establish a designated use zone within which such substances are to be detonated; and
 - (c) ensure that regulations 33 and 34 are complied with.
- (2) At least 3 working days before the first firing occurs at the place, the person in charge of the detonation or deflagration must—
- (a) notify an enforcement officer of the place where the firing is to occur, the date of the firing, and the time and number of firings; and
 - (b) in the case where regular firings are to occur at the place, notify an enforcement officer of the likely frequency of firings per year, and at 12-monthly intervals reconfirm or modify this notification; and
 - (c) give the officer sufficient information to enable the officer to contact the person in charge of the detonation and deflagration and the approved handler during normal business hours.

- (3) The person in charge of the detonation or deflagration must ensure that all persons not specifically authorised by the approved handler to be in the designated use zone are excluded, using the following methods:
- (a) information must be displayed that—
 - (i) warns that a substance is being detonated and that entry is prohibited; and
 - (ii) is visible from all points that are 5 m from the outer side of the perimeter of the designated use zone; and
 - (iii) meets the level of comprehensibility and clarity required for signage in Part 3 of the Hazardous Substances (Identification) Regulations 2001; and
 - (b) 1 minute before firing, a distinctive warning sound must be generated that is of sufficient volume to be heard throughout the zone, and at all points that are 5 m from the outer side of the perimeter of the zone, by a person with normal hearing; and
 - (c) a visual check must be made of the zone immediately before firing to ensure that all people not directly involved with the firing have been excluded.
- (4) The requirements of subclauses (1)(b), (2), and (3) do not apply—
- (a) to any place if the amounts of class 1 substances being detonated or deflagrated in any one firing do not exceed the quantities for the relevant classifications specified in table 6 of Schedule 2:
 - (b) to the use of a class 1 category G substance in a pyrotechnic or special effects display.
- (5) For substances of hazard classification 1.1 or 1.5, and for other class 1 substances in amounts exceeding the quantities for the relevant classifications specified in table 6 of Schedule 2, the person in charge of the detonation or deflagration must not detonate or deflagrate a class 1 substance during the hours of darkness unless that person has obtained a test certificate to certify that the documented procedures for the detonation or deflagration meet the requirements of this regulation without natural lighting.
- (6) Where persons not specifically authorised are excluded from any designated use zone under the provisions of the Government Roadings Powers Act 1989, and the procedures of the New Zealand Transport Agency's *Active Control Procedures for Avalanche Control* are complied with, those procedures meet the requirements of subclauses (2) and (3).

Regulation 32(1): amended, on 28 August 2003, by regulation 13(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 32(1)(a): amended, on 28 August 2003, by regulation 13(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 32(5): amended, on 28 August 2003, by regulation 13(c) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 32(6): amended, on 1 August 2008, by section 50(2) of the Land Transport Management Amendment Act 2008 (2008 No 47).

33 Requirements to be met by approved handler for detonation or deflagration of class 1 substance

- (1) The approved handler of a class 1 substance being detonated or deflagrated at any place must ensure that—
 - (a) any persons required to be at the place, whether for conducting the detonation or deflagration of such substances or for the making and recording of film and video special effects, are authorised by the approved handler; and
 - (b) any class 1 substance is kept packaged until the point where the explosive charge is to be made up; and
 - (c) any container from which any class 1 substance is being taken is closed as soon as the quantity needed to make up the explosive charge or charges for immediate use has been removed; and
 - (d) the making up of any explosive charge is sufficiently segregated from any container holding class 1 substances so that unintended initiation of the charge could not cause a blast overpressure on the container exceeding 180 kPa; and
 - (e) the system for firing an explosive charge is not readied to the point that only the one final action needs to be taken to fire the charge until the requirements of regulation 32(3) have been complied with; and
 - (f) the firing is monitored, and any misfired charge is identified.
- (1A) If a misfired charge is identified under subclause (1), the approved handler must—
 - (a) ensure that no person approaches the misfired charge for 10 minutes in the case of an electrically fired charge or 60 minutes in the case of a charge fired by a fuse; and
 - (b) then safely dispose of the malfunctioning charge without undue delay in accordance with the Hazardous Substances (Disposal) Regulations 2001, and advise the person in charge to maintain the requirements of regulation 32(3) until this has been completed.
- (2) If a thunderstorm approaches a place where a class 1 substance is being detonated or deflagrated,—
 - (a) any handling or preparation of the class 1 substance for detonation or deflagration must cease; and
 - (b) all persons must be evacuated to a distance in metres from any container holding a class 1 substance, and from any position where a class 1 substance is present for intended detonation or deflagration, of not less than that calculated in accordance with the following formula:

$$D = 10 \times \text{NEQ}^{1/3}$$

where—

D is the distance in metres

NEQ (net quantity of class 1 substance) is the gross weight of the article less the weight of any construction materials of the article, in kilograms.

Regulation 33(1)(e): amended, on 28 August 2003, by regulation 14(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 33(1)(f): added, on 28 August 2003, by regulation 14(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 33(1A): inserted, on 28 August 2003, by regulation 14(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

34 Requirements to be met by approved handler to control adverse effects of intended detonation or deflagration

(1) The approved handler must limit the quantity of class 1 substances to be detonated or deflagrated at any place, so as to ensure that—

(a) no place where a person may legally be present is subject to—

(i) a blast overpressure of more than 0.2 kPa; or

(ii) more than 30% of the 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; or

(iii) any hazardous fragment; and

(b) no low-rise residential building outside the designated use zone is subject to a ground vibration leading to more than 10 mm per second peak particle velocity; and

(c) no commercial or industrial building outside the designated use zone is subject to a ground vibration leading to more than 25 mm per second peak particle velocity; and

(d) no other building for which the Authority has specified a lesser peak particle velocity limit is subject to a ground vibration of more than that peak particle velocity; and

(e) no person authorised by the approved handler to be present in the place is subject to—

(i) a blast overpressure of more than 9 kPa; or

- (ii) more than 30% of the 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; or

- (iii) any hazardous fragment.

- (1A) Despite specific limits in subclause (1)(b), (c), and (d), an approved handler in charge of a detonation may calculate a variation to the specified limit that takes account of the frequency of ground vibration expected to result from the blast in accordance with Appendix J of AS 2187.2 1993, and undertake detonations in accordance with that limit provided the requirements of Appendix J5 of AS 2187.2 1993 for operating practice are complied with.
- (2) Despite subclause (1)(e), an authorised person who is directly involved with the detonation or deflagration of a class 1 substance may be subject to a blast overpressure up to 24 kPa, and up to 80% of the heat radiation described by the formula $Q = 1.7 + 60t^{-0.9}$, if—
- (a) the approved handler has obtained a test certificate to certify that, if the documented procedures are followed, those figures represent the highest levels of blast overpressure and heat radiation to which the person could be subject; and
- (b) the person has accepted those figures in writing.
- (3) For the purposes of this regulation, **peak particle velocity** means the maximum velocity of ground particles resulting from a detonation and measured as described in Appendix J of Australian Standard AS 2187.2: 1993 *Explosives—Storage, transport and use*. The particle velocity is measured as the sum of the instantaneous components of particle velocity on the x, y, and z axes given by the following equation:

$$v_p = (v_x^2 + v_y^2 + v_z^2)^{1/2}$$

where v equals velocity.

Regulation 34(1A): inserted, on 28 August 2003, by regulation 15 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Controls on outdoor pyrotechnic displays using class 1 category G substances

35 Requirements for outdoor pyrotechnic displays using class 1 category G substances

Before commencing an outdoor pyrotechnic display that uses class 1 category G substances (other than those approved for sale to the public under the Haz-

ardous Substances (Fireworks) Regulations 2001), the person in charge of the display must ensure that—

- (a) there is an approved handler personally in control of the substances whose competency is certified for the height of display planned; and
- (b) the requirements for outdoor pyrotechnic displays included in regulations 36 to 42 are complied with; and
- (c) if the display involves firings over 60 m in height, the specific requirements for aerial outdoor pyrotechnic displays in regulation 43 are complied with.

36 Requirements to be met by person in charge of display involving firings of class 1 category G substances

The person in charge of an outdoor display involving firings of class 1 category G substances must establish—

- (a) a discharge area within which the substances are to be ignited; and
- (b) an exclusion zone to receive any debris or malfunctioning pyrotechnic from the display.

37 Discharge area requirements

A discharge area required by regulation 36 must have a boundary that is at least—

- (a) 30 m from any building, temporary structure, vehicle, ship, or aircraft, other than one that is—
 - (i) used for staging the display; or
 - (ii) of a construction that prevents or is protected from being ignited by contact with a 100 g burning object for 30 seconds; and
- (b) 250 m from any place where class 1 substances that are not part of the display or any class 2, 3, 4, and 5 substances are present in quantities greater than those specified in table 2 of Schedule 2; and
- (c) 200 m from any place used for the purposes of housing people if the people cannot be evacuated without external assistance; and
- (d) 200 m from any place containing captive animals; and
- (e) 25 m from the outermost firing point for a class 1 category G substance.

38 Exclusion zone requirements

- (1) An exclusion zone required by regulation 36 must as a minimum have a boundary that—
 - (a) encompasses the discharge area for ground level displays; and
 - (b) for low-level displays, is 50 m from the outermost firing point in the discharge area; and

- (c) for high-level displays over 60 m,—
 - (i) has a horizontal width, measured at right angles to the intended line of flight from either side of the most lateral points of firing for aerial shells from the discharge area, of at least the distance specified in table 3 of Schedule 2; and
 - (ii) has a horizontal length, measured along the intended line of flight from the point of firing for aerial shells from the discharge area, of at least the distance specified in table 4 of Schedule 2.
- (2) If a shell with a diameter of 300 mm or more is to be used in such an outdoor display, and if the Authority has specified distances greater than those in tables 3 and 4 of Schedule 2 as sufficient to ensure that any debris or malfunctioning shells fall within the exclusion zone so defined, the person in charge of the display must establish an exclusion zone using those dimensions accordingly.
- (3) Despite subclause (1), where a shell to be used in the outdoor display has a diameter of less than 300 mm and a restricted burst pattern radius, and where the Authority has reduced the distances specified in tables 3 and 4 of Schedule 2 for shells of that diameter to a distance that is not less than twice the burst radius, the exclusion zone may have those dimensions accordingly.
- (4) The person in charge of the display must have documented arrangements for excluding from the exclusion zone people, vehicles, boats, and aircraft not associated with the display.
- (5) The person in charge of the display must control all exclusion zones so as to—
 - (a) exclude persons, vehicles, boats, or aircraft not associated with the display; and
 - (b) exclude class 2, 3, 4, and 5 substances unless they are protected so that they cannot be ignited by a 100 g burning object contacting that protection for 30 seconds; and
 - (c) treat or safeguard the ground and any vegetation so that a fire cannot spread more than 5 m from the point of ignition; and
 - (d) provide the fire-fighting capability specified by a person who is an authorised person within the meaning of section 6 of the Fire and Emergency New Zealand Act 2017.

Regulation 38(5)(b): amended, on 21 November 2013, by regulation 5 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Regulation 38(5)(d): amended, on 1 July 2017, by section 197 of the Fire and Emergency New Zealand Act 2017 (2017 No 17).

39 Notification and recording of outdoor pyrotechnic displays involving firings of class 1 category G substances

- (1) The person in charge of an outdoor pyrotechnic display involving the firing of class 1 category G substances to any height must, at least 3 working days before the first firing occurs,—

- (a) notify an enforcement officer responsible for enforcement of the Act in the area where the display will occur of the location, the date of the display, and the time and number of firings; and
 - (b) give the officer sufficient information to enable the officer to contact the person in charge of the display and the approved handler during normal business hours.
- (2) The person in charge of the display must obtain prior written agreement for the holding of the display from—
 - (a) Fire and Emergency New Zealand; and
 - (b) if the firing involves heights over 60 m, the agency responsible for air safety in the vicinity of the display.
- (3) If the firing involves heights over 60 m, the agreement of Fire and Emergency New Zealand must record that the documented procedures for the display will enable the person in charge of the display to comply with the requirements of regulation 38(5)(c) and (d).
- (4) The person in charge of the display must prepare a record of the outdoor pyrotechnic display that includes—
 - (a) a site plan to scale of the discharge area and any exclusion zone; and
 - (b) details of arrangements for identifying and securing the discharge area and exclusion zone; and
 - (c) the name of the manufacturer, and the size, type, and number of pyrotechnic articles to be used; and
 - (d) details of positioning of firing points and mortar tubes, and the methods of firing; and
 - (e) the names and responsibilities of all authorised persons operating the display; and
 - (f) any incidents that occurred during the display.
- (5) The record must be available for inspection by an enforcement officer not less than 3 days before the display insofar as it relates to the matters specified in subclause (4)(a) to (e).
- (6) The record must be retained by the person in charge of the display for a period of not less than 12 months following the display.

Regulation 39(2)(a): replaced, on 1 July 2017, by section 197 of the Fire and Emergency New Zealand Act 2017 (2017 No 17).

Regulation 39(3): amended, on 1 July 2017, by section 197 of the Fire and Emergency New Zealand Act 2017 (2017 No 17).

40 Requirement to obtain test certificate for outdoor pyrotechnic displays involving firings of class 1 category G substances

The person in charge of any outdoor pyrotechnic display involving class 1 category G substances must obtain a test certificate not less than 3 days before the display to certify that the planning for the proposed display specifies—

- (a) that the approved handler has an appropriate certificate of competency for conducting the height of display planned;
- (b) that the boundary of a discharge area is as specified in regulation 37, and the boundary of the exclusion zone is as specified in regulation 38;
- (c) the requirements of regulation 42;
- (d) the number and type of pyrotechnics to be used in the display;
- (e) the requirements of regulation 39(2), (3), and (4);
- (f) in the case of aerial displays over 60 m in height, the requirements of regulation 43(a), (b), (d), (e), (f), and (i).

41 Requirements to be met by approved handler at discharge area involving firings of class 1 category G substances

- (1) In a discharge area within which class 1 category G substances are to be ignited, the approved handler in control of the substances must ensure that—
 - (a) the only class 1 substances in the area are those intended for use in the display; and
 - (b) when not under the approved handler's personal control, those substances are secured so that a person cannot gain access to them without tools, keys, or any other device used for operating locks.
- (2) The approved handler must—
 - (a) authorise the display operators and limit the number of display operators to those necessary to undertake the operation of the display; and
 - (b) personally supervise all such operators.
- (3) The approved handler must ensure that all display operators present in the discharge area have—
 - (a) body, head, and eye protection sufficient to withstand a 100 g burning object for 2 seconds; and
 - (b) sufficient hearing protection to ensure they are subject to no more than 120 dB during the display.
- (4) The approved handler must also—
 - (a) ensure that no person can be struck by any class 1 category G substance while firing that substance; and
 - (b) monitor the firing; and

- (c) identify any malfunctioning class 1 category G substance, and notify the person in charge of the display of the malfunctioning substance; and
- (d) mark all firing points containing a malfunctioning class 1 category G substance; and
- (e) advise authorised persons of the presence of a malfunctioning class 1 category G substance; and
- (f) ensure the malfunctioning class 1 category G substance is incapable of igniting before removing and disposing of it in accordance with the Hazardous Substances (Disposal) Regulations 2001.

