



DRAFT

Code of Practice

**PREPARATION OF
SAFETY DATA SHEETS
FOR HAZARDOUS CHEMICALS**



safe work australia

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FOREWORD

This Code of Practice on the preparation of safety data sheets for workplace chemicals is an approved code of practice under section 274 of the *Work Health and Safety Act* (WHS Act).

An approved code of practice is a practical guide to achieving the standards of health, safety and welfare required under the WHS Act and the Work Health and Safety Regulations (the WHS Regulations).

A code of practice applies to anyone who has a duty of care in the circumstances described in the code. In most cases, following an approved code of practice would achieve compliance with the health and safety duties in the WHS Act, in relation to the subject matter of the code. Like regulations, codes of practice deal with particular issues and do not cover all hazards or risks which may arise. The health and safety duties require duty holders to consider all risks associated with work, not only those for which regulations and codes of practice exist.

Codes of practice are admissible in court proceedings under the WHS Act and Regulations. Courts may regard a code of practice as evidence of what is known about a hazard, risk or control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code relates.

The WHS Act and Regulations may be complied with by following another method, such as a technical or an industry standard, if it provides an equivalent or higher standard of work health and safety than the code.

An inspector may refer to an approved code of practice when issuing an improvement or prohibition notice.

This Code of Practice has been developed by Safe Work Australia as a model code of practice under the Council of Australian Governments' *Inter-Governmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety* for adoption by the Commonwealth, state and territory governments.

A draft of this Code of Practice was released for public consultation on 7 December 2010 and was endorsed by the Workplace Relations Ministers Council on [to be completed].

How to use this code of practice

This Code includes references to both mandatory and non-mandatory actions. The references to legal requirements contained in the WHS Regulations (highlighted in text boxes in this Code) are not exhaustive and are included for context only.

The words 'must', 'requires' or 'mandatory' indicate that legal requirements exist, which must be complied with.

The word 'should' indicates a recommended course of action, while 'may' indicates an optional course of action.

PURPOSE

This Code provides practical guidance for manufacturers and importers of hazardous chemicals on the information that should be provided in safety data sheets for the chemicals.

SCOPE

This Code applies to substances, mixtures and articles used, handled or stored at the workplace which are defined as hazardous chemicals under the WHS Regulations, and where the WHS Regulations impose a duty to prepare a Safety Data Sheet.

1. INTRODUCTION

1.1 Who should use this Code?

You should use this Code if you are a person conducting a business or undertaking involved in the manufacture or import of hazardous chemicals that will be used, or could reasonably be expected to be used, in workplaces.

This Code will help you prepare a Safety Data Sheet for hazardous chemicals that you manufacture or import for use, handling or storage in Australia.

1.2 What is a Safety Data Sheet (SDS)?

An SDS, previously called a Material Safety Data Sheet (MSDS), is a document that provides information on the properties of hazardous chemicals and how they affect health and safety in the workplace. The advice contained in an SDS includes information on the identity, health and physico-chemical hazards, safe handling and storage, emergency procedures, and disposal considerations.

A SDS is an important tool for eliminating or minimising the risks associated with the use of hazardous chemicals in workplaces.

1.3 The meaning of key terms and abbreviations

ADG Code means the *Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th edition*, approved by the Australian Transport Council as in force from time to time.

Hazardous chemical means any substance, mixture or article that satisfies the criteria of one or more *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS) hazard classes (including a classification in schedule 7 of the WHS Regulations), is a dangerous goods under the ADG Code or is a C1 combustible liquid, but excludes a substance, mixture or article in the following hazard classes:

- acute toxicity - oral - category 5
- acute toxicity - dermal - category 5
- acute toxicity - inhalation - category 5
- skin corrosion/irritation - category 3
- serious eye damage/eye irritation - category 2B
- aspiration hazard - category 2
- flammable gas - category 2
- flammable liquids - category 4, except to the extent that the liquids are C1 combustible liquids
- acute hazard to the aquatic environment – categories 1, 2 and 3
- chronic hazard to the aquatic environment - categories 1, 2, 3 and 4, or
- hazardous to the ozone layer.

Further definitions and abbreviations used in this Code are listed in *Appendix A*.

1.4 What are the duties in relation to Safety Data Sheets?

Manufacturers and importers of hazardous chemicals have duties under the WHS Regulations to provide current information about the hazardous chemical in the form of an SDS. These duties are summarised below.

The WHS Regulations also place duties on suppliers to provide SDS with chemicals they supply and on persons conducting a business or undertaking who purchase the chemicals for use in the workplace to obtain the SDS and ensure that it is readily available to workers or other people who may be affected by the hazardous chemical.

Duty holder	Responsibilities
Manufacturers and importers of a hazardous chemical	<ul style="list-style-type: none"> • Must prepare an SDS for the hazardous chemical before first manufacturing or importing the hazardous chemical; or if that is not practicable, as soon as practicable after first manufacturing or importing the hazardous chemical. • Must review the SDS at least once every 5 years; and amend whenever necessary to ensure that it contains correct current information. • Must provide the current SDS to a person conducting a business or undertaking, or anyone else, if the person is likely to be affected by the chemical or asks for the SDS.
Person conducting a business or undertaking	<ul style="list-style-type: none"> • May change an SDS for a hazardous chemical only if: <ul style="list-style-type: none"> ○ the person is an importer; and changes a foreign safety data sheet in a way that is consistent with the duties of an importer; or ○ the change is to attach the translation of a non-English SDS, and clearly states that the translation is not part of the original SDS.

The SDS must be prepared by the manufacturer or importer of a chemical. The writer should have the appropriate expertise and access to the product formulation and information on its correct hazard classification.

