

Site and Storage Conditions for Class 5.1.1 Oxidising Substances and Class 5.2 Organic Peroxides

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Introduction

This document sets out the site and storage conditions for class 5.1.1 oxidising liquids and oxidising solids, and class 5.2 organic peroxides. These substances may also have toxic, corrosive and/or ecotoxic properties (HSNO classes 6, 8 and/or 9), but no other hazardous properties.

The document does not include conditions for class 5.1.2 oxidising gases, which are set out in the document *Site and Storage Conditions for Compressed Gases*, published by the Authority, July 2006.

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

This document has been compiled from the following:

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

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

This document was published July 2006.

Site and Storage Conditions

Part 1 Conditions for Class 5.1.1 and Class 5.2 Substances

1 Quantities

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

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

where—

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

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

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

- (2) Where a requirement in any of clauses 9 and 24 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 3, 8 and 9.
- (4) Unless otherwise specified, the quantity of an organic peroxide must be determined by mass.
- (5) Where a quantity of gas is specified as cubic metres (m³), this volume is determined by taking the contents and conditions of the gas held in a container and then calculating the volume that the gas would occupy at 15°C and 101.3 kPa absolute pressure. Where the quantity of gas is specified in kilograms, this refers to the net weight of the gas in liquefied form as held in its container.
- (6) When considering quantities under subclauses (1) to (5) the quantities of all hazardous substances must be taken into account, howsoever those substances were approved under the Act.

2 Test certification

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

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

- (1) Any spill or leak of a class 5.1.1 or 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 5.1.1 or 5.2 substances specified in Part 7 (Disposal) of Schedule 1 to the Group Standard; 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 or 5.2 substance must also be disposed of according to the requirements for the disposal of such substances specified in Part 7 (Disposal) of Schedule 1 to the Group Standard, if the class 5.1.1 or 5.2 substance has not been removed from the absorbent, equipment, or clothing.

Part 2
Additional Conditions for Class 5.1.1 Substances

4 General limits on class 5.1.1 substances

- (1) Where a class 5.1.1 substance is present at a place in a quantity that exceeds that specified for the relevant classification in Table 1 or Table 2 for more than—
- (a) 18 hours, in the case of a 5.1.1B or 5.1.1C substance; or
 - (b) 2 hours, in the case of a 5.1.1A substance—

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

Table 1. Quantities of class 5.1.1 substances that activate hazardous substance location or transit depot requirements (except where clause 8 applies)

| HSNO 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 |

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

| HSNO 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 |

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.

- (2) Unless the circumstances of clause 14 apply, the person in charge of a class 5.1.1 substance must ensure that at all times the substance remains in a package or container of a type that—
- (a) prevents the class 5.1.1 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 clause 5 to be met.

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

- (1) Every class 5.1.1 substance, including any class 5.1.1 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 be stored in a sealed package or container; and
- (d) can be secured so that a person cannot gain access to the substance without tools, keys, or any other device used for operating locks,

unless contact with the incompatible substance, material, or ignition source is intended, in which case the effects of this contact must be managed within the limits prescribed in clause 14.

(2) The temperature of a class 5.1.1 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 clause 14.

6 Requirements to establish hazardous substance location where class 5.1.1 substances present

(1) The person in charge of a place where any class 5.1.1 substances are present must establish in that place one or more hazardous substance locations where such class 5.1.1 substances are to be situated, or to be manufactured or used, if—

- (a) the class 5.1.1 substances are to be present for a period exceeding—
 - (i) 18 hours, in the case of a 5.1.1B or 5.1.1C substance; or
 - (ii) 2 hours, in the case of a 5.1.1A substance; and
- (b) the class 5.1.1 substances are to be present in amounts exceeding the quantities specified for the relevant classification in—
 - (i) Table 1 (see clause 4), where the packages containing the substances are kept closed at all times; or
 - (ii) Table 2 (see clause 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 substances are to be kept in packages that are closed at all times; and
- (b) places where class 5.1.1 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 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 5.1.1 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 class 5.1.1 substances that the hazardous substance location is designed or constructed to accommodate; and
 - (c) any manufacturing or use involving class 5.1.1 substances that may occur at the location.
- (4) The person in charge of a hazardous substance location must ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 5.1.1 substances are met.
- (5) The person in charge of a hazardous substance location must further ensure that—
- (a) where a test certificate is required under clause 10, a test certificate is obtained that certifies that the requirements of clause 10 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 substances; and
 - (ii) all controlled zones within the place.
- (6) For the purposes of this Part, use includes removing a class 5.1.1 substance from, or putting it into, a package or container.