42 Requirements to be met by approved handler to reduce likelihood of unintended initiation or ignition at outdoor pyrotechnic displays involving firings of class 1 category G substances

- (1) The approved handler in control of the firing of class 1 category G substances at an outdoor firing display must ensure that the requirements in subclauses (2) to (4) are met from the time when any class 1 category G substance is brought into the discharge area until the display has been completed, and any remaining class 1 category G substance has been either removed or disposed of in accordance with the Hazardous Substances (Disposal) Regulations 2001.
- (2) The approved handler must ensure that any unfired class 1 category G substance does not come into contact with sparks or hot fragments capable of transferring energy at a rate greater than 0.5 W/m^2 , unless such sparks or fragments are part of an intended ignition system.
- (3) The approved handler must ensure that there are no class 2, 3, 4, or 5 substances present in the discharge area unless those substances are protected in such a way that they cannot be ignited by—
 - (a) a burning object with a mass of 100 g and of a type likely to be generated as a result of the display in contact with the protection for 30 seconds; or
 - (b) the heat able to be generated by the display in the discharge area.
- (4) The approved handler must ensure that the firing circuit of an electric ignition system—
 - (a) is insulated from earth and has been tested to ensure continuity where the test current is less than 60 mA; and
 - (b) is protected from stray electrical currents of more than 60 mA; and
 - (c) satisfies the requirements for protection from electromagnetic radiation as specified in regulation 20; and
 - (d) is arranged so that only the approved handler may initiate firing and so that each firing sequence requires a positive action.
- (5) If a thunderstorm approaches a discharge area,—

- (a) any handling or preparation of a class 1 category G substance must cease; and
- (b) all persons must be evacuated to a distance in metres from any container for holding class 1 category G substances, and any firing positions where class 1 category G substances are present, of not less than that calculated in accordance with the following formula:

$$D = 10 \times \text{NEQ}^{1/3}$$

where—

D is the distance in metres

NEQ (net quantity of class 1 substance) is the gross weight of the article less the weight of any construction materials of the article, in kilograms.

43 Additional requirements to be met by approved handler at outdoor pyrotechnic display involving firings of class 1 category G substances to heights over 60 m

When an outdoor pyrotechnic display involves the firing to a height greater than 60 m above an exclusion zone of aerial shells, salutes, rockets, or other pyrotechnics classified in category G of class 1.1, 1.2, or 1.3, the approved handler in charge of the shells, salutes, or rockets must ensure that—

- (a) any type of mortar tube used in the display has, prior to use, been designed and tested for the aerial shell with which it is to be used, and—
 - (i) for its ability to guide that aerial shell along any predetermined path; and
 - (ii) for its ability to withstand the ignition of an upside-down shell within the mortar tube without producing any hazardous fragments;—and in no case is the mortar tube to be of metal or PVC; and
- (b) any mortar tube used in the display has the shell size for which the tube is designed marked on the tube in a manner that meets the requirements for clarity and comprehensibility specified in Part 3 of the Hazardous Substances (Identification) Regulations 2001; and
- (c) neither the aerial shells used in the display nor the inside of their mortar tubes can be contacted with liquid water until the aerial shells are loaded into the mortar tubes; and
- (d) the pyrotechnic effect of the aerial shells, salutes, or rockets is generated only after the article reaches a height greater than 60 m above the exclusion zone; and
- (e) the aerial shells, salutes, or rockets follow the line of flight used to set the exclusion zone, and that line of flight is no less than 8 m from any overhead object; and

- (f) no rocket, salute, or aerial shell crosses over or bursts above any area occupied by people or buildings; and
- (g) any burning fragment greater than 10 g or malfunctioning shell, salute, or rocket falls into the exclusion zone and away from the discharge area; and
- (h) all firing of class 1 category G substances ceases if—
 - (i) the wind speed within the discharge area exceeds 30 km/h; or
 - (ii) any burning fragment greater than 10 g from the firing falls outside the exclusion zone; and
- (i) where the reloading of a mortar tube for firing an aerial shell is required, the aerial shell is of the size marked on the mortar tube.

Regulation 43(a): amended, on 28 August 2003, by regulation 16 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 43(a)(ii): substituted, on 28 August 2003, by regulation 16 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

43A Only indoor pyrotechnics used in outdoor pyrotechnic display

- (1) This regulation applies if only indoor pyrotechnics are used in an outdoor pyrotechnic display.
- (2) Regulations 44 and 45 apply in relation to the display and the indoor pyrotechnics as if the display were an indoor display.
- (3) Regulation 38(5)(c) applies in relation to the display and the indoor pyrotechnics, but the rest of regulations 35 to 43 do not apply.

Regulation 43A: inserted, on 21 November 2013, by regulation 6 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

43B Both indoor pyrotechnics and outdoor pyrotechnics used in outdoor pyrotechnic display

- (1) This regulation applies if both indoor pyrotechnics and outdoor pyrotechnics are used in an outdoor pyrotechnic display.
- (2) Regulations 35, 38(5)(c) and (d), and 39 to 43 apply in relation to the entire display and both the indoor pyrotechnics and the outdoor pyrotechnics.
- (3) Regulations 36 and 37 and the rest of regulation 38 apply only in relation to the outdoor pyrotechnics.
- (4) However, regulation 40 applies under subclause (2) as if—
 - (a) regulation 40(b) also referred to the boundary of an exclusion zone as specified in regulation 45(2)(d); and
 - (b) regulation 40 included a paragraph that refers to the requirements of regulation 45(4)(b).
- (5) Regulation 45(2)(c) and (d) and (4)(a) and (b) apply in relation to the indoor pyrotechnics as if the display were an indoor display.

Regulation 43B: inserted, on 21 November 2013, by regulation 6 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436).

Controls on indoor pyrotechnic displays using class 1 category G substances

44 General requirements for indoor pyrotechnic displays using class 1 category G substances

- (1) Before commencing an indoor pyrotechnic display that uses class 1 category G substances, the person in charge of the display must—
 - (a) ensure that there is an approved handler personally in control of the substances; and
 - (b) at least 3 working days before the display occurs,—
 - (i) notify an enforcement officer of the location where the display is to occur, the date of the display, and the time and number of firings; and
 - (ii) give the officer sufficient information to enable the officer to contact the person in charge of the display and the approved handler during normal business hours; and
 - (c) ensure that the requirements for indoor pyrotechnic displays included in regulation 45 are complied with.
- (2) The person in charge of the display must also—
 - (a) obtain prior written agreement for the holding of the display from Fire and Emergency New Zealand; and
 - (b) provide any firefighting capability specified by a person who is an authorised person within the meaning of section 6 of the Fire and Emergency New Zealand Act 2017 in addition to that required by regulation 45(4)(c).

Regulation 44(2)(a): amended, on 1 July 2017, by section 197 of the Fire and Emergency New Zealand Act 2017 (2017 No 17).

Regulation 44(2)(b): amended, on 1 July 2017, by section 197 of the Fire and Emergency New Zealand Act 2017 (2017 No 17).

45 Requirements to be met by approved handler at indoor pyrotechnic display using class 1 category G substances

- (1) At any indoor pyrotechnic display using class 1 category G substances, the approved handler in control of the substances must—
 - (a) authorise the display operators and limit the number of display operators to those necessary to undertake the operation of the display; and
 - (b) personally supervise all such operators; and
 - (c) secure all class 1 category G pyrotechnic substances so as to comply with regulation 22(2).
- (2) In preparing for the display the approved handler must—

- (a) use only those class 1 category G substances designed for indoor use that—
 - (i) contain no more than a trace of antimony, arsenic, cadmium, chromium, lead, mercury, nickel, selenium, or zinc, or their compounds; and
 - (ii) have a specified height and duration of operation, and a specified radius within which any burning or burnt material may be expected to fall; and
 - (b) if the indoor display is fired by an electrical current,—
 - (i) protect the firing circuit against being disturbed by any associated activities; and
 - (ii) test the firing circuit before firing to ensure electrical continuity by applying a test current of not more than 60 mA; and
 - (iii) arrange the firing circuit so that a positive action is required before firing is initiated, and only the approved handler can initiate firing; and
 - (c) test examples of all the class 1 category G pyrotechnic substances intended to be used in the display with only authorised display operators and performers present at the testing; and
 - (d) establish exclusion zones around the firing points within which any burning material must fall, based on the fallout radius specified in paragraph (a)(ii) and any test firing for the class 1 category G pyrotechnic substances to be fired.
- (3) In relation to the planning and recording of the display, the approved handler must—
- (a) have a display plan available for inspection by an enforcement officer at least 3 working days before the firing that—
 - (i) specifies the number and type of devices to be used; and
 - (ii) has a diagram of the indoor area showing firing points, the exclusion zone, the position of the audience, the location of the secure container holding the class 1 category G pyrotechnic substances, and the location of the area for preparing any class 1 category G pyrotechnic devices; and
 - (iii) specifies the names and responsibilities of the authorised display operators; and
 - (b) record any malfunctioning class 1 category G pyrotechnic substances and any incidents of fire or injury; and
 - (c) retain the display plan and records required by paragraphs (a) and (b) for a period of not less than 12 months after the display.
- (4) During the display, the approved handler must—

- (a) ensure that the distance to any member of an audience is a minimum of twice the furthest distance from the firing point to the boundary of the exclusion zone; and
 - (b) ensure that any combustible material in the exclusion zone is sufficiently fire resistant to withstand contact with a burning object with a mass of 10 g and of a type likely to be generated as a result of the display for 30 seconds; and
 - (c) provide a portable fire extinguisher that—
 - (i) is located so that an authorised person is able to obtain the extinguisher and hold it ready for use within 10 seconds; and
 - (ii) when used by 1 person, is capable of meeting the requirements of the Wood Crib fire test as specified in Joint Australian and New Zealand Standard AS/NZS 1850: 1997 *Portable fire extinguishers—classification, rating and performance testing*.
- (5) The approved handler must ensure that all pyrotechnic articles and class 1 category G substances are removed at the end of the display or any performance involving a display.

Transfer of class 1 substances

46 Requirements for transfer of class 1 substances from one type of transport to another

- (1) At any place where the transfer of class 1 substances from one type of transport to another occurs, the person in charge of the transfer of the substances must—
 - (a) establish a designated transfer zone that fully contains all vehicles, ships, aircraft, or other forms of transport involved in the transfer operation; and
 - (b) where regulation 13 requires a class 1 substance to be under the personal control of an approved handler, ensure that there is an approved handler personally in control of the substances being transferred; and
 - (c) ensure that the requirements of regulations 47 and 48, and either of regulations 49 and 50, are met.
- (2) The person in charge of the transfer must—
 - (a) display signage, warning of the danger from the presence of a class 1 substance; and
 - (b) ensure that the signage meets the level of comprehensibility and clarity required for signage in Part 3 of the Hazardous Substances (Identification) Regulations 2001; and
 - (c) ensure that the signage is visible from points of access to the designated transfer zone.

- (3) The person in charge of the transfer must not transfer a class 1 substance during the hours of darkness, unless the person has obtained a test certificate to certify that the documented procedures for the transfer meet the requirements of this regulation without natural lighting.
- (4) The requirements of this regulation do not apply to the transfer if the amount of class 1 substances present do not exceed the quantities for the relevant classifications specified in table 6 of Schedule 2.
- (5) Containers containing class 1 substances held within a designated transfer zone must be separated from other hazardous substances by a distance of not less than 15 m.

Regulation 46(1)(b): substituted, on 28 August 2003, by regulation 17(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 46(5): added, on 28 August 2003, by regulation 17(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

47 Emergency management requirements to be met at designated transfer zone

- (1) Despite regulation 25 of the Hazardous Substances (Emergency Management) Regulations 2001, Level 3 emergency management requirements as set out in Part 4 of those regulations apply to a designated transfer zone.
- (2) The person in charge of the transfer must ensure that the requirements for Level 3 emergency management planning as required under Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001 are met in the designated transfer zone during the time that class 1 substances are present in the zone.

48 Requirements to be met by approved handler at designated transfer zone

- (1) The approved handler personally in control of the class 1 substances involved in a transfer operation within a designated transfer zone must—
 - (a) exclude from the zone all persons not under his or her direct supervision; and
 - (b) exclude all persons not necessary for the management or performance of the transfer operation.
- (2) The approved handler must also—
 - (a) establish and have available for inspection documented procedures for the implementation of the requirements of regulations 15, 16, 17, 18, and 20; and
 - (b) ensure that the documentation is provided to the level of comprehensibility required by Part 2 of the Hazardous Substances (Identification) Regulations 2001; and
 - (c) ensure that the documentation is able to be located by the people involved in the transfer operation within 10 seconds.

- (3) The approved handler must also—
- (a) ensure that the time during which any class 1 substance is present in the designated transfer zone is minimised; and
 - (b) ensure in every case that the time during which any class 1 substance is present in the designated transfer zone is less than 8 hours (or less than 24 hours for substances of class 1.4C, 1.4E, 1.4G, or 1.4S).
- (4) If a thunderstorm approaches the designated transfer zone, the approved handler must ensure that—
- (a) any loading or unloading of a class 1 substance ceases, and any packages of class 1 substances are returned to one or other means of transport and enclosed; and
 - (b) all persons are evacuated to a distance in metres from any transport container for holding class 1 substances, and any means of transport holding class 1 substances, of not less than that calculated in accordance with the following formula:

$$D = 10 \times \text{NEQ}^{1/3}$$

where—

D is the distance in metres

NEQ (net quantity of class 1 substance) is the gross weight of the article less the weight of any construction materials of the article, in kilograms.

Regulation 48(3)(b): amended, on 28 August 2003, by regulation 18 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

49 Substance quantity limits within designated transfer zones

- (1) The approved handler in control of class 1 substances in a designated transfer zone must manage all class 1 substances present within the zone so that, should there be an unintended initiation of any or all of the class 1 substances, any place where a person may legally be present outside the zone could not be subject to more than,—
- (a) where the class 1 substance is held in a special purpose transport container of equivalent strength to a standard ISO transport container of 6 m in length and approximately 2.6 m in height,—
 - (i) a blast overpressure of 24 kPa; or
 - (ii) 80% of the 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; or

- (iii) 3 hazardous fragments per 60 m² of surface area; or
- (b) where the class 1 substance is not held in a special purpose transport container of equivalent strength to a standard ISO transport container of 6 m in length and approximately 2.6 m in height,—
 - (i) a blast overpressure of 9 kPa; or
 - (ii) 80% of the heat radiation described by the formula set out in paragraph (a)(ii); or
 - (iii) 2 hazardous fragments per 60 m² of surface area.
- (2) The designated transfer zone complies with subclause (1) if—
 - (a) the total quantity and type of class 1 substances are limited to meet the prescribed blast overpressure, heat radiation, and hazardous fragment limits of subclause (1) at the boundary of the designated transfer zone; or
 - (b) the distances between the class 1 substances and the boundary of the designated transfer zone are set to meet the prescribed blast overpressure, heat radiation, and hazardous fragment limits of subclause (1); or
 - (c) the approved handler complies with a code of practice approved by the Authority as meeting the requirements of subclause (1).

50 Continuation of existing quantity and distance requirements

Where the designated transfer zone is a port berth that was, immediately before the commencement of these regulations, subject to a requirement given in writing by the Chief Inspector of Explosives, or a requirement in bylaws made under the Harbours Act 1950 (being bylaws of a kind referred to in section 15 of the Local Government Amendment Act (No 2) 1999) to limit the quantities and classifications of class 1 substances that can be loaded or unloaded, and that requirement also provided for unauthorised persons to be excluded from within a specified distance from the transfer place,—

- (a) that requirement continues to apply for a period of 5 years from that commencement; and
- (b) regulation 49 does not apply for that period.