To prepare a correct and accurate SDS for a hazardous chemical, you need to know the correct classification of the hazardous chemical. Under the WHS Regulations, manufacturers and importers of a substance, mixture or article have an obligation to correctly classify that substance, mixture or article.

1.5 When is it necessary to prepare a Safety Data Sheet?

The [draft] WHS Regulations require a safety data sheet to be prepared before first manufacturing or importing a hazardous chemical, or if this is not possible, as soon as practicable after first manufacturing or importing the chemical.

Preparing and providing an SDS is mandatory where a substance, mixture or article is a hazardous chemical. However, the WHS Regulations do not require an SDS to be prepared for any of the following chemicals (although the general duty of care requirements in the WHS Act still apply):

- Chemicals in batteries while they are incorporated in plant.
- Fuel in a container that is fitted to a vehicle, vessel or aircraft, mobile plant, appliance or other device, where the fuel is intended for use in its operation.

- Fuel in a container of a domestic or portable fuel burning appliance where the quantity of fuel does not exceed 25 kg or 25 litres.
- Hazardous chemicals in portable fire-fighting or medical equipment for use at a workplace.
- Hazardous chemicals that form part of the integrated refrigeration system of refrigerated freight containers.
- Potable liquids that are consumer products at retail premises.
- Infectious substance and mixtures.
- Engines, machinery and vehicles that are classified as Class 9 dangerous goods under the ADG Code.
- Substances or mixtures that meet the criteria for elevated temperature dangerous goods under the ADG Code and cannot otherwise be classified in accordance with either the ADG Code or the GHS.
- Substances, mixtures or articles classified as hazardous to the environment under the ADG Code and cannot otherwise be classified under either the ADG Code or the GHS.
- Substances, mixtures or articles that are radioactive and cannot otherwise be classified in accordance with either the ADG Code or the GHS.
- Dangerous goods and explosives which are being transported by road, rail, sea or air if their transport is regulated under other legislation.

In addition to the above, the following GHS hazard classes and categories are outside the scope of the WHS Regulations and therefore it is not mandatory to include information relating to any of these hazards in a SDS for a workplace hazardous chemical in Australia:

- Acute toxicity - oral - category 5
- Acute toxicity - dermal - category 5
- Acute toxicity - inhalation - category 5
- Skin corrosion/irritation – category 3
- Serious eye damage/eye irritation – category 2B
- Aspiration hazard – category 2
- Flammable gases – category 2
- Flammable liquids—category 4, except to the extent that the liquids are C1 combustible liquids
- Hazardous to the aquatic environment – acute hazard - categories 1, 2 and 3,
- Hazardous to the aquatic environment – long term hazard - categories 1, 2, 3 and 4,
- Hazardous to the ozone layer – category 1.

Further, the following things are excluded from the scope of the [draft] WHS Regulations except to the extent that the use, handling or storage of those things is related to a work activity at a workplace:

- food and beverages within the meaning of the *Food Standards Australia New Zealand Food Standards Code*
- therapeutic agents at the point of intentional intake by or administration to humans or animals
- tobacco or products made of tobacco
- cosmetics or toiletries.

While this Code applies to hazardous chemicals as defined, an SDS should be provided for any chemical that may be harmful to the health or safety of persons or the environment. The SDS should reflect what is currently known about the chemical.

Where a mixture contains an ingredient that meets the criteria for respiratory and skin sensitisation, specific target organ toxicity, reproductive toxicity, carcinogenicity and mutagenicity it is recommended that an SDS be prepared for that mixture, even if the mixture overall is not hazardous according to the Australian WHS requirements.

Other information on hazard properties of a chemical not already captured by any of the sections within the SDS should be included, for example if the chemical has ototoxic properties.¹

For engineered or manufactured nanomaterials², or chemicals containing engineered or manufactured nanomaterials, an SDS should be provided unless there is evidence that the nanomaterials are not hazardous.

Some overseas authorities may require an SDS or information on an SDS for certain chemicals that are not hazardous according to Australian WHS laws, for example, for substances that meet the criteria for a GHS hazard class or category listed above.

¹ Ototoxicity is the potential damage to the ears, specifically to the cochlea or auditory nerve, by a toxin. A list of ototoxins is included in Appendix A of the Code of Practice for *Managing Noise and Preventing Hearing Loss at Work*.

² 'Engineered nanomaterials' are engineered and manufactured for a purpose and are approximately under 100 microns.

2. PREPARING, REVIEWING AND AMENDING SAFETY DATA SHEETS

An SDS must be prepared and written to provide accurate information about the hazards of a chemical and how to handle it safely, including its storage and disposal. It must contain information about physicochemical properties, potential health and environmental effects, as well as emergency response measures.

2.1 What information is needed in an SDS?

There are specific requirements in relation to the type of information that the SDS must contain.

The [draft] WHS Regulations require a safety data sheet to be in English and to:

- contain unit measures expressed in Australian legal units of measurement under the *National Measurement Act 1960* (Cwlth)
- state the date it was last reviewed, or if it has not been reviewed, the date it was prepared
- if the hazardous chemical is a dangerous goods, state the proper shipping name and UN number of the chemical
- state the name, Australian address and business telephone number of:
 - (i) the manufacturer, or
 - (ii) supplier; or
 - (iii) the importer, who must be an Australian resident, and
- state an Australian business telephone number from which information about the chemical can be obtained in an emergency.

Language used in the SDS should be simple, clear and precise, avoiding jargon, acronyms and abbreviations. Vague and misleading expressions should not be used. Phrases such as “may be dangerous”, “no health effects”, “safe under most conditions of use” and “harmless” are also not recommended. It may be that information on certain properties is of no significance or that it is technically impossible to provide detailed information and the reasons for this should be clearly stated under each heading. If it is stated that a particular hazard does not exist, the safety data sheet should clearly differentiate between cases where no information is available to the classifier and cases where negative test results are available.