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

- (1) The person in charge of a hazardous substance location required to be established by clause 6 must ensure that—
- (a) the temperature of the immediate area around the class 5.1.1 substances complies with the relevant requirements of clause 5(2); and
 - (b) the area around the class 5.1.1 substances is free of incompatible substances and separated from these by—
 - (i) a wall—
 - (I) with a fire resistance rating of 120/120/120 minutes; and
 - (II) that is constructed to prevent a fire on one side of the wall from coming into contact with any such substances on the other side of the wall; or
 - (ii) the applicable distance specified in Table 3, or, where the amount of class 5.1.1 substance is less than the amount specified in that table, not less than 3 m; or

- (iii) a set of arrangements that meets the requirements of a code of practice approved under section 78 of the Act as meeting the requirements of subclause (b)(i) or subclause (b)(ii) of this subclause and of clause 9; and
- (c) the class 5.1.1 substance is separated from ignition sources, but excluding electrical equipment, by the appropriate distance specified in Table 4, or by a wall as described in subclause (b)(i) of this subclause; and
- (d) any area where particulate matter or vapour from a class 5.1.1 substance is likely to form (including any ventilation outlet or aperture) is separated from any ignition source to the degree provided in subclause (1)(c); and
- (e) arrangements are in place so that—
 - (i) every person entering the location is free of any incompatible material; and
 - (ii) direct contact by any person inside the location with a class 5.1.1 substance is prevented; and
 - (iii) accumulation of a class 5.1.1 substance on clothing or on or in any equipment inside the location is prevented, unless—
 - (I) the equipment or clothing complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (II) any material that has so accumulated is collected and removed from the location immediately; and
 - (III) the requirements of clauses 3(2) and 3(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 substances does not present a hazard in respect of electrical equipment that may be present.

Table 3. Hazardous substance location requirements – Minimum separation distances from incompatible substances

| HSNO classification | Quantity | Minimum distance from incompatible substance (m) |
|---------------------|---|--|
| 5.1.1A | Up to 1,000 kg or 1,000 L | 5 |
| | More than 1,000 kg or 1,000 L and up to 10,000 kg or 10,000 L | 8 |
| | More than 10,000 kg or 10,000 L | 10 |
| 5.1.1B | Up to 1,000 kg or 1,000 L | 3 |
| | More than 1,000 kg or 1,000 L and up to 10,000 kg or 10,000 L | 5 |
| | More than 10,000 kg or 10,000 L | 8 |
| 5.1.1C | More than 1,000 kg or 1,000 L and up to 10,000 kg or 10,000 L | 3 |
| | More than 10,000 kg or 10,000 L | 5 |

Table 4. Hazardous substance location requirements – Minimum separation distances from ignition sources and from other hazardous substance locations

| HSNO classification | Minimum separation distance where packages kept closed (m) | Minimum separation distance where substances manufactured or used (m) |
|------------------------|--|---|
| 5.1.1A, 5.1.1B, 5.1.1C | 5 | 8 |

- (2) Except as clause 8(1)(a) otherwise allows, every package or container containing a class 5.1.1 substance within a hazardous substance location must be kept closed at all times (except for any permanently open vent in the package or container).

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

- (1) The person in charge of a hazardous substance location where class 5.1.1 substances are manufactured or used must ensure that, in addition to the requirements of clause 7, the following requirements are met in relation to the location:
- (a) within the location, every package or container containing a class 5.1.1 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 5.1.1 substance unless protected by clothing or equipment that meets the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (c) arrangements are in place that will ensure that every person leaving the hazardous substance location is free of such substances.
- (2) The person in charge of a hazardous substance location where class 5.1.1 substances are manufactured or used must ensure that it is separated from any other hazardous substance location by—
- (a) a distance of not less than that specified in Table 4 (see clause 7); 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.

9 Requirements to be met by person in charge of hazardous substance location to control adverse effects of unintended combustion or explosion of a class 5.1.1 substance

- (1) The person in charge of a hazardous substance location where class 5.1.1 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 clause 14, except where the requirements of Part 5 (Equipment) of Schedule 1 to the Group Standard, are met; and
 - (c) one of the following requirements or sets of requirements is met:
 - (i) the requirements of clause 7(1)(b)(i) and (c); or
 - (ii) the requirements of clause 7 (1)(b)(ii) and (c); or
 - (iii) no place outside the controlled zone is exposed to more than the level of heat radiation specified in clause 14.
- (2) The person in charge of the hazardous substance location must also ensure that, within the controlled zone, the requirements of clauses 7(1)(d), (e), and (f) or, if applicable, clause 8, 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 class 5.1.1 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 clause 7(1)(b)(i); or
 - (b) a distance that corresponds to the distance from incompatible substances described in clause 7(1)(b)(ii); or
 - (c) any other set of arrangements that ensures that no person would be exposed to more than the heat radiation limit described in clause 14.

10 Test certification requirements at hazardous substance location for class 5.1.1 substances

Every hazardous substance location where more than the following quantities of class 5.1.1 substances in the following hazard classifications are present must have a current test certificate that certifies compliance with the requirements specified in clause 11, or, where applicable, clause 12:

- (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.

11 Matters to be certified for hazardous substance location where containers of class 5.1.1 substances kept closed at all times or containers designed to be vented

Where a test certificate is required for a hazardous substance location under clause 10, the certificate must certify that, for the hazardous substance location—

- (a) the notification requirements of clause 6 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 5.1.1 substances, or can demonstrate that there is available a person who is an approved handler for class 5.1.1 substances; and
- (c) the class 5.1.1 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
- (d) a site plan is available for inspection that complies with the requirements of clause 6(5)(b); and
- (e) the requirements of clause 7(1)(a) to (d) and (f) and 7(2) are complied with; and
- (f) the requirements of clause 9 are complied with; and
- (g) any fixed structure or installed equipment within the location is constructed from compatible material and is not an ignition source; and
- (h) any equipment or clothing present complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
- (i) there are documented procedures to ensure that the requirements of clause 7(1)(e) are complied with; and
- (j) the location has signage in place as required by Part 6 of the Site and Storage Conditions; and
- (k) where the quantity of class 5.1.1 substance requires, the requirements for emergency management specified in Part 5 of the Site and Storage Conditions are met.