Transportation of class 1 substances

51 Transportation by road or rail of class 1 substances

- (1) The person in charge of any transportation on public roads or by rail of a class 1 substance must ensure that an enforcement officer appointed by the New Zealand Transport Agency or the Commissioner of Police for the enforcement functions described in section 97(c) or (d) of the Act—
 - (a) is notified, at least 24 hours before departure on the first occasion of transport by a new route, of—
 - (i) the intended time and the intended route of transportation; and

- (ii) where appropriate, the frequency per year of transportations of class 1 substances; and
 - (b) where appropriate, has this notification reconfirmed or modified at intervals not greater than 12 months.
- (2) When a class 1 substance is being transported on public roads or by rail, the person in charge of the transportation must ensure that, during transportation,—
 - (a) the substance is under the personal control of an approved handler, or secured as required in regulation 22; and
 - (b) the requirements of regulations 15, 16, 17, and 21 are met by the vehicle itself and by any arrangements for stowing the explosives in the vehicle; and
 - (ba) in addition to the fire extinguisher requirements of Schedule 3 of the Hazardous Substances (Emergency Management) Regulations 2001, a 9 l foam fire extinguisher is present on the vehicle; and
 - (c) only persons necessary for the transportation or implementation of emergency procedures are in the vehicle or the train, provided that when quantities greater than 250 kg (gross weight) of substances in class 1.1, 1.2, 1.3 or 1.5 are carried in a vehicle, a minimum of 2 persons are present; and
 - (d) the maximum quantity of class 1 substances on a vehicle or rail wagon is within the safe load limit for that vehicle or rail wagon, provided that, where the substances are transported in a special purpose transport container, the quantity is not greater than the quantity that can be contained in 1 standard ISO transport container of 6 m in length and approximately 2.6 m in height; and
 - (e) there are separation distances between—
 - (i) vehicles in convoy carrying class 1 substances; or
 - (ii) rail wagons on the same train carrying class 1 substances,—
so that any unintended detonation or deflagration in one vehicle or rail wagon cannot transmit more than the pressure shock specified in regulation 15 to any following or preceding vehicle or rail wagon carrying class 1 substances; and
 - (f) each driver of any vehicle in convoy carrying class 1 substances is verbally instructed as to the separation distance and provided with a written copy of the separation distance.
- (3) Each driver of any vehicle in convoy carrying class 1 substances must maintain the required separation distance until the vehicle reaches its intended destination.

- (4) In no circumstances may a class 1.1A substance be transported on a public road or by rail.
- (5) Nothing in this regulation or regulation 52 applies to the transportation of any class 1 (other than class 1.1A) substance in amounts equal to or less than the quantities specified for the relevant classification in table 6 of Schedule 2.

Regulation 51(1): amended, on 1 August 2008, by section 50(2) of the Land Transport Management Amendment Act 2008 (2008 No 47).

Regulation 51(1): amended, on 1 December 2004, by section 19(2) of the Land Transport Management Amendment Act 2004 (2004 No 97).

Regulation 51(2)(b): substituted, on 28 August 2003, by regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 51(2)(ba): inserted, on 28 August 2003, by regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Regulation 51(2)(c): substituted, on 28 August 2003, by regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

51A Acceptable means of compliance with regulation 51(2)(b)

An acceptable means of meeting the requirements of regulation 51(2)(b) is—

- (a) for vehicles carrying more than 50 kg (gross weight) of substances in classes 1.1B or 1.2B, or more than 250 kg (gross weight) of substances in classes 1.1 (other than 1.1B), 1.2 (other than 1.2B), or 1.3, a vehicle for which—
 - (i) the whole of the exhaust pipe, and the fuel tank containing fuels with a flash point less than 60°C, is separated from the class 1 substances by a fire-resisting screen; and
 - (ii) the underside of the tray holding the class 1 substances and the area at the front of the tray facing the cab is covered with 1.5 mm iron sheet, or the cab itself is of fire-resisting construction; and
 - (iii) the tray is constructed of material unable to generate a spark and is enclosed:
- (b) for vehicles carrying more than 250 kg (gross weight) of substances in classes 1.1B or 1.2B, or more than 2 000 kg (gross weight) of substances in classes 1.1 (other than 1.1B), 1.2 (other than 1.2B), or 1.3, a vehicle for which, in addition to the requirements under applicable under paragraph (a):
 - (i) the substances are contained in a standard ISO transport container that is fixed to the vehicle by locked twist locks; or
 - (ii) the substances are enclosed in a solid walled vehicle with a locked door.

Regulation 51A: inserted, on 28 August 2003, by regulation 20 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

52 Requirements to be met during interruptions of transportation

- (1) A road vehicle transporting a class 1 substance must not stop during transportation, except as a result of an accident, incident, emergency, or need for urgent refuelling, or as required under the Land Transport Act 1998 or any regulations or rules made under that Act.
- (2) If a road vehicle transporting a class 1 substance is stopped for any reason,—
 - (a) the duration of the stop must be minimised; and
 - (b) during the stop, the substance must be managed according to the requirements for Level 3 emergency management planning as required under Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001.
- (3) This regulation is subject to the provisions of the Land Transport Act 1998 and any regulations or rules made under that Act.

Regulation 52(1): amended, on 10 May 2011, by section 100(3) of the Land Transport (Road Safety and Other Matters) Amendment Act 2011 (2011 No 13)

Regulation 52(3): substituted, on 10 May 2011, by section 100(3) of the Land Transport (Road Safety and Other Matters) Amendment Act 2011 (2011 No 13)

52A Exemptions from transportation requirements for certain substances

Regulations 51 and 52 do not apply to the following substances:

- (a) safety ammunition, including pre-primed cartridges and primers, of class 1.4S:
- (b) airbag initiators and seatbelt pretensioners of class 1.4G or 1.4S:
- (c) cable cutters of class 1.4S (UN 0070):
- (d) power device cartridges of class 1.4S (UN 0323):
- (e) signal tubes or shock tubes of class 1.4S (UN 0349):
- (f) cassette degradation devices of class 1.4S (UN 0432).

Regulation 52A: inserted, on 28 August 2003, by regulation 21 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Part 4**Controls on class 2, 3, and 4 hazardous substances****53 General outline of Part 4**

The controls on class 2, 3, and 4 hazardous substances comprise—

- (a) general controls on class 2, 3, and 4 substances, as set out in regulations 54 to 76; and
- (b) controls on places where class 2, 3, and 4 substances may be, as set out in regulations 77 to 83.
- (c) *[Revoked]*

Regulation 53(b): amended, on 26 March 2004, by regulation 3(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 53(c): revoked, on 26 March 2004, by regulation 3(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

54 Definitions specific to Part 4

In this Part, unless the context otherwise requires,—

AS refers to the Australian standard

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

AS 2430.1: 1987 means the Australian standard on *Classification of hazardous areas Part 1: Explosive gas atmospheres*

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/NZS 2381.1: 1999 means the standard on *Electrical equipment for explosive atmospheres—Selection, installation and maintenance, Part 1: General requirements*

AS/NZS 2430.3 refers to the following:

- (a) AS/NZS 2430.3:1 1997 *Classification of hazardous areas: examples of area classification: General:*
- (b) AS/NZS 2430.3:2 1997 *Classification of hazardous areas: examples of area classification: Vehicle workshops, vehicle parking, fuel dispensing stations and aircraft hangars:*
- (c) AS/NZS 2430.3:3 1997 *Classification of hazardous areas: examples of area classification: Flammable liquids:*
- (d) AS/NZS 2430.3:4 1997 *Classification of hazardous areas: examples of area classification: Flammable gases:*
- (e) AS/NZS 2430.3:5 1997 *Classification of hazardous areas: examples of area classification: Refineries and major installations:*
- (f) AS/NZS 2430.3:6 1997 *Classification of hazardous areas: examples of area classification: Laboratories including fume cupboards and flammable medical agents:*
- (g) AS/NZS 2430.3:7 1997 *Classification of hazardous areas: examples of area classification: Landfill gas, sewage treatment and sewage pumping plants:*
- (h) AS/NZS 2430.3:8 1997 *Classification of hazardous areas: examples of area classification: Surface coatings and adhesives:*

- (i) AS/NZS 2430.3:9 1997 *Classification of hazardous areas: examples of area classification: Miscellaneous*

AS/NZS 4360: 1999 means the standard on *Risk Management*

AS/NZS Draft Standard 9832.CDR refers to the draft standard on *The storage and handling of class 4 dangerous goods*

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, in relation to any class 2.1.1, 2.1.2, or 3.1 substances, 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, in relation to a class 2, 3, or 4 substance or material, means that, in the absence of an ignition source, that substance or material—

- (a) is chemically inert in relation to another class 2, 3, or 4 substance for the range of temperatures and pressures at which the substances are brought into contact; or
- (b) if the substance or material does react with the other class 2, 3, or 4 substance, it does so in a way that does not cause or contribute to a fire or explosion; or
- (c) when mixed with another class 2, 3, or 4 substance, does not lead to a substance of a different hazardous property, or type or degree of hazard; or
- (d) is not listed as incompatible in table 1 of Schedule 3

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

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*

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

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

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 New Zealand Standard published by the Standards Association of New Zealand; and **NZS 6101.1: 1988** refers to the standard on *Classification of Hazardous Areas: Part 1: Flammable Gas and Vapour Atmospheres*

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

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

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)

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.

55 General limits on class 2, 3, and 4 substances

Where a class 2, 3, or 4 substance is present at a place in a quantity that exceeds that specified for the relevant substance in table 4 of Schedule 3 for more than—

- (a) 18 hours if the substance is not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001; or

- (b) 2 hours if the substance is subject to the tracking provisions of those regulations,—

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

56 Certain class 2, 3, and 4 substances to be under control of approved handlers

- (1) Class 2, 3, and 4 substances that are listed in table 2 of Schedule 3 must, when in quantities greater than those listed in that table, be—
- (a) under the personal control of an approved handler; or
- (b) unless otherwise provided in these regulations,—
- (i) be secured to the standard of security specified in regulation 74, in the case of class 4.1.2A, 4.1.2B, 4.1.2C, or 4.1.2D substances; or
- (ii) be able to be secured so that a person cannot gain access to the substances without tools, keys, or any other device used for operating locks, in the case of any other class 2, 3, or 4 substance.
- (2) Class 2, 3, and 4 substances required to be under the personal control of an approved handler may however be handled by a person who is not an approved handler if—
- (a) *[Revoked]*
- (b) the approved handler has provided guidance to the person in respect of the handling; and
- (c) the approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.

Regulation 56(1)(b): substituted, on 26 March 2004, by regulation 4(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 56(2)(a): revoked, on 26 March 2004, by regulation 4(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

57 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.

Controls on class 2.1.1, 2.1.2, and 3.1 substances

58 Requirement to establish a hazardous atmosphere zone

At any place containing class 2.1.1A, 2.1.1B, 2.1.2A, 3.1A, 3.1B, or 3.1C substances in quantities in excess of those specified in table 3 of Schedule 3, the

person in charge of the substances must ensure that a hazardous atmosphere zone is established that complies with—

- (a) AS/NZS 2430.3; or
- (b) AS 2430.1: 1987 and NZS 6101.1: 1988; or
- (c) a code of practice approved by the Authority that specifies hazardous atmosphere zones equivalent to the requirements specified in paragraphs (a) and (b) and takes into account the risk of the presence of flammable materials.

Regulation 58: amended, on 26 March 2004, by regulation 5 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

59 Application of other 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 controls imposed on that installation or appliance under the Act are the same controls as 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.
- (2) *[Revoked]*
- (3) Where electrical equipment is installed on a ship, vessel, or boat (other than a pleasure vessel containing connectible installations), the controls imposed on that electrical equipment under the Act are the same controls as are included in those parts of the Maritime Rules made under the Maritime Transport Act 1994 that relate to hazardous areas.
- (4) If electrical equipment is installed on any train, locomotive, tram, or trolley bus, the controls imposed on that electrical equipment under the Act are the same controls as are included in those parts of the following enactments that relate to hazardous areas:
 - (a) the Land Transport Act 1998 or the regulations or the rules made under that Act;
 - (b) the Transport Services Licensing Act 1989 or the regulations or the rules made under that Act.
- (5) Where any electrical equipment is installed on an aircraft that is under the jurisdiction of the Civil Aviation Rules, the controls imposed on that electrical equipment under the Act are the same controls as 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 controls imposed on that electrical equipment under the Act are the same controls as 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) *[Revoked]*

Regulation 59(2): revoked, on 16 December 2013, by regulation 236(2) of the Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013 (SR 2013/483).

Regulation 59(4): substituted, on 1 October 2007, by section 95(8) of the Land Transport Amendment Act 2005 (2005 No 77).

Regulation 59(8): revoked, on 16 December 2013, by regulation 236(2) of the Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013 (SR 2013/483).

60 Requirements to reduce likelihood of unintended ignition of class 2.1.1, 2.1.2, and 3.1 substances

(1) Unless a class 2.1.1, 2.1.2, or 3.1 substance 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 substance under the sets of conditions specified in any one of regulations 61, 63, 65, 67, and 69; and
- (b) where regulation 61 is elected, manage the substance under the conditions specified in subclause (2) or subclause (6) of that regulation; and
- (c) where regulation 63 is elected, manage the substance under the conditions specified in either subclause (3) or subclause (4) of that regulation; and
- (d) where regulation 65 is elected, manage the substance under the conditions specified in either subclause (3) or subclause (4) of that regulation; and
- (e) ensure that the requirements of the chosen regulation are complied with in full; and
- (f) record which regulation the substance is being managed under, and have that record available for inspection.

(2) Despite the requirements of regulation 56, any person handling a class 2.1.1, 2.1.2, or 3.1 substance under any of regulations 63(4), 65, 67, and 69 must be an approved handler for that substance.

Regulation 60(1): amended, on 26 March 2004, by regulation 6(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 60(1)(b): substituted, on 26 March 2004, by regulation 6(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 60(2): amended, on 26 March 2004, by regulation 6(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

61 Circumstances involving control of ignition sources available to class 2.1.1, 2.1.2, and 3.1 substances

- (1) Every person who elects under regulation 60(1) to manage under this regulation a class 2.1.1, 2.1.2, or 3.1 substance by controlling ignition sources (but not the proportion of flammable vapour or gas to air) must ensure that in any place the substance is located the requirements of this regulation are met.
- (2) Where a class 2.1.1, 2.1.2, or 3.1 substance is within any hazardous atmosphere zone,—
 - (a) the temperature of the substance and the temperature of any surface in contact with the substance must not exceed 80% of the auto-ignition temperature in °C for that substance; 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 M Ω , for components that have an electrical resistance greater than or equal to 1 M Ω ; and
 - (ii) 10 Ω , for components that have an electrical resistance of between 10 Ω and 1 M Ω ; and
 - (c) the substance must be managed under one of the 3 sets of conditions set out in subclauses (3), (4), and (5) respectively.
- (3) SET OF CONDITIONS 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 vapour or gas to air less than 10% of the minimum ignition energy of the substance in air.
- (4) SET OF CONDITIONS 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 vapour or gas to air less than 25% of the minimum ignition energy of the substance in air; and
 - (b) persons managing substances with flammable properties in accordance with paragraph (a) must operate in accordance with a code of practice approved under section 78 of the Act as meeting the requirements of that paragraph for the purposes of this subclause.
- (5) SET OF CONDITIONS 3:
In any situation except situations covered by regulation 59, 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 or vapour/air mixture formed from the substances present.

- (6) At any place where the quantity of class 2.1.1, 2.1.2, or 3.1 substances present is not sufficient to require the establishment of a hazardous atmosphere zone but where—
- (a) the concentration of vapour or gas may exceed 25% of the LEL; and
 - (b) flammable gases or liquids 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 vapour or gas to air less than 10% of the minimum ignition energy of the substance in air; and
 - (d) the temperature of the substance, or the temperature of any surface in contact with the substance must not exceed 80% of the auto-ignition temperature for that substance.