Numbers and quantities must be expressed in units appropriate to Australia and in accordance with the *National Measurement Act 1960*. Other units of measurement, including the International System of Units (SI) or non-SI units may also be used if they are in wide use in Australia. For example, mm Hg for vapour pressure or degrees Celsius (°C) rather than Kelvin (K) for temperature can be used.

A SDS must state the date it was prepared or last reviewed and should include a version number, superseded date or some other indication of what version is replaced.

The address provided in the SDS of the manufacturer, supplier or importer must be the physical location with the street address and not a PO Box address.

There is no limit in relation to the length of the document, but it should be proportionate to the hazard level of the chemical and the available information.

All pages of the SDS should be numbered and include an indication of the end of the SDS, for example, “page 1 of 3”. Alternatively, number each page and indicate whether there is a page following, for example, “continued on next page” or “end of SDS”.

Under the [draft] WHS Regulations, a safety data sheet for a hazardous chemical must state the following information about the chemical:

Section 1 - Identification: Product identifier and identity for the chemical;

Section 2 – Hazard(s) identification;

Section 3 - Composition and information on ingredients;

Section 4 - First-aid measures;

Section 5 - Fire-fighting measures;

Section 6 - Accidental release measures;

Section 7 - Handling and storage, including how the chemical may be safely used;

Section 8 - Exposure controls and personal protection;

Section 9 - Physical and chemical properties;

Section 10 - Stability and reactivity;

Section 11 - Toxicological information;

Section 12 - Ecological information;

Section 13 - Disposal considerations;

Section 14 - Transport information;

Section 15 - Regulatory information;

Section 16 - Any other relevant information.

Chapter 3 of this Code contains further guidance about the information that should be included in the SDS, where relevant and available³. A reasonable attempt should be made to obtain the information, however when information is not available or lacking, this should be clearly stated. The SDS should not contain any blank spaces or abbreviations without a legend.

Any recommendation made by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) in a relevant NICNAS assessment report relating to the information required in an SDS should be reviewed and included in the SDS.

Information to protect the health and safety of persons in the workplace may be included on the SDS for chemicals which do not meet the GHS classification criteria, such as some miscellaneous dangerous goods (identified in the ADG Code). For example, the health and safety information for dry ice could include recommendations under Section 7 – *Handling and Storage* to use gloves while handling the hazardous chemical, instructions not to use it in enclosed spaces and to ensure that there is adequate ventilation.

³ “Available” means where the information is available to the manufacturer or importer.

2.2 Research Chemicals, Waste Products or Samples for Analysis

Where a chemical is a research chemical, waste product or a sample for analysis and it is not reasonably practicable to comply with the SDS requirements in the WHS Regulations because the hazard properties are not fully known, then an acceptable SDS is one that:

- is in English; and
- states the name, Australian address and business telephone number of the manufacturer or importer, who must be a resident in Australia; and
- states that full identification and/or hazard information is not available for the chemical, and in the absence of such information a precautionary approach should be taken to handling the chemical
- specifies the chemical identity and/or structure of the chemical, and/or chemical composition, as far as is reasonably practicable
- specifies any known or suspected hazards, and
- specifies any precautions that must be taken in using, handling or storing the chemical, to the extent such precautions have been identified.

In the case of a research chemical, waste product or sample for analysis it is acceptable to prepare a single SDS for a group of substances, mixtures and articles where it is reasonable to assume that the group will have similar hazardous properties, provided the SDS contains all product identifiers. Chemical structure modelling software can also be used to estimate the chemical properties in developing an SDS.

2.3 Can an SDS prepared overseas be used?

An SDS prepared by an overseas manufacturer or supplier is acceptable only if it is amended by the importer in a way that is consistent with the importer's duties. If the overseas manufacturer's SDS does not comply with the requirements of the WHS Regulations, the importer will be responsible for preparing a SDS that does comply.

An SDS prepared in accordance with national legislation of other countries implementing the GHS (for example, the EU CLP-Regulations⁴) must be checked for compliance with the WHS Regulations and amended if necessary to bring it into compliance.

2.4 Reviewing and amending an SDS

An SDS can only be prepared, reviewed and amended by the manufacturer or importer of the chemical.

The SDS must be reviewed every five years from the date of original preparation or the last revision of the SDS. It must be amended whenever any new information about the hazardous chemical is known or received or when the formulation changes.

The SDS does not need to be reviewed if the manufacturer or importer has not manufactured or imported the chemical in the last 5 years.

An SDS should still be made available after the hazardous chemical is withdrawn from sale as it may be required by workplaces at a later date.

⁴ CLP-Regulation (European Commission) No 1272/2008 came into force on 20 January 2009 and aligns existing European Union legislation to the United Nations Globally Harmonized System (GHS)

It is acceptable to have attached to an SDS a non-English translation of the information contained in a manufacturer or importer's SDS, provided the appended information clearly states that the translation is not part of the original SDS.

The order of information or format of an SDS may be changed to enable the information to be presented electronically in the workplace. However, the manufacturer or importer's information in the SDS should be transcribed accurately even if the format is altered. Transcribed SDS should be clearly identified, enabling users to request original SDS if required.

3. CONTENT OF THE SAFETY DATA SHEET

This chapter describes the type of information needed for each of the sections required in an SDS. A summary of this information is provided in a checklist at *Appendix B*.

3.1 Section 1 – Identification

This section of the SDS provides information about the identification of the hazardous chemical, recommended uses and the contact details of the manufacturer or importer, including an emergency contact.

Product identifier

The SDS must include the product identifier of the hazardous chemical, exactly as found on the label. If one generic SDS is used to cover several minor variants of a hazardous chemical, all product identifiers must be listed on the SDS.