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

Where a test certificate is required for a hazardous substance location under clause 10, and where that hazardous substance location or any part of that location is one where class 5.1.1 substances are manufactured or used, the test certificate must, in addition to certifying the matters specified in clause 11, also certify that there are documented procedures to ensure that every person leaving the location is free of any class 5.1.1 substance.

13 Requirements to be met by transit depot for class 5.1.1 substances

At any transit depot where the quantity of class 5.1.1 substance exceeds that specified for the relevant classification in Table 1 (see clause 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 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 substances that the depot is designed or constructed to accommodate; and
- (b) ensure that all class 5.1.1 substances remain within their closed containers; and
- (c) ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 5.1.1 substances are met; and
- (d) ensure that any road vehicle loaded with containers of class 5.1.1 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 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 class 5.1.1 substance, or its container or packaging; and
- (g) designate, and clearly identify with signs that meet the requirements of Part 6 of the Site and Storage Conditions, areas for containment, pending disposal, of any leaked or spilled material or damaged packages.

14 Requirements to control adverse effects where combustion of class 5.1.1 substances intended, or contact with incompatible substances or ignition sources or exposure to temperature anticipated

- (1) This clause applies in circumstances where—
 - (a) a class 5.1.1 substance is to be deliberately contacted with an incompatible substance or an ignition source; or
 - (b) a class 5.1.1 substance is to be exposed to a temperature that exceeds the limits specified in clause 5(2); or

- (c) it is reasonable to expect that the circumstances referred to in subclauses (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 under Part 5 (Equipment) of Schedule 1 to the Group Standard, may be exposed to more than 80% of the level of heat radiation described by the following formula:

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

where—

Q is the heat radiation measured in kilowatts per square metre

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

Part 3

Additional Conditions for Class 5.2 Substances

15 General limits on organic peroxides

- (1) Where an organic peroxide is present at a place in a quantity that exceeds that specified for the relevant classification in Table 5 for more than—
- (a) 18 hours, in the case of a 5.2C, 5.2D, 5.2E or 5.2F substance; or
- (b) 2 hours, in the case of a 5.2A or 5.2B substance—

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

Table 5. Quantities of organic peroxides that activate hazardous substance location or transit depot requirements

| HSNO classification | Quantity |
|---------------------|-----------------|
| 5.2A | Any quantity |
| 5.2B | More than 1 kg |
| 5.2C, 5.2D | More than 10 kg |
| 5.2E, 5.2F | More than 25 kg |

- (2) Unless the circumstances of clause 23 or clause 30 apply, the person in charge of an organic peroxide must ensure that at all times the substance remains in a package or container of a type that—
- (a) prevents the organic peroxide or any gas, vapour, or particulate matter emitted from the organic peroxide coming into contact with any incompatible substance or ignition source; and
- (b) enables the requirements of clauses 16, 17, and 18, and, where applicable, clauses 19 or 20, to be met.

16 Requirements to reduce likelihood of unintended combustion or explosion of an organic peroxide

Every organic peroxide, including any organic peroxide 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 clause 18; and
- (d) must be kept secured as required in clause 28,

unless the contact or subjection to impact or pressure shock is intended, in which case the requirements of clause 30 apply.

17 Limits on temperature for organic peroxides

- (1) The temperature of an organic peroxide 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 clause 30; or
 - (b) the requirements of subclause (3) apply.
- (2) The following organic peroxides must have a control temperature calculated as specified in Table 6—
 - (a) organic peroxides in class 5.2A, 5.2B, or 5.2C with a SADT of 50°C or less; or
 - (b) organic peroxides 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) organic peroxides in class 5.2E or 5.2F with a SADT of 45°C or less.
- (3) Where an organic peroxide 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 organic peroxide 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 organic peroxide to below the control temperature in less than the time it would take for the organic peroxide to reach the emergency temperature determined as specified in Table 6.

Table 6. Temperature limits for organic peroxides that activate temperature control requirements

| 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 |

18 Limits on impact or pressure shock for organic peroxides

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

19 Controls for 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 class 5.2A 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 clause 20.

20 Controls for class 5.2B, 5.2C, 5.2D, 5.2E, or 5.2F 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 7 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 clause.