62 Methods of complying with regulation 61

- (1) In the case of an electrical ignition source, compliance with 1 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 regulation 61(5).
- (2) The requirements of regulation 61(2)(a) are met if either—
 - (a) there is compliance with section 2.4.3 of AS/NZS 2381.1: 1999 relating to the matters described in regulation 61(2)(a); or
 - (b) any equipment and any surface in contact with the substance conform to the temperatures given in table 5 of Schedule 3, and the temperature of the substance is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 meets the requirement of regulation 61(2)(b) for the dissipation of static electricity from components that have an electrical resistance of between 10 Ω and 1 MΩ.

Regulation 62(1): amended, on 26 March 2004, by regulation 7 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

63 Circumstances involving control of both proportion of vapour or gas to air and amount of energy available

- (1) Every person who elects under regulation 60(1) to manage under this regulation a class 2.1.1, 2.1.2, or 3.1 substance by controlling both the proportion of flammable vapour or flammable gas to air, and the amount of energy available, must ensure that in any place the substance is located the requirements of this regulation are met.
- (2) A class 2.1.1, 2.1.2, or 3.1 substance must be managed under one of the 2 sets of conditions set out in subclauses (3) and (4) respectively.
- (3) SET OF CONDITIONS 1:

- (a) the proportion of flammable vapour or 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 vapour or gas to air less than 25% of the minimum ignition energy of the substance in air; or
 - (ii) in any situation except situations covered by regulation 59, any ignition source located in an area where flammable vapour or 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 or vapour/air mixture formed from the substances present.
- (4) SET OF CONDITIONS 2:
 - (a) the proportion of flammable vapour 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 vapour to meet the requirements of paragraph (a); and
 - (c) persons managing substances with flammable properties according to this subclause must operate in accordance with a code of practice approved under section 78 as 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 vapour or gas to air less than 50% of the minimum ignition energy of the substance 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 regulation 59, any ignition source located in an area where flammable vapour or 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 or vapour/air mixture formed from the substances present.
- (5) The temperature of the substance and the temperature of any surface in contact with the substance must not exceed 80% of the auto-ignition temperature for that substance.
- (6) At any place where a class 2.1.1A, 2.1.2A, 3.1A, 3.1B, or 3.1C substance is present in quantities greater than that specified in table 3 of Schedule 3 for the

relevant substance, 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 M Ω , for dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 M Ω ; and
- (b) 10 Ω , for the dissipation of static electricity from components that have an electrical resistance of less than 1 M Ω .

64 Methods of complying with regulation 63

- (1) In the case of an electrical ignition source, compliance with 1 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 regulation 63(3)(b)(ii) and (4)(d)(ii).
- (2) The requirements of regulation 63(5) are met if either—
 - (a) there is compliance with section 2.4.3 of AS/NZS 2381.1: 1999 relating to the matters described in regulation 63(5); or
 - (b) any equipment and any surface in contact with the substance conform to the temperatures given in table 5 of Schedule 3, and the temperature of the substance is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of regulation 63(6) for the dissipation of static electricity from components that have an electrical resistance of between 10 Ω and 1 M Ω .

Regulation 64(1): amended, on 26 March 2004, by regulation 8 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

65 Circumstances involving control of proportion of vapour or gas to air, but not level of energy

- (1) Every person who elects under regulation 60(1) to manage under this regulation a class 2.1.1, 2.1.2, or 3.1 substance by controlling the proportion of vapour or gas to air (but not the level of energy) must ensure that, in any place such a substance is located, the requirements of this regulation are met.
- (2) A class 2.1.1, 2.1.2, or 3.1 substance must be managed under one of the 2 sets of conditions set out in subclauses (3) and (4).
- (3) SET OF CONDITIONS 1:
The proportion of vapour or gas to air must at all times be kept below 10% of the LEL or above 10 times the UEL.
- (4) SET OF CONDITIONS 2:
Where the proportion of vapour or gas to air may be greater than 10% of the LEL or less than 10 times the UEL,—
 - (a) the proportion of vapour 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 vapour to meet the requirements of paragraph (a); and
- (c) persons managing substances with flammable properties 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.

66 Methods of complying with regulation 65

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 regulation 65(4), is a means of meeting the requirements of regulation 65(4).

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

- (1) Every person who elects under regulation 60(1) to manage under this regulation a flammable gas of class 2.1.1 or 2.1.2, or the flammable vapour of a class 3.1 substance, 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 substance is located, the requirements of this regulation are met.
- (2) A $RLEL_{(O)}$ and a $RUEL_{(O)}$ applicable to the proportion of flammable vapour or flammable gas to oxygen present must be established by the person in charge of the substance, 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 vapour or gas of class 2.1.1, 2.1.2, or 3.1 substance 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 paragraph (b), there must be a system in place to continuously monitor and control—
 - (i) the proportion of oxygen present; and
 - (ii) the proportion of vapour or gas to oxygen present.
- (3) In a place where the substance is present in concentrations greater than 10% $RLEL_{(O)}$, the requirements of either of the following paragraphs 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 vapour or gas to oxygen-enriched air less than 25% of the revised minimum ignition energy; or
 - (b) in any situation except situations covered by regulation 59, any ignition source located within the area where flammable vapour or 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 or vapour/air mixture formed from the substances 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 substance and of any surface in contact with the substance must be below 80% of the revised auto-ignition temperature for that substance and oxygen level; and
 - (c) there must be a system in place to continuously monitor and control the temperature of the substance and of any surface in contact with the substance to meet the requirements of paragraph (b).
- (5) At any place where a class 2.1.1A, 2.1.2A, 3.1A, 3.1B, or 3.1C substance is present in quantities greater than that specified in table 3 of Schedule 3 for the relevant substance, 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 M Ω , for gradual dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 M Ω ; and
 - (b) 10 Ω , for the dissipation of static electricity from components that have an electrical resistance of less than 1 M Ω .
- (6) The substance 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).

68 Methods of complying with regulation 67

Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of regulation 67(5)(b).

69 Circumstances where flammable vapour or 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 under regulation 60(1) to manage under this regulation a flammable gas of class 2.1.1 or 2.1.2, or the flammable vapour of a class

- 3.1 substance, 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 substance is located the requirements of this regulation are met.
- (2) In the place, the person in charge of the substance must ensure that either—
- (a) at all times the proportion of flammable gas of class 2.1.1 or 2.1.2 substance to air, or flammable vapour of a class 3.1 substance 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 of class 2.1.1 or 2.1.2 to oxygen present, or flammable vapour of a class 3.1 substance 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 vapour or 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 vapour or gas to oxygen present, to meet the requirements of subparagraph (ii).
- (3) In the place, the person in charge of the substance 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 vapour or gas to air less than 25% of the minimum ignition energy; or
 - (b) in any situation except situations covered by regulation 59, any ignition source located in the area where flammable vapour or 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 or vapour/air mixture formed from the substances present.
- (4) In the place, the person in charge of the substance must ensure that either—
- (a) the temperature of the substance and of any surface in contact with the substance does not exceed 80% of the auto-ignition temperature for that substance; 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 substance and of any surface in contact with the substance must be below 80% of the revised auto-ignition temperature; and
 - (ii) there must be a system in place to continuously monitor and control the proportion of oxygen to air present, and the temperature of the substance and the temperature of any surface in contact with the substance, to meet the requirements of subparagraph (ii).
- (5) At any place where a class 2.1.1A, 2.1.2A, 3.1A, 3.1B, or 3.1C substance is present in quantities greater than that specified in table 3 of Schedule 3 for the relevant substance, 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 M Ω , for dissipation of static electricity from components that have an electrical resistance greater than or equal to 1 M Ω ; and
 - (b) 10 Ω , for the dissipation of static electricity from components that have an electrical resistance of less than 1 M Ω .

70 Methods of complying with regulation 69

- (1) In the case of an electrical ignition source, compliance with any one of the explosion-protection techniques, or a combination of explosion-protection techniques, listed in table 2.1 of AS 2380.1: 1989 relating to matters described in regulation 69(3)(b) are a means of meeting the requirements of regulation 69(3)(b).
- (2) The requirements of regulation 69(4) are met if either—
 - (a) there is compliance with section 2.4.3 of AS/NZS 2381.1: 1999 relating to the matters described in regulation 69(4); or
 - (b) any equipment and any surface in contact with the substance conform to the temperatures given in table 5 of Schedule 3, and the temperature of the substance is kept below 40°C.
- (3) Compliance with AS/NZS 1020: 1995 is a means of meeting the requirements of regulation 69(5)(b).

Regulation 70(1): amended, on 26 March 2004, by regulation 9 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Controls on class 3.2 and 4 substances

71 Limits on ignition sources

Except where the ignition of the substance is intended, no class 3.2 or 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.

Regulation 71: substituted, on 26 March 2004, by regulation 10 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

72 Specific limits on temperature

- (1) In any place where a class 3.2, 4.1.1, 4.1.3, 4.2, or 4.3 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 6 of Schedule 3 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 6 of Schedule 3 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.

Requirements to reduce likelihood of unintended ignition of class 3.2 and certain class 4 substances

73 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*.

Regulation 73: amended, on 26 March 2004, by regulation 11 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

74 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 regulation 56(1) 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), (6), and (7), and of regulations 71, 72, and 76; 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 substance exceeds the amounts specified in table 4 of Schedule 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 shock that could result in an explosion or fire.
- (6) *[Revoked]*
- (7) 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*.
- (8) 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.

Regulation 74(1): substituted, on 26 March 2004, by regulation 12(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 74(5): substituted, on 26 March 2004, by regulation 12(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 74(6): revoked, on 26 March 2004, by regulation 12(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

75 Requirements to reduce likelihood of unintended ignition of class 3.2 and 4.1.3 substances

The person in charge of a class 3.2 or 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 paragraph (a).

Segregation of incompatible substances

76 Segregation requirements for class 2, 3, and 4 substances

- (1) Except where the ignition of the substance is intended, the person in charge of a class 2, 3, or 4 substance must ensure that—
 - (a) the 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 purpose of this regulation, substances or materials specified in table 1 of Schedule 3 are incompatible with class 2, 3, or 4 substances.
- (3) This regulation 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.

Regulation 76(1): substituted, on 26 March 2004, by regulation 13(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 76(3): added, on 26 March 2004, by regulation 13(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Controls on hazardous substance locations where class 2, 3, and 4 substances present

77 Requirement to establish hazardous substance location

- (1) The person in charge of a place where any class 2, 3, or 4 substance is located must establish in that place 1 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 4 of Schedule 3; and
 - (b) for a period exceeding—
 - (i) 18 hours, in the case of a substance that is not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001;
 - (ii) 2 hours, in the case of a substance subject to the tracking provisions of those regulations.
- (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 2, 3, or 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 2, 3, and 4 substance 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 regulation 56 requires the quantity and hazard classification of a class 2, 3, or 4 substance (other than a class 4.1.2A, 2B, 2C, or 2D substance) to be under the control of an approved handler, the requirements of regulation 56 are met.
- (4) The person in charge of the hazardous substance location must ensure that—
- (a) where a test certificate is required under regulation 81 or regulation 82, a test certificate is obtained that certifies that the requirements of the relevant regulation 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 2, 3, or 4 substances; and
 - (ii) all hazardous atmosphere zones and controlled zones within the place; and
 - (c) where required under regulation 58, a hazardous atmosphere zone is established and maintained in accordance with that regulation.

Regulation 77(3): substituted, on 26 March 2004, by regulation 14 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

78 Requirements to reduce likelihood of unintended ignition of class 3.2 and 4 substances present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established by regulation 77 must ensure that,—
- (a) except where the ignition of the substance is intended, all class 3.2 and 4 substances are isolated from any ignition source by—
 - (i) a wall—
 - (A) with a fire resistance rating of 240/240/240 minutes; and
 - (B) 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) $10^6 \Omega$, for dissipation of static electricity from components that have an electrical resistance greater than or equal to $10^6 \Omega$; and
 - (ii) 10Ω for the dissipation of static electricity from components that have an electrical resistance of less than $10^6 \Omega$; and
 - (d) the requirements of regulation 76 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 Operations and Quarrying Operations) Regulations 2013 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 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 regulations.

Regulation 78 heading: amended, on 26 March 2004, by regulation 15(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 78(1)(a): substituted, on 26 March 2004, by regulation 15(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 78(2): amended, on 16 December 2013, by regulation 236(3) of the Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013 (SR 2013/483).

79 Requirements to control adverse effects of unintended ignition of class 3.2 and 4 substances present at hazardous substance location

- (1) The person in charge of a hazardous substance location at which a class 3.2 or 4 substance is present must—
- (a) establish a controlled zone around the location that complies with subclauses (2) and (3); and
 - (b) ensure that regulations 73 to 76 are complied with within the location; and
 - (c) exclude all non-authorised personnel from the controlled zone.

- (2) Where class 3.2 or 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:

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

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.

- (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 7 or table 8 of Schedule 3; 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).

80 Method of complying with regulation 79

For the purposes of regulation 79,—

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

81 Test certification requirements where class 2.1.1, 2.1.2, or 3.1 substance present at hazardous substance location or in hazardous atmosphere zone

The person in charge of a hazardous substance location where class 2.1.1, 2.1.2, or 3.1 substances are present must ensure that the location or place has a current test certificate certifying that—

- (a) the notification requirements of regulation 77 are complied with; and

- (b) where regulations 56 and 60(2) require 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 such substances, or can demonstrate that a person is available who is an approved handler for such substances; and
 - (ii) the 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) if a hazardous atmosphere zone is required by regulation 58, a hazardous atmosphere zone has been established in accordance with that regulation, and the extent of the hazardous atmosphere zone is documented; and
- (d) the requirements of regulation 76 are complied with; and
- (e) the hazardous substance location has signage in place as required by the Hazardous Substances (Identification) Regulations 2001; and
- (f) where the quantity of substance requires it, regulations 21 to 23 and Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001 are complied with; and
- (g) the requirements of regulation 77(4) are complied with.

Regulation 81: amended, on 26 March 2004, by regulation 16(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 81(b)(ii): substituted, on 26 March 2004, by regulation 16(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 81(f): amended, on 26 March 2004, by regulation 16(3)(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 81(f): amended, on 26 March 2004, by regulation 16(3)(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 81(g): added, on 26 March 2004, by regulation 16(4) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

82 Test certification requirements where class 3.2 or 4 substance present at hazardous substance location

The person in charge of a hazardous substance location where class 3.2 or 4 substances are present must ensure that the hazardous substance location has a current test certificate certifying that—

- (a) the notification requirements of regulation 77 are complied with; and
- (b) where regulation 56 requires 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 such substances, or can demonstrate that a person is available who is an approved handler for such substances; and

- (ii) the 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 regulation 72 requires temperature control, there is a temperature control plan and system in place that meets the requirements of that regulation; and
- (d) where the boundary of the controlled zone—
 - (i) is defined by a barrier as required in regulation 79; or
 - (ii) is defined by separation distances as specified in table 7 or table 8 of Schedule 3; or
 - (iii) meets the requirements of an approved code specified in regulation 79,—

that boundary complies with the barrier, distance, or code requirements; and
- (e) the requirements of regulation 77(4) are complied with; and
- (f) the requirements of regulations 73 to 76 are complied with; and
- (g) the hazardous substance location has signage in place as required by the Hazardous Substances (Identification) Regulations 2001; and
- (h) where the quantity of substance requires it, regulations 21 to 23 and Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001 are complied with.