Other means of identification

The hazardous chemical must be identified by its product identifier or its chemical name. The SDS must include any company product codes, numbers or other unique identifiers, such as a Proper Shipping Name (as identified in the ADG Code), or a name specified in the *Standard for the Uniform Scheduling of Drugs and Poisons* (SUSDP). Other names or synonyms by which the hazardous chemical is labelled or commonly known should also be provided in this section.

Recommended use of the chemical and restrictions on use

The recommended or intended use of the hazardous chemical should be provided in this section. This includes a brief description of what the chemical actually does, for example, a flame retardant or anti-oxidant. Restrictions on use should be stated as far as possible.

Details of manufacturer, supplier or importer

The name, full street address, phone number(s) and electronic address, where available, of the Australian manufacturer, supplier or importer must be included in the SDS.

Emergency phone number

The SDS must include Australian emergency contact information. The emergency information available through this service should be available outside of working hours.

If an emergency information service or Poisons Information Centre phone number is provided in the SDS, this arrangement should be confirmed with the service beforehand, and copies of SDS should be provided to them.

3.2 Section 2 – Hazard(s) Identification

This section of the SDS describes the hazards of the chemical and the appropriate warning information associated with the hazards as defined in *Appendix D*. The information provided here must include a hazard classification statement explaining in simple terms all the hazards of the hazardous chemical.

Classification of the hazardous chemical

If the hazardous chemical is classified in accordance with the GHS, the appropriate hazard class and category should be indicated, for example:

Flammable liquid - Category 1
Acute toxicity – oral – Category 3

Although it is not mandatory under the WHS Regulations, a SDS may provide information on environmental hazards and other GHS hazard classes and categories, such as Acute toxicity – oral – category 5, that are outside the scope of the WHS Regulations.

Some overseas authorities may require an SDS for mixtures that are not hazardous chemicals in accordance with the WHS Regulations (see *Appendix E* for further information).

Label elements, including precautionary statements

In this section the following labelling elements should be included in accordance with the hazardous chemicals classification, as defined in *Appendix D*:

- Signal word
- Hazard statement(s)
- Precautionary statement(s)

Additionally, *Appendix D* lists 12 non-GHS hazard statements

It is not mandatory to include pictograms (or hazard symbols) in an SDS. However, these symbols may be included in this section as graphical reproductions in black and white. This allows for the distribution of SDS with ease via hard copy or through a database.

Persons preparing SDS can download the GHS label elements as either gif, jpeg and/or pdf files from the Safe Work Australia website. Pictograms should meet the following size specification to avoid stretching or having oversized pictograms on the SDS:

>1x1cm² and <2x2cm².



The name of the pictogram should also be provided, which are defined in the tables in *Appendix D* (for example, flame, skull and crossbones).

Dangerous goods class labels may also be used, however graphical elements do not need be duplicated. That is, where a GHS pictogram appears the equivalent dangerous goods class label should not be used, and vice versa.

3.3 Section 3 – Composition and Information on Ingredients

The ingredient(s) of the hazardous chemical must be identified. This includes the identification of impurities and stabilising additives which contribute to the classification of the hazardous chemical.

Disclosure of ingredient names

The chemical identity of an ingredient must be disclosed on the SDS in accordance with schedule 8 of the [draft] WHS Regulations (Disclosure of ingredients). In some cases, a generic name may be used.

Non-hazardous ingredients which have an exposure standard and which are present above 1% should be mentioned in the SDS if it is likely that they might be released under standard storage and application conditions.

Disclosure of ingredient names is not required for those ingredients that meet only physicochemical and/or environmental hazard classifications.

There is no requirement to disclose the identity of ingredients for the following GHS health hazard categories, because they fall outside the scope of the WHS Regulations:

- Acute toxicity – category 5 (oral, dermal and inhalation).
- Skin corrosion/irritation – category 3.
- Serious eye damage/eye irritation – category 2B.
- Aspiration hazard – category 2.
- Aquatic toxicity (all categories)
- Ozone depletion

Use of Generic Names⁵

Generic names may be used in an SDS if the identity of an ingredient is genuinely commercially confidential, and if:

- the ingredient is in any of the following health hazard categories:
 - Acute toxicity - category 4 (oral, dermal, inhalation).
 - Aspiration hazard - category 1.
 - Serious eye damage/eye irritation - category 2A.
 - Skin corrosion/irritation - category 2.
 - Specific target organ systemic toxicity (single exposure) - category 3; and
- the ingredient does not cause the correct classification of the hazardous chemical to include any other hazard class or category; and
- an exposure standard for the ingredient has not been established.

A guide for selecting generic names for ingredients is included in *Appendix C*.

Disclosure of proportions of ingredients

Where the chemical identity or generic name of an ingredient that makes up a hazardous chemical is disclosed, the proportions of the ingredients must also be disclosed in an SDS.

For multiple ingredients, proportions should be listed in descending order by mass or volume. Ingredients not contributing to the hazard classification should also be listed, and where included, should be listed after the ingredients contributing to the hazard classification.

However, where the exact concentration of an ingredient is commercially confidential, the concentration of the ingredient can be disclosed using the following ranges:

<10%; 10 - <30%; 30 - 60%; >60%

The proportion of an ingredient should be disclosed using a narrower range, for example, for an ingredient present at 35%, a range of 30 - 40% should be used instead of 30 - 60%.

⁵ This section is an Australian specific requirement not necessarily applicable in other countries. SDSs prepared for export products must comply with relevant legislation of the export country.

Where possible, the percentage composition should add up to or indicate a total of 100%, even if an estimate of non-hazardous ingredients needs to be provided.