Table 7. Maximum size of transportable container for organic peroxides

| HSNO classification | Maximum size of transportable container |
|---------------------|---|
| 5.2B | 25 kg or 25 L |
| 5.2C, 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

21 Requirement to establish hazardous substance location where organic peroxides present

- (1) The person in charge of a place where any organic peroxides are present must establish in that place one or more hazardous substance locations where such organic peroxides are to be situated, or to be manufactured or used, if—
 - (a) the organic peroxides are to be present for a period exceeding—
 - (i) 18 hours, in the case of 5.2C, 5.2D, 5.2E or 5.2F substances; or
 - (ii) 2 hours, in the case of 5.2A or 5.2B substances; and
 - (b) the organic peroxides are to be present in amounts exceeding the quantities specified for the relevant classification in Table 5 (see clause 15).
- (2) Separate hazardous substance locations must be established for—
 - (a) places where organic peroxides are to be kept in packages that are closed at all times; and
 - (b) places where organic peroxides 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 organic peroxides, 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 organic peroxide that the hazardous substance location is designed or constructed to accommodate; and
 - (c) any manufacturing or use involving organic peroxides that may occur at the location.
- (4) The person in charge of a hazardous substance location must ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 5.2 substances are met.
- (5) The person in charge of a hazardous substance location must ensure that—
- (a) where a test certificate is required under clause 25, a test certificate is obtained that certifies that the requirements of clause 25 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 organic peroxides; and
 - (ii) all controlled zones within the place.
- (6) For the purposes of this Part, use includes removing an organic peroxide from, or putting it into, a package or container.

22 Requirements to reduce likelihood of unintended combustion or explosion where organic peroxides present at hazardous substance location

- (1) The person in charge of a hazardous substance location required to be established under clause 21 must ensure that—
- (a) the temperature of the immediate area around the organic peroxides complies with the relevant requirements of clause 17, and any source of impact or pressure shock complies with the requirements of clause 18; and
 - (b) the area around the organic peroxide 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—
 - (I) with a fire resistance rating of 120/120/120 minutes; and
 - (II) that is constructed to prevent a fire on one side of the wall from coming into contact with any such substances on the other side of the wall; or
 - (ii) where the hazardous substance location site boundary abuts an area of high intensity land use, by a wall—
 - (I) with a fire resistance rating of 240/240/240 minutes; and

- (II) that is constructed to prevent a fire on one side of the wall from coming into contact with any such substances on the other side of the wall; or
- (iii) for class 5.2A or 5.2B substances, the applicable distance as specified in Table 8, 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 9 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 clauses 16, 17, 18, and 24; and
- (c) the organic peroxide is separated from ignition sources by the appropriate distance specified in Table 10 or by a wall as described in subclause (1)(b)(i) or (1)(b)(ii); and
- (d) any area where particulate matter or vapour from an organic peroxide is likely to form (including any ventilation outlet or aperture) is separated from any ignition source to the degree provided in subclause (1)(c); and
- (e) arrangements 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 an organic peroxide is prevented; and
 - (iii) accumulation of an organic peroxide on clothing or on or in any equipment inside the location is prevented, unless—
 - (I) the equipment or clothing complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (II) any material that has so accumulated is collected and removed from the location immediately; and
 - (III) the requirements of clause 3(2) and 3(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 organic peroxide 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 clause 23(1)(a) otherwise allows, every package or container containing an organic peroxide within a hazardous substance location must be kept closed at all times (except for any permanently open vent in the package or container).

Table 8. Separation distances for class 5.2A and 5.2B substances

| 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).

Table 9. Separation distances for class 5.2C, 5.2D, 5.2E, and 5.2F substances

| HSNO classification | Quantity of 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) |
|----------------------|----------------------------|--|---|---|
| 5.2C 5.2D 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 |
| | 10,000 | 10 | 15 | 10 |
| 5.2F | ≤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).

Table 10. Hazardous substance location requirements – Minimum separation distances from ignition sources

| HSNO classification | Minimum distance where package kept closed (m) | Minimum distance where substances manufactured or used |
|------------------------|--|--|
| 5.2A, 5.2B | 5 | 8 |
| 5.2C, 5.2D, 5.2E, 5.2F | 3 | 5 |

23 Extra requirements for hazardous substance location where organic peroxides manufactured or used

- (1) The person in charge of a hazardous substance location where organic peroxides are manufactured or used must ensure that, in addition to the requirements of clause 22, the following requirements are met in relation to the location:
 - (a) within the location, every package or container containing an organic peroxide must be kept closed except for when the organic peroxide is being taken from or put into its package or container; and
 - (b) no person is exposed to an organic peroxide unless protected by clothing or equipment that meets the requirements of Part 5 (Equipment) of Schedule 1 to the Group Standard; and
 - (c) arrangements are in place that will ensure that every person leaving the hazardous substance location is free of such substances.
- (2) The person in charge of a hazardous substance location where organic peroxides are manufactured or used must ensure that it is separated from any other hazardous substance location by—
 - (a) a distance of not less than that specified for incompatible substances or materials in Tables 8 and 9 (see clause 22); 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.

24 Requirements to be met by person in charge of hazardous substance location to control adverse effects of unintended combustion or explosion of an organic peroxide

- (1) The person in charge of a hazardous substance location where organic peroxides are present must establish a controlled zone around the location such that—
 - (a) any person not personally authorised to be there by the person in charge is excluded from the zone; and
 - (b) within the controlled zone, no person is exposed to more than the heat radiation limit described in clause 30, except where the requirements of Part 5 (Equipment) of Schedule 1 to the Group Standard, are met; and
 - (c) one of the following requirements or sets of requirements is met—
 - (i) the requirements of clause 22(1)(b)(i) and (c); or
 - (ii) the requirements of clause 22(1)(b)(ii) and (c); or
 - (iii) the requirements of clause 22(1)(b)(iii) and (c); or

- (iv) the requirements of clause 22(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 clause 30 or to a blast overpressure greater than that specified in clause 30(2)(b).
- (2) The person in charge of the hazardous substance location must also ensure that, within the controlled zone, the requirements of clause 22(1)(a), (b), (e), and (f) or, if applicable, clause 23, 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 organic peroxide, 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 clause 22(1)(c) and in either subclause (i) or subclause (ii) of clause 22(1)(b); or
 - (b) a distance that corresponds to the distance from incompatible substances described in clause 22(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 clause 30.
- (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).