Regulation 82(b)(ii): substituted, on 26 March 2004, by regulation 17(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 82(h): amended, on 26 March 2004, by regulation 17(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Controls on transit depots where class 2, 3, or 4 substances present

83 Requirements to be met by transit depot

- (1) At any transit depot where the quantity of class 2, 3, or 4 substances exceeds that specified for the relevant substances in table 4 of Schedule 3, 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 class 2, 3, or 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 2, 3, or 4 substances that the depot is designed to accommodate; and
 - (b) ensure that the requirements of regulation 56 are met; and

- (c) ensure that any road vehicle loaded with containers of class 2, 3, or 4 substances 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 2, 3, or 4 substances 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 class 2, 3, or 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 3 of the Hazardous Substances (Identification) Regulations 2001 areas for containment, pending disposal, of any leaked or spilled material or damaged packages.
- (2) Compliance with those parts of the Electricity Act 1992 and regulations made under that Act, the Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013, 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).

Regulation 83(1)(b): substituted, on 26 March 2004, by regulation 18(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 83(1)(d): substituted, on 26 March 2004, by regulation 18(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 83(2): amended, on 16 December 2013, by regulation 236(4) of the Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013 (SR 2013/483).

*Controls on intended combustion of class 2, 3, and 4 substances**[Revoked]*

Heading: revoked, on 26 March 2004, pursuant to regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

84 Requirements to control adverse effects of intended ignition of class 2, 3, or 4 substance*[Revoked]*

Regulation 84: revoked, on 26 March 2004, by regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

85 Requirements for protective equipment and clothing*[Revoked]*

Regulation 85: revoked, on 26 March 2004, by regulation 19 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Part 5**Controls on class 5.1.1 and 5.1.2 substances****86 General outline of Part 5**

The controls on class 5.1.1 and 5.1.2 hazardous substances comprise—

- (a) general controls on class 5.1.1 and 5.1.2 substances, as set out in regulations 88 to 93; and
- (b) controls on places where class 5.1.1 and 5.1.2 substances may be, as set out in regulations 94 to 101; and
- (c) controls on activities involving the use of class 5.1.1 and 5.1.2 substances, such as deliberate exposure, as set out in regulations 102 and 103.

87 Definitions specific to Part 5

In this Part, unless the context otherwise requires,—

compatible, in relation to a class 5.1.1 or 5.1.2 substance and its relationship with any other substance or material, means that the other substance or material—

- (a) is chemically inert in relation to the class 5.1.1 or 5.1.2 substance for the range of temperatures and pressures at which it is brought into contact with the class 5.1.1 or 5.1.2 substance; or
- (b) if it does react chemically with a class 5.1.1 or 5.1.2 substance, it does so in a way that does not cause or contribute to combustion or the expulsion of steam and hot vapours, or generate an explosion or generate a class 6, 8, or 9 substance

decomposition temperature means the temperature at which a class 5.1.1 or 5.1.2 substance will spontaneously decompose, possibly with explosive force, releasing heat and usually combustible by-products

incompatible, in relation to a class 5.1.1 or 5.1.2 substance, means another substance or material that is not compatible with the class 5.1.1 or 5.1.2 substance; and includes—

- (a) a substance that is not a class 5.1.1 or 5.1.2 substance but that is classified in class 5.2, or in any of classes 1, 2, 3, 4, 6.1A to C, or 8;
- (b) any organic matter, or substance that contains carbon, in a form that will combust with the class 5.1.1 or 5.1.2 substance;
- (c) zinc or magnesium in any form, and any other metal in powdered form;
- (d) any substance or material that will combust with air, or will combust with or catalyse the decomposition of a class 5.1.1 or 5.1.2 substance.

Regulation 87 **incompatible** paragraph (a): amended, on 26 March 2004, by regulation 20 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

88 General limits on class 5.1.1 and 5.1.2 substances

- (1) Where a class 5.1.1 or 5.1.2 substance is present at a place in a quantity that exceeds that specified for the relevant substance in table 1 or table 2 of Schedule 4 for more than—
 - (a) 18 hours, where the substance is not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001; or
 - (b) 2 hours, where the substance is subject to the tracking provisions of those regulations,—that substance must be held at a hazardous substance location or, if applicable, at a transit depot.
- (2) Unless the circumstances of regulation 102 apply, the person in charge of a class 5.1.1 or 5.1.2 substance must ensure that at all times the substance remains in a package or container of a type that—
 - (a) prevents the substance or any gas, vapour, or particular matter emitted from the substance coming into contact with any incompatible substance or ignition source; and
 - (b) enables the requirements of regulation 91 to be met.

89 Certain class 5.1.1 and 5.1.2 substances to be under control of approved handlers

- (1) If a class 5.1.1 or 5.1.2 substance listed in table 3 of Schedule 4 is present at any place in quantities greater than those listed in that table, it must be under the personal control of an approved handler or secured so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks.

- (2) Despite subclause (1), a class 5.1.1 or 5.1.2 substance required to be under the personal control of an approved handler may nevertheless be handled by a person who is not an approved handler if—
- (a) *[Revoked]*
 - (b) the approved handler has provided guidance to the person in respect of the handling; and
 - (c) the approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.

Regulation 89(2)(a): revoked, on 26 March 2004, by regulation 21 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

90 Methods by which certain requirements may be met

Where a class 5.1.1 or 5.1.2 substance is present at a hazardous substance location or transit depot in circumstances where these regulations 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.

General controls on class 5.1.1 and 5.1.2 substances

91 Requirements to reduce likelihood of unintended combustion or explosion of class 5.1.1 or 5.1.2 substances

- (1) Every class 5.1.1 or 5.1.2 substance, including any class 5.1.1 or 5.1.2 substance in the form of a gas, vapour, or particulate matter,—
- (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
 - (ba) must be stored in a sealed package or container; and
 - (c) 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 regulation 102.
- (2) The temperature of a class 5.1.1 or 5.1.2 substance 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 regulation 102.

Regulation 91(1)(ba): inserted, on 26 March 2004, by regulation 22 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 91(1)(c): substituted, on 26 March 2004, by regulation 22 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

92 Equipment or clothing

- (1) The person in charge of a class 5.1.1 or 5.1.2 substance must ensure that any equipment or clothing that is directly used to handle the substance is designed, constructed, and operated in such a way that the substance—
 - (a) does not make direct contact with any incompatible substance or material; and
 - (b) does not accumulate in or on the equipment or clothing beyond any accumulation that is directly associated with its intended design and use, as indicated in the documentation provided under subclause (2)(b); and
 - (c) is not exposed to sufficient energy to cause combustion,—
unless the contact or exposure is intended or anticipated, in which case the requirements of regulation 102 apply.
- (2) The equipment or clothing must—
 - (a) be designed and constructed of materials that, in the circumstances in which the substance is being used or handled,—
 - (i) cannot be degraded, attacked, or combusted by the class 5.1.1 or 5.1.2 substance; or
 - (ii) are resistant to such degradation, attack, or combustion for the time specified by the supplier of the equipment or clothing; and
 - (b) be accompanied by documentation that gives sufficient instruction on use and maintenance of the equipment or clothing to enable it to be maintained and used in a manner that meets the requirements of this regulation.
- (3) In relation to the circumstances described in subclause (2)(a), relevant matters include the range of temperatures and pressures and the presence of other substances likely to be encountered when used as described in the documentation provided under subclause (2)(b).
- (4) The documentation specified in subclause (2)(b) must meet the location and presentation requirements for documentation specified in Part 2 of the Hazardous Substances (Identification) Regulations 2001.

93 Requirements to control adverse effects of spills or failure of containers

- (1) Any spill or leak of a class 5.1.1 substance that is in a solid or liquid form must be immediately—
 - (a) absorbed or diluted using compatible absorbents or diluents; or
 - (b) otherwise recovered.
- (2) Any absorbed, diluted, or otherwise recovered substance must be—

- (a) disposed of according to the requirements for the disposal of class 5.1.1 substances specified in the Hazardous Substances (Disposal) Regulations 2001; or
 - (b) analytically tested and recorded as being free of any incompatible substance.
- (3) Any absorbents, equipment, or clothing used to recover the class 5.1.1 substance must also be disposed of according to the requirements for the disposal of such substances specified in the Hazardous Substances (Disposal) Regulations 2001, if the class 5.1.1 substance has not been removed from the absorbent, equipment, or clothing.

Controls on hazardous substance locations where class 5.1.1 or 5.1.2 substances present

94 Requirements to establish hazardous substance location where class 5.1.1 or 5.1.2 substances present

- (1) The person in charge of a place where any class 5.1.1 or 5.1.2 substances are present must establish in that place 1 or more hazardous substance locations where such substances are to be situated, or to be manufactured or used, if—
- (a) the substances are to be present for a period exceeding—
 - (i) 18 hours, in the case of substances that are not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001;
 - (ii) 2 hours, in the case of substances subject to the tracking provisions of those regulations; and
 - (b) the substances are to be present in amounts exceeding the quantities specified for the relevant classifications in—
 - (i) table 1 of Schedule 4, where the packages containing the substances are kept closed at all times; or
 - (ii) table 2 of Schedule 4, where the substances are being manufactured or used.
- (2) Separate hazardous substance locations must be established for—
- (a) places where class 5.1.1 or 5.1.2 substances are to be kept in packages that are closed at all times; and
 - (b) places where class 5.1.1 or 5.1.2 substances are to be manufactured or used.
- (3) The person in charge of a hazardous substance location must notify an enforcement officer responsible for 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 an area for accommodating class 5.1.1 or 5.1.2 substances, of—

- (a) the street address of the place in which the hazardous substance location is situated; and
 - (b) the maximum quantity and hazard classification of class 5.1.1 or 5.1.2 substance that the hazardous substance location is designed or constructed to accommodate; and
 - (c) any manufacturing or use involving class 5.1.1 or 5.1.2 substances that may occur at the location.
- (4) Despite regulation 89, the person in charge of a hazardous substance location must ensure that the requirements of regulation 89 are met.
- (5) The person in charge of a hazardous substance location must further ensure that—
- (a) where a test certificate is required under regulation 98, a test certificate is obtained that certifies that the requirements of that regulation 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 class 5.1.1 or 5.1.2 substances; and
 - (ii) all controlled zones within the place.
- (6) For the purposes of this Part, **use** includes removing a hazardous substance from, or putting it into, a package or container.

Regulation 94(4): amended, on 26 March 2004, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 94(4)(a): revoked, on 26 March 2004, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 94(4)(b): revoked, on 26 March 2004, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

95 Requirements to reduce likelihood of unintended ignition where class 5.1.1 and 5.1.2 substances present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established by regulation 94 must ensure that—
- (a) the temperature of the immediate area around the class 5.1.1 and 5.1.2 substances complies with the relevant requirements of regulation 91(2); and
 - (b) the area around the class 5.1.1 and 5.1.2 substances is free of incompatible substances and separated from these by—
 - (i) a wall—
 - (A) with a fire resistance rating of 120/120/120 minutes; and

- (B) 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 4 of Schedule 4, or, where the amount of substance is less than the amount specified in the relevant 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 subparagraph (i) or subparagraph (ii) of this paragraph and of regulation 97; and
 - (c) the substance is separated from ignition sources by the appropriate distance specified in table 5 of Schedule 4, or by a wall as described in paragraph (b)(i); and
 - (d) any area where particulate matter or vapour from a substance in class 5.1.1 or a gas in class 5.1.2A is likely to form (including any ventilation outlet or aperture) is separated from any ignition source to the degree provided in paragraph (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 a class 5.1.1 or 5.1.2 substance is prevented; and
 - (iii) accumulation of a class 5.1.1 or 5.1.2 substance on clothing or on or in any equipment inside the location is prevented, unless—
 - (A) the equipment or clothing complies with regulation 92 or regulation 103; and
 - (B) any material that has so accumulated is collected and removed from the location immediately; and
 - (C) the requirements of regulation 93(2) and (3) are met; 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 vapour, gas, or particulate matter of class 5.1.1 or 5.1.2 substances is not able to make contact with any electrical circuit or equipment within the location, or otherwise make contact with an ignition source should the circuit or equipment become faulty.
- (2) Except as regulation 96(1)(a) otherwise allows, every package or container containing a class 5.1.1 or 5.1.2 substance within a hazardous substance location must be kept closed at all times (except for any permanently open vent in the package or container).

(3) *[Revoked]*

(4) *[Revoked]*

Regulation 95(1): amended, on 26 March 2004, by regulation 24(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 95(1)(b)(i): substituted, on 26 March 2004, by regulation 24(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 95(3): revoked, on 26 March 2004, by regulation 24(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 95(4): revoked, on 26 March 2004, by regulation 24(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

96 Extra requirements for hazardous substance location where class 5.1.1 or 5.1.2 substance to be manufactured or used

(1) The person in charge of a hazardous substance location where class 5.1.1 or 5.1.2 substances are manufactured or used must ensure that, in addition to the requirements of regulation 95, the following requirements are met in relation to the location:

- (a) within the location, every package or container containing a class 5.1.1 or 5.1.2 substance must be kept closed except for when the substance is being taken from or put into its package or container;
- (b) no person is exposed to a class 5.1.1 or 5.1.2 substance unless protected by clothing or equipment that meets the requirements of regulation 103;
- (c) arrangements are in place that will ensure that every person leaving the hazardous substance location is free of such substances.

(2) The person in charge of a hazardous substance location where class 5.1.1 or 5.1.2 substances are manufactured or used must ensure that it is separated from any other such hazardous substance location by—

- (a) a distance of not less than that specified in table 5 of Schedule 4; 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.

Regulation 96(2): substituted, on 26 March 2004, by regulation 25 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

97 Requirements to be met by person in charge of hazardous substance location to control adverse effects of unintended combustion or explosion

(1) The person in charge of a hazardous substance location where class 5.1.1 or 5.1.2 substances 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 regulation 102, except where the requirements of regulation 103 are met; and
 - (c) one of the following requirements or sets of requirements is met:
 - (i) the requirements of regulation 95(1)(b)(i) and (c); or
 - (ii) the requirements of regulation 95(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 regulation 102.
- (2) The person in charge of the hazardous substance location must also ensure that, within the controlled zone, the requirements of regulation 95(1)(d), (e), and (f) or, if applicable, regulation 96, 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 hazardous substance, 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 regulation 95(1)(b)(i); or
 - (b) a distance that corresponds to the distance from incompatible substances described in regulation 95(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 regulation 102.

98 Test certification requirements at hazardous substance location

Every hazardous substance location where more than the following quantities of substance in the following hazard classifications are present must have a current test certificate that certifies compliance with the requirements specified in regulation 99, or, where applicable, regulation 100:

- (a) 50 kg or 50 L of class 5.1.1A substance; or
- (b) 500 kg or 500 L of class 5.1.1B substance; or
- (c) 1 000 kg of class 5.1.1C substance; or
- (d) 100 kg (where a non-permanent gas) or 200 m³ (where a permanent gas) of class 5.1.2A substance.

Regulation 98(c): amended, on 26 March 2004, by regulation 26(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 98(d): amended, on 26 March 2004, by regulation 26(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

99 Matters to be certified for hazardous substance location where containers kept closed at all times or containers designed to be vented

Where a test certificate is required for a hazardous substance location under regulation 98, the certificate must certify that, for the hazardous substance location,—

- (a) the notification requirements of regulation 94 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 such substances, or can demonstrate that there is available a person who is an approved handler for such substances; and
- (ba) the substances can be secured so that a person cannot gain access to the substances without tools, keys, or any other device for operating locks; and
- (c) a site plan is available for inspection that complies with the requirements of regulation 94(5)(b); and
- (d) the requirements of regulation 95(1)(a) to (d) and (f) and 95(2) are complied with; and
- (e) the requirements of regulation 97 are complied with; and
- (f) any fixed structure or installed equipment within the location is constructed from compatible material and is not an ignition source; and
- (g) any equipment or clothing present complies with the requirements of regulations 92 and 103; and
- (h) there are documented procedures to ensure that the requirements of regulation 95(1)(e) are complied with; and
- (i) the location has signage in place as required by the Hazardous Substances (Identification) Regulations 2001; and
- (j) where the quantity of hazardous substance requires, the requirements for emergency management specified in Parts 3 and 4 of the Hazardous Substances (Emergency Management) Regulations 2001 are met.