3.4 Section 4 – First Aid Measures

This section of the SDS provides information about the initial care that does not involve the use of sophisticated equipment or access to a wide selection of medications to be given to a person affected by a hazardous chemical. It should state whether medical attention is required for a chemical, including the urgency of treatment required.

A SDS should provide information on any immediate effects of the chemical, by route of exposure, and the immediate treatment required. It should also include information on the possible delayed effects of the chemical and on specific health surveillance that may be needed.

Description of necessary first aid measures

In this section, the SDS should provide first aid instructions for each relevant route of exposure and describe expected immediate and delayed symptoms. Sub-headings to indicate the procedure for each route (for example, inhalation, skin contact, eye contact and ingestion) should be used.

Information should be provided on situations when:

- immediate medical attention is required
- known antidotes should be available for administration by persons trained in their use (and, where relevant, authorised by law) as part of the recommended first aid procedure
- delayed effects can be expected after exposure
- movement of the exposed individual to fresh air is recommended
- removal of clothing and shoes from the individual is recommended
- personal protective equipment (PPE) for first aiders is recommended, and
- there is a risk that first aiders may be exposed to risks from individuals who have ingested hazardous chemicals (for example, organophosphates).

Any information on specific first aid facilities, such as showers or eyewashes that are necessary in a workplace where the particular hazardous chemical is used, should also be provided.

Symptoms caused by exposure

Relevant information on the most important symptoms and effects of exposure to the chemical should be provided. Information should be provided on acute, delayed and aggravated medical conditions caused by the hazardous chemical to enable first aid to be administered.

Medical Attention and Special Treatment

If applicable, information on clinical testing and medical monitoring for delayed effects, specific details on antidotes (where they are known) and contraindications are recommended for inclusion in this section.

3.5 Section 5 – Fire Fighting Measures

This section of the SDS provides information on how to fight a fire caused by a hazardous chemical, or a fire arising in its vicinity.

Suitable extinguishing equipment

This SDS should describe:

- the type of extinguishers or fire fighting agents needed for extinguishing a fire, and
- whether any extinguishers are unsuitable for a particular situation involving the hazardous chemical.

Specific hazards arising from the chemical

The SDS should describe any specific hazards that may arise from a hazardous chemical relevant to its physical properties, such as explosive properties or hazardous combustion products that may be generated when the hazardous chemical burns, for example:

- “May produce toxic fumes and carbon monoxide if burning”.
- “Produces oxides of sulphur and nitrogen on combustion”.
- “May create flammable gas when wetted”.

Special protective equipment and precautions for fire fighters

Advice should be provided on any precautions to be taken during fire fighting, for example, “keep containers cool with water spray” and advice on appropriate PPE required for fire-fighters such as specific boots, overalls, gloves, eye and face protection and breathing apparatus.

The Hazchem code must be included in this section for the information of emergency services. The Hazchem code for bulk dangerous goods provides information on the fire-fighting medium to be used, such as whether water should be used as a fire-fighting agent, as this will be the first response of fire-fighters. The Hazchem code includes information on PPE, the risk of violent reaction or explosion, spillage action and whether evacuation should be considered in the event of an incident with the material.

3.6 Section 6 – Accidental Release Measures

This section of the SDS provides information on the appropriate ways to respond to the release of chemicals, in the form of spills, leaks or other accidental release. This is so that the adverse effects on people, property and the environment at or near the workplace can be prevented or minimised. This information should distinguish between responses for large and small spills where the spill volume has a significant impact on the hazard or response.

Personal precautions, protective equipment and emergency procedures

The SDS should provide the following advice on a spill or release of a hazardous chemical:

- The use of suitable equipment (including PPE) to prevent contamination of skin, eyes and personal clothing.
- The removal of ignition sources and provision of sufficient ventilation.
- Emergency procedures such as the need to evacuate the danger area or to consult an expert.

Environmental precautions

Contamination of the environment can give rise to indirect human chemical exposures within and outside the workplace. The SDS should provide advice on precautions related to accidental spills and releases of the hazardous chemical into the environment, such as keeping away from drains and surface and ground water.

Methods and materials for containment and cleaning up

The SDS should include advice on how to contain and clean up a spill. Appropriate containment techniques may include:

- Bunding⁶.
- Covering of drains.
- Capping procedures (providing a cover or protection, for example, to prevent damage or spillage).

Appropriate clean up procedures may include:

- Neutralisation techniques.
- Decontamination techniques.
- Adsorbent materials.
- Cleaning techniques.
- Vacuuming techniques.
- Equipment required for containment/clean up (includes the use of non-sparking tools and equipment where applicable).

Recommended clean up procedures should also take into account disposal considerations under Section 13 – *Disposal considerations* of the SDS.

3.7 Section 7 – Handling and Storage

This section of the SDS provides guidance on safe handling and storage practices to minimise the risks of release and exposure to the hazardous chemical. These precautions should be appropriate to the intended use of the chemical and to its unique properties.

Precautions for safe handling

Information should be provided to:

- allow for the safe handling of the hazardous chemical, for example, avoiding spills
- prevent inappropriate handling of incompatible hazardous chemicals, and
- minimise the release of the hazardous chemical outside of the workplace.

Information on how the chemical may be safely used must be provided.

General warnings on what practices to avoid or restrict should also be included in this section. This information is in addition to other hazard control measures in Section 8 – *Exposure controls and personal protection*. This section should also provide advice on general hygiene requirements, for example:

- “Eating, drinking and smoking in work areas is prohibited”.
- “Wash hands after use”.
- “Remove contaminated clothing and protective equipment before entering eating areas”.

⁶ A **bund** is a provision of liquid collection facilities which, in the event of any leak or spillage from tanks or pipe work, will capture well in excess of the volume of liquids held, for example, an embankment. Bunded areas should drain to a capture tank which should have facilities for water/oil separation.