25 Test certification requirements at hazardous substance location for organic peroxides

Every hazardous substance location where more than the following quantities of organic peroxide in the following hazard classifications are present must have a current test certificate that certifies compliance with the requirements of clause 26 or, where applicable, clause 27:

- (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.

26 Matters to be certified for hazardous substance location where containers of organic peroxides kept closed at all times or containers designed to be vented

Where a test certificate is required for a hazardous substance location under clause 25, the certificate must certify that, for the hazardous substance location—

- (a) the notification requirements of clause 21 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 organic peroxides, or can demonstrate there is available a person who is an approved handler for organic peroxides, and
- (c) the organic peroxides can be secured as described in clause 28; and
- (d) a site plan is available for inspection that complies with the requirements of clause 21(5); and
- (e) the requirements of clauses 22(1)(a) to (d) and (f), and 22(2) are complied with; and
- (f) the requirements of clause 24 are complied with; and
- (g) any fixed structure or installed equipment within the location is constructed from compatible material and is not an ignition source; and
- (h) any equipment or clothing present complies with the requirements imposed by Part 5 (Equipment) of Schedule 1 to the Group Standard; and
- (i) there are documented procedures to ensure that the requirements of clause 22(1)(e) are complied with; and
- (j) the location has signage in place as required by Part 6 of the Site and Storage Conditions; and
- (k) where the quantity of hazardous substance requires, the requirements for emergency management specified in Part 5 of the Site and Storage Conditions are met.

27 Matters to be certified for hazardous substance location where organic peroxides manufactured or used

Where a test certificate is required for a hazardous substance location under clause 25 and where that location or any part of that hazardous substance location is one where organic peroxides are manufactured or used, the test certificate must, in addition to certifying the matters specified in clause 26, also certify that those items specified in clause 23 are met, except that—

- (a) there are documented procedures to ensure that every person leaving the location is free of any organic peroxide; and
- (b) a site plan shows that clause 23(2) is complied with.

28 Requirements for securing organic peroxides

- (1) For the purposes of clause 26(c), 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.

29 Requirements to be met by transit depot for organic peroxides

At any transit depot where the quantity of organic peroxides present exceeds that specified for the relevant classification in Table 5 (see clause 15), 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 organic peroxides, 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 organic peroxide that the depot is designed or constructed to accommodate; and
- (b) ensure that all organic peroxides remain within their closed containers; and
- (c) ensure that the approved handler requirements of Part 3 (Approved Handler) of Schedule 1 to the Group Standard relating to class 5.2 substances are met; and
- (d) ensure that any road vehicle loaded with containers of organic peroxides 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 organic peroxides 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 6 of the Site and Storage Conditions, areas for the containment, pending disposal, of any leaked or spilled material or damaged packages.

30 Requirements to control adverse effects where contact of organic peroxides with incompatible substances or ignition, impact, or pressure shock sources intended or anticipated

- (1) This clause applies in circumstances where—
- (a) an organic peroxide is to be deliberately contacted with an incompatible substance or an ignition source; or
 - (b) an organic peroxide is to be exposed to a temperature that exceeds the limits described in clause 17, or subjected to an impact or pressure shock that exceeds the limits described in clause 18; or
 - (c) it is reasonable to expect that the circumstances or exposure described in subclause (1)(a) or subclause (1)(b) might accidentally occur.
- (2) In such circumstances no person, unless protected by clothing or equipment as required by Part 5 (Equipment) of Schedule 1 to the Group Standard, 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).

Part 4 Stationary Container Systems

31 Stationary Container Systems

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

Part 5 Emergency Management

32 Fire extinguishers required

- (1) Every place must have the number of fire extinguishers specified in Table 11 if the quantity of oxidising substances or organic peroxides present, or likely to be present, exceed the quantities listed in Table 11.

Table 11. Trigger quantities requiring fire extinguishers

| HSNO classification | Description | Quantity | No of fire extinguishers |
|---------------------|-----------------|-----------------|--------------------------|
| 5.1.1A | liquid solid | 5 L 5 kg | 1 |
| 5.1.1B | liquid solid | 200 L 200 kg | 1 |
| 5.1.1C | liquid solid | 500 L 500 kg | 2 |
| 5.2A, 5.2B | liquid solid | 1 L 1 kg | 1 |
| 5.2C, 5.2D | liquid solid | 10 L 10 kg | 1 |
| 5.2E, 5.2F | liquid solid | 50 L 50 kg | 1 |

- (2) If oxidising substances or organic peroxides of two or more hazard classifications are held in the place, or reasonably likely to be held in it on occasion—
- (a) the numbers of fire extinguishers are not cumulative; and
 - (b) it is enough to have the highest of the numbers of fire extinguishers specified for substances of the various classifications.