Regulation 99(b): substituted, on 26 March 2004, by regulation 27 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 99(ba): inserted, on 26 March 2004, by regulation 27 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

100 Matters to be certified for hazardous substance location where class 5.1.1 or 5.1.2 substances manufactured or used

Where a test certificate is required for a hazardous substance location under regulation 98, and where that hazardous substance location or any part of that location is one where class 5.1.1 or 5.1.2 substances are manufactured or used, the test certificate must, in addition to certifying the matters specified in regu-

lation 99, also certify that there are documented procedures to ensure that every person leaving the location is free of any class 5.1.1 or 5.1.2 substance.

Controls on transit depots where class 5.1.1 or 5.1.2 substances present

101 Requirements to be met by transit depot

- (1) At any transit depot where the quantity of class 5.1.1 or 5.1.2 substance exceeds that specified for the relevant substance in table 1 of Schedule 4, 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 class 5.1.1 or 5.1.2 substances, 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 class 5.1.1 and 5.1.2 substances that the depot is designed or constructed to accommodate; and
 - (b) ensure that all class 5.1.1 and 5.1.2 substances remain within their closed containers; and
 - (c) ensure that the requirements of regulation 89 are met; and
 - (d) ensure that any road vehicle loaded with containers of class 5.1.1 or 5.1.2 substances 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 class 5.1.1 or 5.1.2 substances 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 substance, or its container or packaging; and

- (g) designate, and clearly identify with signs that meet the requirements of Part 3 of the Hazardous Substances (Identification) Regulations 2001, areas for containment, pending disposal, of any leaked or spilled material or damaged packages.
- (2) *[Revoked]*
- (3) *[Revoked]*
- Regulation 101(1)(c): substituted, on 26 March 2004, by regulation 28(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).
- Regulation 101(1)(e): substituted, on 26 March 2004, by regulation 28(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).
- Regulation 101(2): revoked, on 26 March 2004, by regulation 28(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).
- Regulation 101(3): revoked, on 26 March 2004, by regulation 28(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

General requirements to control adverse effects of intended combustion or explosion of class 5.1.1 and 5.1.2 substances

102 Requirements to control adverse effects where combustion intended, or contact with incompatible substances or ignition sources or exposure to temperature anticipated

- (1) This regulation applies in circumstances where—
- (a) a class 5.1.1 or 5.1.2 substance is to be deliberately contacted with an incompatible substance or an ignition source; or
- (b) such a substance is to be exposed to a temperature that exceeds the limits specified in regulation 91(2); or
- (c) it is reasonable to expect that the circumstances referred to in paragraphs (a) and (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 in regulation 103, 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.

103 Protective clothing or equipment

- (1) Protective clothing or equipment must be used at any time when—
- (a) a class 5.1.1 or 5.1.2 substance comes into contact with an ignition source or an incompatible substance or material, or may be exposed to a greater temperature than the limit set in regulation 91(2); or

- (b) it is reasonable to expect that such contact or exposure might accidentally occur.
- (2) The protective clothing or equipment must—
 - (a) be designed, constructed, and operated so as to prevent—
 - (i) the substance making direct contact with the wearer or user; and
 - (ii) the wearer or user being exposed to more than the level of heat radiation prescribed in regulation 102; and
 - (b) meet the requirements of regulation 92(2), (3), and (4).

Part 6

Controls on class 5.2 substances

104 General outline of Part 6

The controls on class 5.2 substances comprise—

- (a) general controls on class 5.2 substances, as set out in regulations 106 to 115; and
- (b) controls on places where class 5.2 substances may be, as set out in regulations 116 to 124; and
- (c) controls on activities involving the use of class 5.2 substances, such as deliberate exposure, as set out in regulations 125 and 126.

105 Definitions specific to Part 6

In this Part, unless the context otherwise requires,—

compatible, in relation to any class 5.2 substance and its relationship with any other substance or material, means that the other substance or material—

- (a) is chemically inert in relation to the class 5.2 substance for the range of temperatures and pressures at which it is brought into contact with the class 5.2 substance; or
- (b) if it does react chemically with a class 5.2 substance, it does so in a way that does not cause or contribute to combustion or the expulsion of steam and hot vapours, or generate an explosion or generate a class 6, 8, or 9 substance

decomposition temperature means the temperature at which a class 5.2 substance will spontaneously decompose, possibly with explosive force, releasing heat and usually combustible by-products

incompatible, in relation to a class 5.2 substance, means another substance or material that is not compatible with the class 5.2 substance, and includes—

- (a) a substance that is not a class 5.2 substance but that is classified in any of classes 1, 2, 3, 4, 5.1.1, 5.1.2, 6.1A to C, or 8:

- (b) zinc or magnesium in any form, and any other metal in powdered form:
- (c) any substance or material that will combust with air, or will combust with or catalyse the decomposition of the class 5.2 substance

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.

Regulation 105 **incompatible** paragraph (a): amended, on 26 March 2004, by regulation 29 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

106 General limits on class 5.2 substances

- (1) Where a class 5.2 substance is present at a place in a quantity that exceeds that specified for the relevant substance in table 1 of Schedule 5 for more than—
 - (a) 18 hours, where the substance is not subject to the tracking provisions of Hazardous Substances (Tracking) Regulations 2001; or
 - (b) 2 hours, where the substance is subject to those tracking provisions,—that substance must be held at a hazardous substance location or, if applicable, at a transit depot.
- (2) Unless the circumstances of regulation 118 or regulation 125 apply, the person in charge of a class 5.2 substance must ensure that at all times the substance remains in a package or container of a type that—
 - (a) prevents the substance or any gas, vapour, or particulate matter emitted from the substance coming into contact with any incompatible substance or ignition source; and
 - (b) enables the requirements of regulations 109, 110, and 111, and, where applicable, regulation 114 or regulation 115, to be met.

107 Certain class 5.2 substances to be under control of approved handlers

- (1) Class 5.2 substances listed in table 2 of Schedule 5 that are present at any place in quantities greater than those listed in that table must be under the personal control of an approved handler, or secured as prescribed in regulation 123.
- (2) Despite subclause (1), class 5.2 substances required to be under the personal control of an approved handler may nevertheless be handled by a person who is not an approved handler if—
 - (a) *[Revoked]*
 - (b) the approved handler has provided guidance to the person in respect of the handling; and
 - (c) the approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.

Regulation 107(2)(a): revoked, on 26 March 2004, by regulation 30 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

108 Methods by which certain requirements may be met

Where a class 5.2 substance is at a hazardous substance location or transit depot—

- (a) in circumstances where these regulations 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; and
- (b) in circumstances where these regulations require a wall with a fire resistance rating of 240/240/240 minutes, a reinforced concrete wall 150 mm thick is a means of meeting this requirement.

General controls on class 5.2 substances

109 Requirements to reduce likelihood of unintended combustion or explosion of class 5.2 substances

Every class 5.2 substance, including any class 5.2 substance in the form of a gas, vapour, or particulate matter,—

- (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 not be subject to an impact or pressure shock that exceeds the limits prescribed in regulation 111; and
- (d) must be kept secured as required in regulation 123,—

unless the contact or subjection to impact or pressure shock is intended, in which case the requirements of regulation 125 apply.

110 Limits on temperature

- (1) The temperature of a class 5.2 substance must not exceed the lesser of 50°C, or the control temperature prescribed according to the criteria in subclause (2), unless a higher temperature is intended or anticipated, in which case either—
 - (a) the effects of the higher temperature must be managed to within the limits prescribed in regulation 125; or
 - (b) the requirements of subclause (3) apply.
- (2) The following substances must have a control temperature calculated as specified in table 3 of Schedule 5:
 - (a) substances in class 5.2A, 5.2B, or 5.2C with a SADT of 50°C or less;
 - (b) substances in class 5.2D with either—

- (i) a SADT of 50°C or less and showing a medium effect when heated under confinement as specified in Test Series E of the UN *Manual of Tests and Criteria*; or
 - (ii) a SADT of 45°C or less and showing a low or no effect when heated under confinement as specified in Test Series E of the UN *Manual of Tests and Criteria*; and
 - (c) substances in class 5.2E or 5.2F with a SADT of 45°C or less.
- (3) Where a class 5.2 substance is subject to the requirements of subclause (2), 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 the case where the control temperature is exceeded, describes the steps, and provides the equipment necessary, to restore the ambient temperature of the air surrounding the package or container containing the substance to below the control temperature in less than the time it would take for the substance to reach the emergency temperature determined as specified in table 3 of Schedule 5.

111 Limits on impact or pressure shock

Except where the ignition of the substance is intended, no class 5.2 substance may be subject to any impact or pressure shock that could result in an explosion or fire.

Regulation 111: substituted, on 26 March 2004, by regulation 31 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

112 Equipment and clothing

- (1) The person in charge of a class 5.2 substance must ensure that any equipment or clothing that is directly used to handle the substance is designed, constructed, and operated in such a way that the substance—
- (a) does not make direct contact with any incompatible substance or material; and
 - (b) does not accumulate in or on the equipment or clothing beyond any accumulation that is directly associated with its intended design and use, as indicated in the documentation provided under subclause (2)(b); and
 - (c) is not exposed to sufficient energy to cause combustion or its chemical decomposition—
- unless such contact or exposure is intended, in which case the requirements of regulation 125 apply.
- (2) The equipment and clothing must—
- (a) be designed and constructed of materials that, in the circumstances in which the substance is being used or handled,—

- (i) cannot be degraded, attacked, or combusted by the class 5.2 substance; or
 - (ii) are resistant to such degradation, attack, or combustion for the time specified by the supplier of the equipment or clothing; and
 - (b) be accompanied by documentation that gives sufficient instruction on the use and maintenance of the equipment or clothing to enable it to be maintained and operated in a manner that meets the requirements of this regulation.
- (3) In relation to the circumstances described in subclause (2)(a), relevant matters include the range of temperatures and pressures and the presence of other substances likely to be encountered when used as described in the documentation provided under subclause (2)(b).
- (4) The documentation specified in subclause (2)(b) must meet the location and presentation requirements for documentation specified in Part 2 of the Hazardous Substances (Identification) Regulations 2001.

113 Requirements to control adverse effects of spillage or failure of containers

- (1) Any spill or leak of a class 5.2 substance must be immediately—
- (a) absorbed or diluted using compatible absorbents or diluents; or
 - (b) otherwise recovered.
- (2) Any absorbed, diluted, or otherwise recovered substance must be—
- (a) disposed of according to the requirements for the disposal of class 5.2 substances specified in the Hazardous Substances (Disposal) Regulations 2001; or
 - (b) analytically tested and recorded as being free of any incompatible substance.
- (3) Any absorbents, equipment, or clothing used to recover a class 5.2 substance must also be disposed of according to the requirements for the disposal of such substances specified in the Hazardous Substances (Disposal) Regulations 2001, if the class 5.2 substance has not been removed from the absorbents, equipment, or clothing.

Requirements to reduce likelihood of unintended combustion or explosion of specific class 5.2 substances

114 Controls on class 5.2A substances

- (1) A class 5.2A substance must not be transported, or offered for transport, on any public road or railway.
- (2) The substance must not be kept in a container that exceeds 0.5 kg or 0.5 L capacity, unless the person in charge of the substance—
- (a) records the capacity and type of container to be used; and

- (b) obtains test result data for a modified SADT for that quantity and type of container and keeps that data available for inspection; and
- (c) ensures that the temperature of the air surrounding the container does not exceed 20°C below the modified SADT; and
- (d) ensures that the container complies in all other respects with the limits on containers prescribed in regulation 115.

115 Controls on class 5.2B, C, D, E, or F substances

- (1) A class 5.2B, 5.2C, 5.2D, 5.2E, or 5.2F substance must be kept in a container that—
 - (a) is of a capacity and design that does not cause or contribute to combustion or an explosion; and
 - (b) accords with the requirements of Packaging Instruction P520 and Paragraph 4.1.7 Chapter 4.1 of the UN *Model Regulations*.
- (2) Where the substance is to be held in a container that is not to be used for transportation on a public road or railway, that container may hold a quantity of the substance in excess of the amount shown in table 4 of Schedule 5 for the relevant category of substance if the person in charge of the substance—
 - (a) records the capacity and type of container to be used; and
 - (b) obtains test result data for a modified SADT for that quantity and type of container and keeps that data available for inspection; and
 - (c) ensures that the temperature of the air surrounding the container does not exceed 20°C below the modified SADT; and
 - (d) ensures that the container complies in all other respects with the limits on containers prescribed in this regulation.

Controls on hazardous substance locations where class 5.2 substances present

116 Requirement to establish hazardous substance location where class 5.2 substance present

- (1) The person in charge of a place where any class 5.2 substances are present must establish in that place 1 or more hazardous substance locations where such substances are to be situated, or to be manufactured or used, if—
 - (a) the substances are to be present for a period exceeding—
 - (i) 18 hours in the case of substances not subject to the tracking provisions of the Hazardous Substances (Tracking) Regulations 2001;
 - (ii) 2 hours in the case of substances subject to the tracking provisions of those regulations; and
 - (b) the substances are to be present in amounts exceeding the quantities specified for the relevant substances in table 1 of Schedule 5.
- (2) Separate hazardous substance locations must be established for—

- (a) places where class 5.2 substances are to be kept in packages that are closed at all times; and
 - (b) places where class 5.2 substances are to be manufactured or used.
- (3) The person in charge of a hazardous substance location must, at least 30 working days before the commissioning of the hazardous substance location as an area for accommodating class 5.2 substances, notify an enforcement officer responsible for the enforcement of the Act in the area where the hazardous substance location is situated of—
- (a) the street address of the place in which the hazardous substance location is situated; and
 - (b) the maximum quantity and hazard classification of each class 5.2 substance that the hazardous substance location is designed or constructed to accommodate; and
 - (c) any manufacturing or use involving class 5.2 substances that may occur at the location.
- (4) The person in charge of a hazardous substance location must ensure that the requirements of regulation 107 are met.
- (5) The person in charge of hazardous substance location must ensure that—
- (a) where a test certificate is required under regulation 120, a test certificate is obtained that certifies that the requirements of that regulation 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 position of—
 - (i) all hazardous substance locations within the place that contain class 5.2 substances; and
 - (ii) all controlled zones within the place.
- (6) For the purposes of this Part, **use** includes removing a hazardous substance from, or putting it into, a package or container.