Conditions for safe storage, including any incompatibilities

This section should include advice consistent with the physical and chemical properties of a hazardous chemical referred to in Section 9 - *Physical and chemical properties* and 10 – *Stability and Reactivity*. Advice should be provided on specific storage requirements including:

(a) How to avoid:

- explosive atmospheres
- corrosive conditions
- flammability hazards
- incompatible substances or mixtures
- evaporative conditions, and
- potential ignition sources (including electrical equipment).

(b) How to control the effects of:

- weather conditions
- ambient pressure
- temperature
- sunlight
- humidity, and
- vibration.

(c) How to maintain the integrity of the hazardous chemical by the use of:

- stabilisers
- anti-oxidants, and
- temperature control

(d) Other advice on:

- ventilation requirements for storage facilities
- specific designs for storage rooms/vessels
- quantity limits under storage conditions
- packaging compatibilities, and
- warnings if water should not be used as a fire-fighting agent, for example: "Ensure that fire-fighting water cannot reach water-sensitive chemicals and if necessary, provide protective cabinets with appropriate labelling."

3.8 Section 8 – Exposure controls and personal protection

This section provides guidance on how to eliminate or minimise risks associated with exposure to hazardous chemicals. "Exposure control" means the full range of specific protection measures (including engineering control measures) to be taken during the use of a hazardous chemical in order to minimise personal exposure to the chemical.

Exposure standards

The SDS should include advice on what measures should be taken to minimise exposure to hazardous chemicals and to keep exposure below the relevant exposure standard. Exposure standards represent airborne concentrations of individual substances which, according to current knowledge, should neither impair the health of, nor cause undue discomfort to, nearly all workers.

Exposure standards are generally expressed as a Time-Weighted Average (TWA) concentration of a substance over an eight-hour working shift. Along with this, Short Term Exposure Limits (STEL) and Peak Limitations should also be specified.

This section should list the available exposure standards, including all notations, for each hazardous chemical ingredient. If additional air contaminants are generated when using the hazardous chemical as intended, exposure standards for these should also be listed.

Where there are no Australian exposure standards or occupational exposure limits, overseas standards should be used. Examples of overseas standards or limits include those of the Health and Safety Executive (HSE) in the United Kingdom, American Conference of Governmental Industrial Hygienists (ACGIH) or the German MAK.

Regardless of the exposure standard (if any) this section should describe controls to be implemented in a workplace to eliminate or minimise personal exposure.

Where a chemical is classified as a carcinogen according to the hazard criteria, recommendations on substitution or isolation of the chemical from the workplace should be included in this section of the SDS.

Exposure standards are reviewed from time to time and therefore an up-to-date record of exposure standards should be consulted. Exposure standards are published by Safe Work Australia in the *Atmospheric Contaminant Workplace Exposure Standards*. An up-to-date list of Australian exposure standards is also available on the Hazardous Substances Information System (HSIS, which can be accessed from the Safe Work Australia website (www.safeworkaustralia.gov.au)).

Biological monitoring

Biological monitoring can assist in the detection and estimation of absorption of the hazardous chemical, for example by skin, gastrointestinal system, or inhalation. The effects of some hazardous chemicals used in the workplace must be monitored through biological monitoring. The SDS should detail the monitoring needed for a hazardous chemical.

It should also list known or recognised safe biological levels (in some countries these are known as biological limit values or biological exposure indices), where available, including notations for a hazardous chemical or for each ingredient of a mixture. The source of the biological levels should be stated on the SDS. When biological levels are listed, they should use the chemical identity as specified in Section 3.3 – *Composition and information on ingredients*.

Control Banding

Control banding is a process used in some countries where a hazardous chemical is assigned to a band, based on the chemical's hazard classification and use. Each band may have a different control solution, for example: band 1: good industrial hygiene practice, band 2: use local exhaust ventilation, band 3: enclose the process.

If the control banding approach is recommended in the SDS to provide protection in relation to specific uses of the hazardous chemical, then sufficient detail should be given to enable effective management of risks. The context and limitations of the specific control banding recommendation should be made clear.

Engineering controls

The SDS should include a description of appropriate engineering control measures relating to the intended use of the hazardous chemical. Sufficient information should be provided to enable a proper risk assessment to be carried out. This section should indicate when special engineering controls are necessary, and specify which controls are required. For example:

- “Maintain air concentration below occupational exposure standards, using engineering controls if necessary”
- “Use only in a well ventilated area”
- “Use local exhaust ventilation”
- “Use only in an enclosed system”
- “Use only in spray paint booth or enclosure”
- “Use mechanical handling to reduce human contact with materials”
- “Use explosive dust handling controls”

The information in this section should complement that provided in Section 7 – *Handling and Storage* of the SDS.

Individual protection measures, such as personal protective equipment (PPE)

Consistent with the hierarchy of controls, PPE should be used only when other control measures have been found to be impracticable, including engineering controls, ventilation and isolation. This section of the SDS should include information on PPE provided that it clearly recommends other controls to minimise exposure to the hazardous chemical.

Consideration should be given to the possible reduction in effectiveness of PPE and possible detrimental effects of hazardous chemicals on some materials from which items of PPE may be made, for example, the use of synthetic clothing for protection against corrosive hazardous chemicals.

Eye and face protection

Information should be provided on eye and face protection needed for a hazardous chemical. It is important to specify:

- the type of eye protection required, such as safety glasses, goggles or face shields, and
- the properties of the eye protection required based on the hazard of the chemical and potential for contact, such as the degree of impact protection or splash resistance.