33 Location of fire extinguishers

- (1) In the case of a motor vehicle transporting oxidising substances or organic peroxides, the fire extinguishers required by clause 32 must be in or on the vehicle.
- (2) In any other case, every fire extinguisher required by clause 32 must be so located that the distance of travel between it and the oxidising substances or organic peroxides concerned is no more than 30 m.

34 Capability of fire extinguishers

Each fire extinguisher required by clause 32 must be able, when used by one person, to put out a fully ignited pool, 50 mm deep and at least 6 m² in area, of a flammable liquid with properties equivalent to those of n-heptane.

35 Duties of persons in charge of places in respect of emergency response plans and secondary containment

- (1) This clause applies to a place if—
- (a) there is held in it, or reasonably likely to be held in it on occasion, an aggregate quantity of hazardous substances of a particular hazard classification greater than the quantity specified in Table 12; and
 - (b) it is not an aircraft subject to the Civil Aviation Act 1990 or a ship subject to the Maritime Transport Act 1994.
- (2) A person in charge of a place to which this clause applies must ensure that the requirements of clauses 36 to 50 are complied with.

Table 12. Trigger quantities for emergency response plans

| HSNO classification | Description | Quantity |
|---|-----------------|-----------------------|
| 5.2A, 5.2B | liquid solid | 10 L 10 kg |
| 5.2C, 5.2D | liquid solid | 25 L 25 kg |
| 5.1.1A | liquid solid | 50 L 50 kg |
| 5.2E 5.2F 6.1A, 6.1B, 6.1C 8.2A 9.1A | liquid solid | 100 L 100 kg |
| 5.1.1B | liquid solid | 500 L 500 kg |
| 6.1D, 6.5A, 6.5B, 6.7A 8.2B 9.1B, 9.1C | liquid solid | 1,000 L 1,000 kg |
| 5.1.1C | liquid solid | 5,000 L 5,000 kg |
| 6.6A, 6.7B, 6.8A, 6.9A 8.2C, 8.3A 9.1D | liquid solid | 10,000 L 10,000 kg |

36 When emergency response plans required

A place to which clause 35 applies must have in it a single emergency response plan if the aggregate quantity of hazardous substances of a particular hazard classification held in it or reasonably likely to be held in it is greater than the quantity specified in Table 12.

37 Plans to warn of likely emergencies

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

38 Contents of plans

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

- (a) describe the actions to be taken to—
 - (i) warn people at the place, and in surrounding areas that may be adversely affected by the emergency, that an emergency has occurred; and
 - (ii) advise those people about the actions they should take to protect themselves; and
 - (iii) help or treat any person injured in the emergency; and
 - (iv) manage the emergency so that its adverse effects are first restricted to the area initially affected, then as soon as practicable reduced in severity, then if reasonably possible eliminated; and

- (v) if any of the substances concerned remain, re-establish the conditions imposed on it when it was approved; and
- (b) identify every person with responsibility for undertaking any of the actions described in subclause (a) (or any part of any of those actions) and give information on—
 - (i) how to contact the person; and
 - (ii) any skills the person is required to have; and
 - (iii) any actions that person is expected to take; and
- (c) specify—
 - (i) how to obtain information about the hazardous properties of and means of controlling the substance or substances that may be involved; and
 - (ii) actions to be taken to contact any emergency service provider; and
 - (iii) the purpose and location of each item of equipment or material to be used to manage the emergency; and
 - (iv) how to decide which actions to take; and
 - (v) the sequence in which actions should be taken.

39 Extra information required in some cases

An emergency response plan—

- (a) must specify the type and location of the fire extinguishers provided under clause 32, and any extra firefighting equipment, materials, and systems provided, if any of the reasonably likely emergencies identified in the plan is a fire; and
- (b) must provide for the retention of any liquefied oxidising substance or organic peroxide to prevent its contacting any incompatible substance.

40 Availability of equipment, materials, and people

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

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

41 Availability of plans

- (1) An emergency response plan must be available to every person identified under clause 38(b) as being responsible for executing the plan or a specific part of it, and to every emergency service provider identified in it.
- (2) The information in an emergency response plan must meet the standards of presentation required for information imposed by clause 1 of Part 1 (Information Requirements) of Schedule 1 to the Group Standard.

42 Testing plans

- (1) An emergency response plan must be tested at least every 12 months; and the test must demonstrate that every procedure or action in the plan is workable and effective.
- (2) If there is a change to the persons, procedures, or actions specified in an emergency response plan, the plan must be tested within 3 months of the change; and the test must demonstrate that—
 - (a) the changed persons can perform their functions under the plan; and
 - (b) each changed procedure or action is workable and effective.
- (3) The carrying out and the results of every test must be documented; and the documentation must be retained for at least 2 years.