Regulation 116(4): substituted, on 26 March 2004, by regulation 32 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

117 Requirements to reduce likelihood of unintended combustion or explosion where class 5.2 substance present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established under regulation 116 must ensure that—
- (a) the temperature of the immediate area around the class 5.2 substances complies with the relevant requirements of regulation 110, and any source of impact or pressure shock complies with the requirements of regulation 111; and

- (b) the area around the class 5.2 substance is free of incompatible substances or materials and is separated from these—
 - (i) where the hazardous substance location site boundary abuts an area of low intensity land use, by a wall—
 - (A) with a fire resistance rating of 120/120/120 minutes; and
 - (B) 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) where the hazardous substance location site boundary abuts an area of high intensity land use, by a wall—
 - (A) with a fire resistance rating of 240/240/240 minutes; and
 - (B) 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
 - (iii) for class 5.2A or 5.2B substances, the applicable distance as specified in table 5 of Schedule 5, or, where the quantity of substance is less than that specified, not less than 5 m; or
 - (iv) for class 5.2C, 5.2D, 5.2E, or 5.2F substances, the applicable distance as specified in table 6 of Schedule 5 or, where the quantity of substance is less than that specified, not less than 3 m; or
 - (v) 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 regulations 109, 110, 111, and 119; and
- (c) the substance is separated from ignition sources by the appropriate distance specified in table 7 of Schedule 5 or by a wall as described in paragraph (b)(i) or (ii); and
- (d) any area where particulate matter or vapour from a class 5.2 substance is likely to form (including any ventilation outlet or aperture) is separated from any ignition source to the degree provided in paragraph (c); and
- (e) arrangements for managing the location 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 a class 5.2 substance is prevented; and
 - (iii) accumulation of a class 5.2 substance on clothing or on or in any equipment inside the location is prevented, unless—
 - (A) the equipment or clothing complies with regulation 112 or regulation 126; and
 - (B) any material which has so accumulated is collected and removed from the location immediately; and

- (C) the requirements of regulation 113(2) and (3) are met; 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 vapour, gas, or particulate matter of class 5.2 substances is not able to make contact with any electrical circuit or equipment within the location, or otherwise make contact with an ignition source should the circuit or equipment become faulty.
- (2) Except as regulation 118(1)(a) otherwise allows, every package or container containing a class 5.2 substance within a hazardous substance location must be kept closed at all times (except for any permanently open vent in the package or container).
- (3) *[Revoked]*
- (4) *[Revoked]*

Regulation 117(1)(b): amended, on 26 March 2004, by regulation 33(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 117(1)(b)(i): substituted, on 26 March 2004, by regulation 33(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 117(1)(b)(ii): substituted, on 26 March 2004, by regulation 33(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 117(3): revoked, on 26 March 2004, by regulation 33(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 117(4): revoked, on 26 March 2004, by regulation 33(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

118 Extra requirements for hazardous substance location where class 5.2 substances manufactured or used

- (1) The person in charge of a hazardous substance location where class 5.2 substances are manufactured or used must ensure that, in addition to the requirements of regulation 117, the following requirements are met in relation to the location:
- (a) within the location, every package or container containing a class 5.2 substance must be kept closed except for when the substance is being taken from or put into its package or container; and
 - (b) no person is exposed to a class 5.2 substance unless protected by clothing or equipment that meets the requirements of regulation 126; and
 - (c) arrangements are in place that will ensure that every person leaving the hazardous substance location is free of such substances.
- (2) The person in charge of a hazardous substance location where class 5.2 substances are manufactured or used must ensure that it is separated from any other such hazardous substance location by—

- (a) a distance of not less than that specified for incompatible substances or materials in tables 5 and 6 of Schedule 5; 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.

Regulation 118(2): substituted, on 26 March 2004, by regulation 34 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

119 Requirements to be met by person in charge of hazardous substance location to control adverse effects of unintended combustion or explosion

- (1) The person in charge of a hazardous substance location where class 5.2 substances 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 regulation 125, except where the requirements of regulation 126 are met; and
 - (c) 1 of the following requirements or sets of requirements is met:
 - (i) the requirements of regulation 117(1)(b)(i) and (c); or
 - (ii) the requirements of regulation 117(1)(b)(ii) and (c); or
 - (iii) the requirements of regulation 117(1)(b)(iii) and (c); or
 - (iv) the requirements of regulation 117(1)(b)(iv) and (c); or
 - (v) no place outside the controlled zone is exposed to more than the level of heat radiation specified in regulation 125 or to a blast overpressure greater than that specified in regulation 125(2)(b).
- (2) The person in charge of the hazardous substance location must also ensure that, within the controlled zone, the requirements of regulation 117(1)(a), (b), (e), and (f) or, if applicable, regulation 118, 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 hazardous substance, or any place where a person may legally be that would otherwise be within the controlled zone, is separated from the hazardous substance location by—
 - (a) a wall that offers the same protection as that required in regulation 117(1)(c) and in either subparagraph (i) or subparagraph (ii) of regulation 117(1)(b); or

- (b) a distance that corresponds to the distance from incompatible substances described in regulation 117(1)(b)(iii) and (c); or
 - (c) any other set of arrangements that ensures that no person would be exposed to more than the radiation heat limit described in regulation 125.
- (4) Compliance with a code of practice approved under section 78 of the Act as meeting the requirements of subclause (1)(c)(v) is a means of meeting the requirements of subclause (1)(b).

120 Test certification requirements at hazardous substance location

Every hazardous substance location where more than the following quantities of substance in the following hazard classifications are present must have a current test certificate that certifies compliance with the requirements of regulation 121 or, where applicable, regulation 122:

- (a) 10 kg of class 5.2A or class 5.2B substance; or
- (b) 25 kg of class 5.2C or class 5.2D substance; or
- (c) 100 kg of class 5.2E or class 5.2F substance.

121 Matters to be certified for hazardous substance location where containers kept closed at all times or containers designed to be vented

Where a test certificate is required for a hazardous substance location under regulation 120, the certificate must certify that, for the hazardous substance location,—

- (a) the notification requirements of regulation 116 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 class 5.2 substances, or can demonstrate that there is available a person who is an approved handler for the substances; and
- (ba) the substances can be secured as described in regulation 123; and
- (c) a site plan is available for inspection that complies with the requirements of regulation 116(5); and
- (d) the requirements of regulation 117(1)(a) to (d) and (f), and 117(2) are complied with; and
- (e) the requirements of regulation 119 are complied with; and
- (f) any fixed structure or installed equipment within the location is constructed from compatible material and is not an ignition source; and
- (g) any equipment or clothing present complies with the requirements of regulations 112 and 126; and
- (h) there are documented procedures to ensure that the requirements of regulation 117(1)(e) are complied with; and

- (i) the location has signage in place as required by the Hazardous Substances (Identification) Regulations 2001; and
- (j) where the quantity of hazardous substance requires, the requirements for emergency management specified in Parts 3 and 4 of the Hazardous Substances (Emergency Management) Regulations 2001 are met.

Regulation 121(b): substituted, on 26 March 2004, by regulation 35 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 121(ba): inserted, on 26 March 2004, by regulation 35 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

122 Matters to be certified for hazardous substance location where class 5.2 substances manufactured or used

Where a test certificate is required for a hazardous substance location under regulation 120, and where that location or any part of that hazardous substance location is one where class 5.2 substances are manufactured or used, the test certificate must, in addition to certifying the matters specified in regulation 121, also certify that those items specified in regulation 118 are met, except that—

- (a) there are documented procedures to ensure that every person leaving the location is free of any class 5.2 substance; and
- (b) a site plan shows that regulation 118(2) is complied with.

123 Requirements for securing class 5.2 substance

- (1) For the purposes of regulation 121(ba), where any class 5.2A, 5.2B, 5.2C, or 5.2D substance is required to be secured, it 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 any class 5.2E or 5.2F substance is required to be secured, the substance must be secured so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks.

Regulation 123(1): substituted, on 26 March 2004, by regulation 36(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 123(2): amended, on 26 March 2004, by regulation 36(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

*Controls on transit depots where class 5.2 substances located***124 Requirements to be met by transit depot**

- (1) At any transit depot where the quantity of class 5.2 substances present exceeds that specified for the relevant substances in table 1 of Schedule 5, 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 class 5.2 substances, 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 class 5.2 substance that the depot is designed or constructed to accommodate; and
 - (b) ensure that all class 5.2 substances remain within their containers; and
 - (c) ensure that the requirements of regulation 107 are met; and
 - (d) ensure that any road vehicle loaded with containers of class 5.2 substances 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 class 5.2 substances 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 so that in the event of failure of the electrical equipment no resulting ignition source will contact either the substance, or its container or packaging; and
 - (g) designate, and clearly identify with signs that meet the requirements of Part 3 of the Hazardous Substances (Identification) Regulations 2001, areas for the containment, pending disposal, of any leaked or spilled material or damaged packages.
- (2) *[Revoked]*
- (3) *[Revoked]*

Regulation 124(1)(c): substituted, on 26 March 2004, by regulation 37(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 124(1)(e): substituted, on 26 March 2004, by regulation 37(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 124(2): revoked, on 26 March 2004, by regulation 37(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Regulation 124(3): revoked, on 26 March 2004, by regulation 37(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

General requirements to control adverse effects of intended combustion or explosion of class 5.2 substances

125 Requirements to control adverse effects where contact with incompatible substances or ignition, impact, or pressure shock sources intended or anticipated

- (1) This regulation applies in circumstances where—
 - (a) a class 5.2 substance is to be deliberately contacted with an incompatible substance or an ignition source; or
 - (b) such a substance is to be exposed to a temperature that exceeds the limits described in regulation 110, or subjected to an impact or pressure shock that exceeds the limits described in regulation 111; or
 - (c) it is reasonable to expect that the circumstances or exposure described in paragraph (a) or paragraph (b) might accidentally occur.
- (2) In such circumstances no person, unless protected by clothing or equipment as required in regulation 126, must be exposed to—
 - (a) 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;

or

- (b) a blast overpressure greater than 5 kPa (except that where the area abuts an area of low intensity land use and a public traffic route with less than low traffic density, the blast overpressure limit is 9 kPa).

126 Protective clothing or equipment

- (1) Protective clothing or equipment must be used at any time when—
 - (a) a class 5.2 substance comes into contact with an ignition source or an incompatible substance or material, or may be exposed to a temperature, impact, or pressure shock that exceeds the limits specified in regulations 110 and 111; or

-
- (b) it is reasonable to expect that such contact or exposure might accidentally occur.
 - (2) The protective clothing or equipment must—
 - (a) be designed, constructed, and operated so as to prevent—
 - (i) the substance making direct contact with the wearer or user; and
 - (ii) the wearer or user being exposed to more than the level of heat radiation prescribed in regulation 125; and
 - (iii) the wearer or user being exposed to a blast overpressure greater than 9 kPa; and
 - (b) meet the requirements of regulation 112(2), (3), and (4).

Schedule 1
**Maximum quantities of certain class 1 to 5 substances permitted on
passenger service vehicles**

r 8

Property of substance	Hazard classification	Maximum quantity per package for each classification
explosive	Emergency distress signals of hazard classifications 1.3G (UN 0092, 0195), 1.4G (UN 0191, 0197, 0312), and 1.4S (UN 0373, 0405)	5 kg (gross weight)
	Model rocket motors of hazard classification 1.4S (UN 0349, 0432)	5 kg (gross weight)
	Safety ammunition of hazard classification 1.4S (UN 0012, 0014, 0044, 0055)	15 kg (gross weight)
flammable	2.1.1A, 2.1.1B	1 L
	2.1.2A	1 L (aggregate water capacity)
	3.1B	1 L
	3.1C or 3.1D	10 L
	4.1.1A	0.5 kg
	4.1.1B	3 kg
	4.1.2B	0.1 kg
	4.1.2C, 4.1.2D, 4.1.2E, 4.1.2F	0.5 kg
	4.1.2G	5 kg
	4.2B	0.5 kg
	4.2C	3 kg
	4.3B	0.5 kg
	4.3C	1 kg
oxidising	5.1.1B	0.5 kg
	5.1.1C	1 kg
	5.1.2A	1 L (aggregate water capacity)
oxidising (organic peroxides)	5.2B	25 mL (or 0.2 kg if a solid)
	5.2C, 5.2D, 5.2E, 5.2F	125 mL (or 0.5 kg if a solid)
	5.2G	1 L (or 1 kg if a solid)

Schedule 1: amended, on 28 August 2003, by regulation 22 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Schedule 2

Matters relevant to class 1 substances

Table 1
Segregation requirements for class 1 substances

r 21

The unmarked cells in the following table identify the categories of class 1 substances (shown by the letters at top and left of the table) that must be segregated as required in regulation 21. The marked cells relax the requirement to the extent specified in the keys below.

	A	B	C	D	E	F	G	H	J	K	L	N	S
A	✓												
B		✓	①	①	①	①	①						✓
C		①	✓	✓	✓	②	③					✓	✓
D		①	✓	✓	✓	②	③					✓	✓
E		①	✓	✓	✓	②	③					✓	✓
F		①	②	②	②	✓	②						✓
G		②	③	③	③	②	✓	④					✓
H							④	✓					✓
J									✓				✓
K													
L													
N			✓	✓	✓							✓	✓
S		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓

Key

- ✓ The 2 categories indicated by a cell so marked may be stored and transported together without the segregation required by regulation 21.
- ① The 2 categories indicated by a cell so marked may be stored together without the segregation required by regulation 21, provided the category B explosive articles are held in a manner (achieved through containment, internal barricading, or separation distance, or any combination of them) that will prevent their accidental initiation propagating to explosive substances of the other category.
- ② The 2 categories indicated by a cell so marked may be stored together without the segregation required by regulation 21, provided the category

F explosive substances are held in such a manner (achieved through a combination of containment, internal barricading, and separation distance) that will substantially reduce the risk of their accidental initiation propagating to explosive substances of the other category.

- ③ The 2 categories indicated by a cell so marked may be stored together without the segregation required by regulation 21, provided the category G pyrotechnic articles are held in a manner (achieved through meeting the packaging requirements) that will prevent their release of loose pyrotechnic substances.
- ④ The 2 categories indicated by a cell so marked may be stored without the segregation required by regulation 21, provided they are separated from each other by a wall with a fire resistance rating of 120/120/120 minutes.

Table 2
Quantities of substances above which 250 metre separation required from boundary of discharge area for firing of class 1 category G substances at outdoor pyrotechnic display

r 37

Property of substance	Hazard classification	Quantity for each separate classification
explosive	1.1	5 kg
	1.2	50 kg
	1.3	100 kg
	1.4	1 000 kg
flammable liquids where held above ground	3.1A	50 L
	3.1B	250 L
	3.1C	1 000 L
flammable solids and oxidising substances	4.1.3A, 4.2A, 4.3A, and 5.1.1A	50 kg
	4.1.1A, 4.1.3B, 4.2B, 4.3B, and 5.1.1B	500 kg
	4.1.1B, 4.1.3C, 4.2C, 4.3C, and 5.1.1C	5 000 kg
self-reactive flammables and organic peroxides	4.1.2A, 4.1.2B, 5.2A, and 5.2B	10 kg
	4.1.2C, 4.1.2D, 5.2C, and 5.2D	25 kg
	4.1.2E, 4.1.2F, 5.2E, and 5.2F	100 kg

Table 3
Exclusion zones for class 1 category G substances to be fired to over 60 m—Minimum safety distances either side of point of firing

r 38

Shell diameter (mm)	Minimum safety distance (m) either side of point of firing
<75	50
75	50
100	50
125	50
150	100
175	150
200	170
250	215
300	250

Note: For shell diameters intermediate between those listed, the minimum safety distance is to be adjusted proportionately.

Table 4
Exclusion zones for class 1 category G substances to be fired to over 60 m—Minimum safety distances from point of firing in direction of flight

r 38

Shell diameter (mm)	Minimum safety distance (m) from point of firing in direction of flight
<75	50
75	100
100	100
125	125
150	150
175	150
200	170
250	215
300	250

Note: For shell diameters intermediate between those listed, the minimum safety distance is to be adjusted proportionately.