Skin protection

Information should be included on the skin protection required for a hazardous chemical. It is important to specify:

- the protective equipment to be worn when using or handling the hazardous chemical including the types of gloves, boots and bodysuits required, and
- the properties of the protective equipment based on the hazard of the chemical and potential for contact such as cotton, PVC or nitrile.

Respiratory protection

If respiratory protection is needed for a hazardous chemical, the SDS should include information on the appropriate types of respiratory protection based on the chemical hazard and potential for exposure, for example air-purifying respirators requiring specific respiration filters, air-line

respirator or breathing apparatus. Where appropriate, a reference to a standard should be included.

Vague information such as “use face mask” is not acceptable whereas “use half-face filter respirator suitable for organic vapours” is acceptable.

Thermal hazards

The SDS should include information on the PPE required for thermal hazards. Special consideration should be given to the materials of the PPE so as to avoid adding to the thermal load of the wearer. Information on any secondary risk should also be included here.

See also Section 5 – *Fire fighting measures* of the SDS for specific fire/chemical PPE advice.

3.9 Section 9 – Physical and Chemical Properties

This section of the SDS describes the physical and chemical properties of a hazardous chemical. The data should apply to the hazardous chemical as supplied. If the hazardous chemical is a mixture, the physicochemical data should describe the mixture. If that information is not available the properties of the most relevant ingredients should be provided.

The following properties should be included in the SDS where relevant and the appropriate units of measure and/or reference conditions should be specified:

- Appearance (physical state, colour etc)
- Odour
- Odour threshold
- pH
- Melting point/freezing point
- Initial boiling point and boiling range
- Flash point
- Evaporation rate
- Flammability (solid, gas)
- Upper/lower flammability or explosive limits
- Vapour pressure
- Vapour density
- Relative density
- Solubility
- Partition coefficient: n-octanol/water
- Auto-ignition temperature
- Decomposition temperature
- Viscosity

If relevant, the interpretation of the numeric value and the method of the determination should also be provided. Where there is no information about specific characteristics or data available, a statement should be included to that effect. It is not appropriate to leave blank spaces or use the term ‘N/A’ in an SDS.

In addition to those listed above, other physical or chemical parameters relevant to health and safety should be included in this section of the SDS. This includes parameters which, in addition to chemistry, can significantly influence the properties of chemicals, for example size or surface area in the case of engineered nanomaterials. Examples of parameters which may be included are:

- Specific heat value
- Saturated vapour concentration (include reference temperatures)
- Release of invisible flammable vapours and gases
- Particle size (average and range)
- Size distribution
- Shape and aspect ratio
- Crystallinity
- Dustiness
- Surface area
- Degree of aggregation or agglomeration, and dispersibility
- Ionisation
- Biodurability or biopersistence
- Surface coating or chemistry (if different to rest of particle).

3.10 Section 10 – Stability and Reactivity

This section of the SDS provides information regarding the stability and reactivity of the hazardous chemical. Information on the possibility of hazardous reactions is necessary to ensure the safe handling and storage of chemicals and to ensure effective fire fighting and spill control measures.

Reactivity

This section should describe the reactivity hazards of the chemical, including the conditions under which the hazardous reactions may occur, for example:

- whether the hazardous chemical will react or polymerise
- the release of excess pressure or heat
- flame propagation or burning rate of solid materials
- properties of both flammable and non-flammable materials that may initiate or add to the intensity of a fire
- potential for dust explosion
- reactions that release flammable or toxic gases or vapours
- fast or intensely burning characteristics, and
- non-flammables that could contribute to unusual hazards to a fire, such as strong oxidising and reducing agents or peroxide fumes.

Specific test data should be provided for the hazardous chemical as a whole, where available. However, the information may also be based on general data for the class or family of chemical if such data adequately represent the anticipated hazard of the hazardous chemical.

If data for mixtures are not available, ingredient data should be provided. In determining incompatibility, the substances, containers and contaminants that the hazardous chemical might be exposed to during transportation, storage and use should be considered.

Chemical stability

Information should be provided on the stability of the hazardous chemical under normal ambient storage and handling conditions. Consider any foreseeable changes in temperature and pressure conditions. Any stabilisers used to maintain the product should be described, as well as the safety implications of any change in the physical appearance of the product which may result if the stabiliser is compromised.

Possibility of hazardous reactions

If relevant, the SDS should state if a hazardous chemical will react or polymerise, releasing excess pressure or heat, or create other hazardous conditions. It should describe under what conditions a hazardous reaction may occur.

Conditions to avoid

Information should include conditions such as temperature, pressure, shock, static discharge, vibrations or other physical stresses that might cause a hazardous reaction.

Incompatible materials

Classes of chemicals or specific substances with which the hazardous chemical could react to produce a hazardous situation should be listed in the SDS, for example, explosion, excessive heat generation, release of toxic or flammable materials.

Hazardous decomposition products

The SDS should list any hazardous products that may be produced due to the decomposition of the chemical during use, storage or heating of the chemical. The anticipated outcomes of a reaction with another material should be described, including the production of flammable, toxic or asphyxiating gases. Advice should be provided about what should be done if an unstable state is reached.

Hazardous combustion products should be included in Section 5 – *Fire Fighting Measures* of the SDS.

3.11 Section 11 – Toxicological Information

This section of the SDS provides toxicological information relevant to the health hazard category assigned to the chemical using the GHS. It should be based on expert toxicological advice and on the toxicological hazards information provided in the classification criteria. A concise but complete and comprehensible description of the various toxicological health effects (for both acute and chronic effects) consistent with hazard classification, and the available data used to identify those effects, should be provided. The relevant hazards, for which data should be provided, are:

- acute toxicity
- skin corrosion/irritation
- serious eye damage/irritation
- respiratory or skin sensitisation
- germ cell mutagenicity
- carcinogenicity
- reproductive toxicity
- Specific Target Organ Systemic Toxicity (STOST) – single exposure
- Specific Target Organ Systemic Toxicity (STOST) – repeated exposure, and
- aspiration hazard.