43 Plan can be part of other management documentation

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

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

44 Secondary containment systems for pooling substances

- (1) A place to which clause 35 applies must have a secondary containment system if the aggregate quantity of pooling substances of a particular hazard classification held in it is equal to or greater than the quantity specified in Table 12.
- (2) Subclause (1) does not apply to a place that is a vehicle.
- (3) The secondary containment system must comply with clauses 45 to 48, depending on—
 - (a) the capacities of the container or containers in which the substances are held; and
 - (b) whether they are held in a place above or below ground.
- (4) If two or more containers of different capacities (as described in clauses 45 to 47) are held at one place, the system must have a capacity of at least the sum of each container category.

- (5) For the purposes of this clause, and clauses 45 to 48, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it—
- (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and
 - (b) is not required to be located in a secondary containment system.
- (6) In this clause, pipework—
- (a) means piping that—
 - (i) is connected to a stationary container; and
 - (ii) is used to transfer a substance into or out of the stationary container; and
 - (b) includes a process pipeline or a transfer line.

45 Surface containers of up to 60 L

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

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

46 Surface containers of over 60 and up to 450 L

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

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

47 Surface containers of over 450 L

- (1) If the pooling substances are held in a place above ground and are in containers one or more of which have a capacity of 450 L or more, the secondary containment system must have a capacity of at least 110% of the capacity of the largest container.

- (2) Subclause (1) applies to a container that is so connected to some other container or containers that leakage from it will cause the other container or containers to empty, as if its capacity is the sum of the capacities of all the connected containers.

48 Below ground containers

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

49 Particular controls on secondary containment systems

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

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

50 Variation to requirements of clause 47

- (1) The capacity that a secondary containment system is required to have to comply with clause 47 may be reduced either—
- (a) by the Authority upon application by any person and subject to such conditions as the Authority thinks fit; or
 - (b) in accordance with a code of practice approved by the Authority under section 78 of the Act for the purposes of this clause.
- (2) The Authority may not approve a capacity under subclause (1) that is less than 100% of the capacity of the largest stationary container located in the secondary containment system to which the application relates.
- (3) In considering an application under subclause (1) the Authority must take into account any means provided to prevent the capacity of the secondary containment system to which the application relates being taken up by rainwater.

Part 6 Signage

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

- (1) This clause applies to a place if—
- (a) there is held in it, or reasonably likely to be held in it on occasion, an aggregate quantity of hazardous substances of a particular hazard classification greater than the quantity specified in Table 13; and
 - (b) it is not an aircraft subject to the Civil Aviation Act 1990 or a ship subject to the Maritime Transport Act 1994 or a vehicle subject to the Land Transport Act 1998.
- (2) A person in charge of a place to which this clause applies must ensure that—
- (a) signage required by clause 52 is provided; and
 - (b) its content, presentation and positioning comply with that clause; and
 - (c) it meets the general information requirement imposed by clause 1 of Part 1 (Information Requirements) of Schedule 1 to the Group Standard.

Table 13. Trigger quantities requiring signage

| HSNO classification | Description | Quantity ¹ |
|--|-----------------|-----------------------|
| 5.2A, 5.2B | liquid solid | 1 L 1 kg |
| 5.2C, 5.2D, 5.2E, 5.2F | liquid solid | 10 L 10 kg |
| 5.1.1A 6.1A 8.2A | liquid solid | 50 L 50 kg |
| 9.1A, 9.2A, 9.3A, 9.4A | liquid solid | 100 L 100 kg |
| 6.1B 8.2B | liquid solid | 250 L 250 kg |
| 5.1.1B | liquid solid | 500 L 500 kg |
| 5.1.1C 6.1C 8.1A, 8.2C, 8.3A 9.1B, 9.1C, 9.2B, 9.2C, 9.3B, 9.4B, 9.4C | liquid solid | 1,000 L 1,000 kg |
| 6.1D 9.1D, 9.2D, 9.3C | liquid solid | 10,000 L 10,000 kg |

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

52 Signage requirements

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

Interpretation

Act means the Hazardous Substances and New Organisms Act 1996

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

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

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

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

compatible means that the substance—

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

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

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

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

decomposition temperature means the temperature at which a class 5.1.1 or 5.2 substance will spontaneously decompose, possibly with explosive force, releasing heat and usually combustible by-products

fire resistance rating, in relation to an object or item, means that the object or item is able to maintain its stability, insulation, and integrity, and is able to offer protection against heat radiation for the time specified by the relevant rating in minutes, where **stability**, **insulation**, and **integrity**, respectively, have the meanings ascribed to them in clause A2 of Schedule 1 of the Building Regulations 1992. Where—

- (a) a class 5.1.1 or 5.2 substances is present at a hazardous substance location in circumstances where these conditions require a wall with a fire resistance rating of 120/120/120 minutes, a reinforced concrete wall 100 mm thick is a means of meeting this requirement.
- (b) a class 5.2 substances is present at a hazardous substance location in circumstances where these conditions 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 type, in relation to a hazardous substance, means a general indication of its subclass (for example, “dangerous when wet”) whether given in words or by any other means

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

hazardous substance location in relation to an oxidising substance or an organic peroxide—

- (a) means an area where an amount of the oxidising substance or organic peroxide that is in excess of the relevant amount specified in Table 1, Table 2 (see clause 4) or Table 5 (see clause 15) is located for more than—
 - (i) 18 hours, in the case of a 5.1.1B, 5.1.1C, 5.2C, 5.2D, 5.2E or 5.2F substance; or
 - (ii) 2 hours, in the case of a 5.1.1A, 5.2A or 5.2B substance; and
- (b) does not include a vehicle, ship, or aircraft while it remains under the direct control of its driver, master, or pilot and under the jurisdiction of the Land Transport Rules, the Maritime Rules, or the Civil Aviation Rules, as the case may be

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

ignition source—

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

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

- (a) a substance that is not a class 5.1.1 substance but that is classified in class 5.2, or in any of classes 1, 2, 3, 4, 6.1A to 6.1C, or 8:
- (b) any organic matter, or substance that contains carbon, in a form that will combust with the class 5.1.1 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 substance.