Table 5
**Quantities of class 1 substances that activate requirements for
establishing a hazardous substance location, and for establishing a
controlled zone to limit effects**

rr 26, 31

Hazard classification	Quantities
1.1B, 1.2B, and 1.4B	1 kg
1.1 (other than 1.1B or 1.1C and gunpowder of 1.1D), 1.2, and 1.5	5 kg
1.1C and 1.3 (other than 1.3G) and gunpowder of 1.1D	15 kg
1.3G and 1.4 (other than 1.4S)	100 kg
1.4S	200 kg
Fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001	1 000 kg (gross weight)

Schedule 2 table 5: substituted, on 28 August 2003, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Table 6
**Quantities of class 1 substances that activate requirements for a test
certificate at a hazardous substance location, for a designated use
zone, for a designated transfer zone, and for notification of transport**

rr 26, 30, 32, 46, 51

Hazard classification	Quantities
1.1B, 1.2B, and 1.4B	5 kg
1.1 (other than 1.1B or 1.1C), 1.2, and 1.5	50 kg
1.1C and 1.3 (other than 1.3G)	100 kg
1.3G and 1.4 (other than 1.4S)	200 kg
1.4S	1 000 kg
Fireworks in hazard classifications 1.3G, 1.4G, and 1.4S that are controlled under the Hazardous Substances (Fireworks) Regulations 2001	10 000 kg (gross weight)
Safety ammunition including pre-primed cartridges and primers of class 1.4S	25 000 kg (gross weight)

Schedule 2 table 6: substituted, on 28 August 2003, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Table 7
**Quantities of class 1 substances that activate requirements for
securing the substance**

rr 22, 23

Hazard classification	Lock and key only, when not for sale	Readily moveable containers, when held for sale	Magazines, when not for sale	Magazines, when held for sale
1.1B, 1.2B, and 1.4B	≤0.2 kg	≤1 kg	>0.2 kg	>1 kg
1.1 (other than 1.1B or 1.1C and gunpowder of 1.1D), 1.2, and 1.5	≤2.5 kg	≤25 kg	>2.5 kg	>25 kg
1.1C and 1.3 (other than 1.3G) and gunpowder of 1.1D	≤15 kg	≤50 kg	>15 kg	>50 kg
1.3G and 1.4 (other than 1.4S)	≤15 kg	≤100 kg	>15 kg	>100 kg
1.4S	≤25 kg	≤200 kg	>50 kg	>200 kg

Schedule 2 table 7: added, on 28 August 2003, by regulation 23 of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177).

Schedule 3
Matters relevant to class 2, 3, and 4 substances

Table 1
**Substances and materials incompatible with class 2, 3, and 4
substances**

rr 54, 76

Hazard classification	Incompatible substances and materials
2.1.1	All class 1 substances Class 2.1.2 substances All class 3 substances All class 4 substances All class 5 substances
2.1.2	All class 1 substances All class 3 substances All class 4 substances All class 5 substances
3.1	All class 1 substances All class 2 substances Class 3.2 substances All class 4 substances All class 5 substances
3.2	All class 1 substances All class 2 substances Class 3.1 substances Class 4.1.2, 4.2, and 4.3 substances All class 5 substances
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

Hazard classification	Incompatible substances and materials
	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
4.2	All class 5 substances 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
4.3	Air Oxygen 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

Table 2
Quantities of flammable substance that activate approved handler requirements

r 56

Hazard classification	Quantity
2.1.1A	100 kg (not permanent gases) 100 m ³ (permanent gases)
2.1.2A	3 000 L aggregate water capacity
3.1A	Any amount
3.1B	250 L (when in containers greater than 5 L) 500 L (when in containers up to and including 5 L)
3.2A	Any amount
3.2B	100 L

Hazard classification	Quantity
4.1.1A	100 kg
4.1.2A and B	Any amount
4.1.2C and D	25 kg
4.1.2E and F	50 kg
4.1.3A	Any amount
4.1.3B	100 kg
4.2A	Any amount
4.2B	100 kg
4.3A	Any amount
4.3B	100 kg

Schedule 3 table 2: amended, on 26 March 2004, by regulation 38(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 3
Quantities of substance that activate hazardous atmosphere zone requirements

rr 58, 63, 67, 69

Hazard classification	Minimum quantity of flammable substance
2.1.1A and B	30 m ³ (where a permanent gas)
	100 kg (where a non-permanent gas)
2.1.2A	3 000 L aggregate water capacity
3.1A, 3.1B, and 3.1C	100 L (closed)
	25 L (decanting)
	5 L (open occasionally)
	1 L (if in open container for continuous use)

Schedule 3 table 3: amended, on 26 March 2004, by regulation 38(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 4
**Quantities of class 2, 3, and 4 substances that activate hazardous
substance location and transit depot requirements**

rr 55, 74, 77, 83

Hazard classification	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in open containers
2.1.1A and B	100 kg (or 100 m ³ where a per- manent gas)	100 kg (or 100 m ³ where a per- manent gas)
2.1.2A	3 000 L (aggregate water capacity)	3 000 L (aggregate water cap- acity)
3.1A	20 L	20 L
3.1B	100 L in containers greater than 5 L	50 L
	250 L in containers up to and including 5 L	50 L
3.1C	500 L in containers greater than 5 L	250 L
	1 500 L in containers up to and including 5 L	250 L
3.2A, B, and C	1 L	1 L
4.1.1A	1 kg	1 kg
4.1.1B	100 kg	100 kg
4.1.2A and B	1 kg	1 kg
4.1.2C and D	25 kg	25 kg
4.1.2E, F, and G	50 kg	50 kg
4.1.3A, B, and C	1 kg	1 kg
4.2A	1 kg	1 kg
4.2B and C	25 kg	25 kg
4.3A	1 kg	1 kg
4.3B	25 kg	25 kg
4.3C	50 kg	50 kg

Schedule 3 table 4: substituted, on 26 March 2004, by the Schedule of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 5
Maximum surface temperature of equipment that may contact class 2 and 3 substances of known auto-ignition temperatures

rr 62, 64, 70

Auto-ignition temperature of substance (A)	Required temperature of surfaces in contact with mixture of flammable vapour evolving from substance, and air
$A \geq 562.5^{\circ}\text{C}$	$< 450^{\circ}\text{C}$
$375^{\circ}\text{C} < A < 562.5^{\circ}\text{C}$	$< 300^{\circ}\text{C}$
$250^{\circ}\text{C} < A < 375^{\circ}\text{C}$	$< 200^{\circ}\text{C}$
$169^{\circ}\text{C} < A < 250^{\circ}\text{C}$	$< 135^{\circ}\text{C}$
$125^{\circ}\text{C} < A < 169^{\circ}\text{C}$	$< 100^{\circ}\text{C}$
$A < 125^{\circ}\text{C}$	$< 85^{\circ}\text{C}$

Note: This table is applicable for cases where the substance is maintained at an average temperature below 40°C .

Table 6
Control and emergency temperatures for class 3.2 and 4 substances

r 72

Hazard classification	SADT	Control temperature	Emergency temperature
3.2A, B, and C		50°C	
4.1.1A and B		50°C	
4.1.2A, B, C, D, E, F, and G	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, B, and C		50°C	
4.2A, B, and C		50°C	
4.3A, B, and C		50°C	

Table 7
Separation distances for class 3.2, 4.1.2, and 4.1.3 substances

rr 6, 79, 82

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 and Appendix C Fifth Committee Draft AS/NZ Draft Standard 9832.CDR and AS/NZS 4360	

Schedule 3 table 7 heading: amended, on 26 March 2004, by regulation 38(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 8
Separation distances for class 4.1.1, 4.2, and 4.3 substances

rr 6, 79, 82

Quantity (kg)	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		
	4.2A	4.1.1A	4.1.1B	4.2A	4.1.1A	4.1.1B
	4.3A	4.2B	4.2C	4.3A	4.2B	4.2C
		4.3B	4.3C		4.3B	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 and Appendix C Fifth Committee Draft AS/NZ Draft Standard 9832.CDR and AS/NZS 4360					

Schedule 3 table 8 heading: amended, on 26 March 2004, by regulation 38(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Schedule 4
Matters relevant to class 5.1.1 and 5.1.2 substances

Table 1
**Quantities of class 5.1.1 and 5.1.2 substances that activate hazardous
substance location or transit depot requirements (except where
regulation 96 applies)**

rr 88, 94, 101

Hazard classification	Hazardous substance location or transit depot where package to be kept closed at all times
5.1.1A	50 kg or 50 L
5.1.1B	500 kg or 500 L
5.1.1C	1 000 kg or 1 000 L
5.1.2A	100 kg (where a non-permanent gas) or 200 m ³ (where a permanent gas)

Schedule 4 table 1: amended, on 26 March 2004, by regulation 39(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 2
**Quantities of class 5.1.1 and 5.1.2 substances that activate hazardous
substance location requirements where substances manufactured or
used**

rr 88, 94

Hazard classification	Hazardous substance location where substances manufactured or used
5.1.1A	5 kg or 5 L
5.1.1B	50 kg or 50 L
5.1.1C	100 kg or 100 L
5.1.2A	50 m ³ or 50 kg

Note: The quantity refers to the total quantity present at or within the hazardous substance location, even if some of the substance is held in closed containers.

Table 3
Quantity of substance that activates approved handler requirements

r 89

Hazard classification	Quantity
5.1.1A	Any amount
5.1.1B	500 kg or L
5.1.1C	1 000 kg or L
5.1.2A	250 kg or 200 m ³

Table 4
**Hazardous substance location requirements—Minimum separation
distances from incompatible substances**

rr 6, 95

Hazard classification	Quantity	Minimum distance from incompatible substance (m)
5.1.1A	Up to 1 000 kg or L	5
	More than 1 000 kg or L and up to 10 000 kg or L	8
	More than 10 000 kg or L	10
5.1.1B	Up to 1 000 kg or L	3
	More than 1 000 kg or L and up to 10 000 kg or L	5
	More than 10 000 kg or L	8
5.1.1C	More than 1 000 kg or L and up to 10 000 kg or L	3
	More than 10 000 kg or L	5
5.1.2A	Up to 200 m ³ or 250 kg	3
	More than 200 m ³ or 250 kg	5

Table 5
**Hazardous substance location requirements—Minimum separation
distances from ignition sources and from other hazardous substance
locations**

rr 95, 96

Hazard classification	Minimum separation distance where packages kept closed (m)	Minimum separation distance where substances manufactured or used (m)
5.1.1A, 5.1.1B, and 5.1.1C	5	8
5.1.2A	3	5

Schedule 4 table 5 heading: amended, on 26 March 2004, by regulation 39(2) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Schedule 4 table 5: amended, on 26 March 2004, by regulation 39(3) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Schedule 5

Matters relevant to class 5.2 substances

Table 1

Quantities of class 5.2 substances that activate hazardous substance location or transit depot requirements

rr 106, 116, 124

Hazard classification	Quantity
5.2A	Any quantity
5.2B	More than 1 kg
5.2C or 5.2D	More than 10 kg
5.2E or 5.2F	More than 25 kg

Table 2

Quantity of class 5.2 substances that activate approved handler requirements

r 107

Hazard classification	Quantity
5.2A or 5.2B	Any amount
5.2C, 5.2D, 5.2E, or 5.2F	10 kg or 10 L
5.2G	Approved handler not required

Table 3

Temperature limits for class 5.2 substances that activate temperature control requirements

r 110

SADT	Control temperature	Emergency temperature
20°C or less	20°C less than the SADT	10°C less than the SADT
Over 20°C and up to 35°C	15°C less than the SADT	10°C less than the SADT
Over 35°C	10°C less than the SADT	5°C less than the SADT

Table 4
Maximum size of transportable container for class 5.2 substances

r 115

Hazard classification	Maximum size of transportable container
5.2B	25 kg or 25 L
5.2C or 5.2D	50 kg or 50 L
5.2E	450 kg or 400 L
5.2F	Up to 3 000 L aggregate water capacity

Note: Class 5.2A substances may not be transported, and there are no restrictions for class 5.2G substances.

Table 5
Separation distances for class 5.2A and 5.2B substances

rr 6, 117, 118

Quantity of class 5.2A or 5.2B substance (kg)	Minimum distance to area of low intensity land use (m)	Minimum distance to area of high intensity land use (m)	Minimum distance to incompatible substances or materials or other hazardous substance locations (m)
≤10	3	5	8
25	5	10	8
50	7	15	9
100	10	20	9
200	12	25	10
500	15	35	12
1 000	20	45	15
2 000	25	55	19
3 000	35	80	21

Note: For quantities of substance intermediate between those listed, the minimum distances are to be adjusted proportionately and rounded to the nearest metre (with 0.5 of a metre being rounded up).

Schedule 5 table 5: amended, on 26 March 2004, by regulation 40(1) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 6
Separation distances for class 5.2C, 5.2D, 5.2E, and 5.2F substances

Hazard classification	Quantity of substance (kg)	Minimum distance to area of low intensity land use (m)	Minimum distance of area of high intensity land use (m)	rr 6, 117, 118
				Minimum distance to incompatible substances or materials or other hazardous substance locations (m)
5.2C, 5.2D, and 5.2E	≤250	3	5	5
	500	3	7	5
	1 000	4	8	5
	1 500	5	9	6
	2 500	6	10	7
	5 000	9	12	8
5.2F	10 000	10	15	10
	≤1 000	3	3	3
	2 000	4	4	3
	4 000	5	5	3
	10 000	6	7	5
	20 000	6	9	5

Note: For quantities of substance intermediate between those listed, the minimum distances are to be adjusted proportionately and rounded to the nearest metre (with 0.5 of a metre being rounded up).

Schedule 5 table 6: amended, on 26 March 2004, by regulation 40(2)(a) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Schedule 5 table 6: amended, on 26 March 2004, by regulation 40(2)(b) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Schedule 5 table 6: amended, on 26 March 2004, by regulation 40(2)(c) of the Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42).

Table 7
Hazardous substance location requirements—Minimum separation distances from ignition sources

Hazard classification	Minimum distance where packages kept closed (m)	r 117
		Minimum distances where substances manufactured or used (m)
5.2 and 5.2B	5	8
5.2C, 5.2D, 5.2E, and 5.2F	3	5

Reprinted as at
1 December 2017

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

Schedule 5

Martin Bell,
for Clerk of the Executive Council.

Issued under the authority of the Legislation Act 2012.
Date of notification in *Gazette*: 31 May 2001.

Reprints notes

1 *General*

This is a reprint of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001 that incorporates all the amendments to those regulations as at the date of the last amendment to them.

2 *Legal status*

Reprints are presumed to correctly state, as at the date of the reprint, the law enacted by the principal enactment and by any amendments to that enactment. Section 18 of the Legislation Act 2012 provides that this reprint, published in electronic form, has the status of an official version under section 17 of that Act. A printed version of the reprint produced directly from this official electronic version also has official status.

3 *Editorial and format changes*

Editorial and format changes to reprints are made using the powers under sections 24 to 26 of the Legislation Act 2012. See also <http://www.pco.parliament.govt.nz/editorial-conventions/>.

4 *Amendments incorporated in this reprint*

Hazardous Substances (Health and Safety Reform Revocations) Regulations 2017 (LI 2017/233): regulation 4(1)

Fire and Emergency New Zealand Act 2017 (2017 No 17): section 197

Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013 (SR 2013/483): regulation 236

Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2013 (SR 2013/436)

Land Transport (Road Safety and Other Matters) Amendment Act 2011 (2011 No 13): section 100(3)

Policing Act 2008 (2008 No 72): section 129

Land Transport Management Amendment Act 2008 (2008 No 47): section 50(2)

Education Amendment Act 2006 (2006 No 19): section 60(2)

Land Transport Amendment Act 2005 (2005 No 77): section 95(8)

Railways Act 2005 (2005 No 37): section 103(4)

Land Transport Management Amendment Act 2004 (2004 No 97): section 19(2)

Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2004 (SR 2004/42)

Hazardous Substances (Classes 1 to 5 Controls) Amendment Regulations 2003 (SR 2003/177)