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

inspection means inspection under Part 7 of the Act

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

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

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

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

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

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

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

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

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

pooling substance means a hazardous substance that—

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

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

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

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

secondary containment system, in relation to a place means—

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

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

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

stationary tank—

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

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

transit depot means, in the case of oxidising substances or organic peroxides, 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 oxidising substances or organic peroxides 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 5.1.1B, 5.1.1C, 5.2C, 5.2D, 5.2E or 5.2F substance; or
 - (ii) 2 hours, in the case of a 5.1.1A, 5.2A or 5.2B substance; and
- (b) are in no case more than 3 days

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

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

vehicle means a motorised land transport vehicle

Source Regulations and Controls

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

| Clause in this document | Relevant regulation/transfer notice |
|-------------------------|---|
| 1 | Classes 1 to 5 Controls ¹ – Regulation 6 |
| 2 | Classes 1 to 5 Controls – Regulation 7 |
| 3 | Classes 1 to 5 Controls – Regulation 93 and Regulation 113 |
| 4 | Classes 1 to 5 Controls – Regulation 88 |
| 5 | Classes 1 to 5 Controls – Regulation 91 |
| 6 | Classes 1 to 5 Controls – Regulation 94 |
| 7 | Classes 1 to 5 Controls – Regulation 95 with changes to the regulation by the Dangerous Goods Transfer Notice ² – Schedule 5 |
| 8 | Classes 1 to 5 Controls – Regulation 96 |
| 9 | Classes 1 to 5 Controls – Regulation 97 |
| 10 | Classes 1 to 5 Controls – Regulation 98 |
| 11 | Classes 1 to 5 Controls – Regulation 99 |
| 12 | Classes 1 to 5 Controls – Regulation 100 |
| 13 | Classes 1 to 5 Controls – Regulation 101 |
| 14 | Classes 1 to 5 Controls – Regulation 102 |
| 15 | Classes 1 to 5 Controls – Regulation 106 |
| 16 | Classes 1 to 5 Controls – Regulation 109 |
| 17 | Classes 1 to 5 Controls – Regulation 110 |
| 18 | Classes 1 to 5 Controls – Regulation 111 |
| 19 | Classes 1 to 5 Controls – Regulation 114 |
| 20 | Classes 1 to 5 Controls – Regulation 115 |
| 21 | Classes 1 to 5 Controls – Regulation 116 |
| 22 | Classes 1 to 5 Controls – Regulation 117 |
| 23 | Classes 1 to 5 Controls – Regulation 118 |
| 24 | Classes 1 to 5 Controls – Regulation 119 |
| 25 | Classes 1 to 5 Controls – Regulation 120 |
| 26 | Classes 1 to 5 Controls – Regulation 121 |
| 27 | Classes 1 to 5 Controls – Regulation 122 |
| 28 | Classes 1 to 5 Controls – Regulation 123 |
| 29 | Classes 1 to 5 Controls – Regulation 124 |
| 30 | Classes 1 to 5 Controls – Regulation 125 |
| 31 | Dangerous Goods Transfer Notice – Schedule 8 |
| 32 | Emergency Management ³ – Regulation 21 |
| 33 | Emergency Management – Regulation 22 |
| 34 | Emergency Management – Regulation 23 |
| 35 | Emergency Management – Regulation 25 |
| 36 | Emergency Management – Regulation 27 |

| Clause in this document | Relevant regulation/transfer notice |
|-------------------------|--|
| 37 | Emergency Management – Regulation 28 |
| 38 | Emergency Management – Regulation 29 |
| 39 | Emergency Management – Regulation 30 |
| 40 | Emergency Management – Regulation 31 |
| 41 | Emergency Management – Regulation 32 |
| 42 | Emergency Management – Regulation 33 |
| 43 | Emergency Management – Regulation 34 |
| 44 | Emergency Management – Regulation 36, with changes to the regulation by Dangerous Goods Transfer Notice – Schedule 5 |
| 45 | Emergency Management – Regulation 37 |
| 46 | Emergency Management – Regulation 38 |
| 47 | Emergency Management – Regulation 39 |
| 48 | Emergency Management – Regulation 40 |
| 49 | Emergency Management – Regulation 41 |
| 50 | Dangerous Goods Transfer Notice – Schedule 9, Clause 3 |
| 51 | Identification – Regulation 51 ⁴ |
| 52 | Identification – Regulation 52; Emergency Management – Regulation 42 |

1. Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
2. Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.
3. Hazardous Substances (Emergency Management) Regulations 2001.
4. Hazardous Substances (Identification) Regulations 2001.