Information on these hazards should be presented in the above order in each SDS. Other non-classifiable hazards may also be included. For example, some chemicals readily penetrate the skin and may increase skin absorption of other toxins, such as dimethyl sulfoxide. Information should also be provided on whether potential exposure to the hazardous chemical has immediate or delayed health effects.

If data for any of these hazards are not available, they should still be listed with a statement that data is not available.

The toxicological data should apply to the hazardous chemical as used in the workplace. It should be relevant to the mixture. Where information on the mixture is not available, then information on the toxicological properties of the hazardous ingredients above the concentration cut-off in the mixture should be provided. If there is no data on a mixture but sufficient data exists on the components of the mixture or similar mixtures, bridging principles can be used to provide information. The type of bridging principles used should also be stated.

The health effects included in the SDS should be consistent with those described in studies used for the classification of the hazardous chemical. General statements such as "Toxic" with no supporting data or "Safe if properly used" are not acceptable as they may be misleading and do not provide a description of health effects. Phrases such as "not applicable", "not relevant", or leaving blank spaces in the health effects section can lead to confusion and misunderstanding and should not be used.

For health effects where information is not available, this needs to be clearly stated. Health effects should be described accurately and relevant distinctions made. For example, allergic contact dermatitis and irritant contact dermatitis should be distinguished from each other.

Where there is a substantial amount of test data on the hazardous chemical, the results should be summarised for example, by grouping toxicological data by the route of exposure.

Information should also be provided on the relevant negative data. Information to support negative test results should be included (for example, "carcinogenicity studies in the rat have shown no significant increase in the incidence of cancer").

Information on possible routes of exposure

Information should be provided on the possible routes of exposure and the effects of the hazardous chemical via each route of exposure, that is, through ingestion (swallowing), inhalation or skin/eye exposure. A statement should be made if health effects are not known. Statements such as "Ingestion is not expected to occur" or "Ingestion should be avoided" are not acceptable.

Information on all routes of exposure should be provided as it is not possible to predict how a chemical will be used in a workplace, or the most likely exposure route.

Early onset symptoms related to exposure

Information should be provided on early symptoms associated with exposure to the hazardous chemical, its ingredients or known by-products. It should include information on the symptoms related to the physical, chemical and toxicological characteristics of the hazardous chemical following exposure related to the intended uses. This section should describe the first symptoms at the lowest exposures through to the consequences of severe exposure; for example, "headaches and dizziness may occur, proceeding to fainting or unconsciousness; large doses may result in coma and death".

Delayed health effects from exposure

Information should be provided on whether delayed or immediate effects can be expected after short or long term exposure consistent with the classification of the chemical. Information should include acute and chronic health effects relating to human exposure to the hazardous chemical.

Where human data is not available, animal data should be summarised and the species clearly identified. The SDS should indicate whether toxicological data is based on human or animal data.

Classifications or studies from government or international agencies may be used; for example “has been classified as a probable human carcinogen by the International Agency for Research on Cancer”. Where data on chronic effects is not available it is recommended that the SDS take a precautionary approach to health effects from exposure.

Exposure levels and health effects

The SDS should provide information on the dose, concentration or conditions of exposure that may cause adverse health effects. Where appropriate, doses should be linked to symptoms and effects, including the period of exposure likely to cause harm. For example, “10 ppm respiratory irritation, 250-300 ppm difficulty in breathing, 500 ppm unconsciousness leading to death after 30 minutes”. Where exposure levels are not known, the SDS should take a precautionary approach to exposure levels.

Interactive effects

If known, information on interactions should be included in situations where:

- symptoms are worsened by drinking alcohol, taking medication or smoking, and
- pre-existing medical conditions such as asthma, high blood pressure or a predisposition to allergic reactions may increase risk.

When specific chemical data are not available

Where there is insufficient data to classify a chemical, testing may be required. However, it may not always be possible to obtain information on the hazards of a chemical. In cases where data on the specific hazardous chemical are not available, data on the chemical functional group, if appropriate, should be used. Where generic data are used or where data are not available, this should be stated clearly in the SDS.

Mixtures of chemicals

If a mixture has not been tested for its health effects as a whole, then information must be provided on each ingredient listed under Section 3 – *Composition and Information on Ingredients*.

Ingredients may interact with each other in the body resulting in different rates of absorption, metabolism and excretion. As a result, the toxic actions may be altered and the overall toxicity of the mixture may be different from its ingredients.

This section should advise whether the concentration of each ingredient is sufficient to contribute to the overall health effects of the mixture. The information on toxic effects should be presented for each ingredient, except:

- if the information is duplicated, in which case it is not necessary to list this more than once (for example, if two ingredients both cause vomiting and diarrhoea, the mixture should be described overall as causing vomiting and diarrhoea), and
- if it is unlikely that these effects will occur at the concentrations present (for example, when a mild irritant is diluted in a non-irritating solution, the overall mixture would be unlikely to cause irritation).

Predicting the interactions between ingredients is difficult where information on interactions is not available. However, assumptions should not be made. Instead, the SDS should list the health effects of each ingredient separately.

Other information

It is recommended that other relevant information on adverse health effects be included for hazards even when they are outside the scope of the WHS Regulations.

3.12 Section 12 – Ecological Information

This section of the SDS provides information about the environmental and ecological hazards of hazardous chemicals. This information can assist in handling spills and evaluating waste treatment practices and should clearly indicate species, media, units, test duration and test conditions. Where information is not available this also should be stated.

Ecological information should be given for each ingredient, where available and appropriate.⁷

Ecotoxicity

Information on ecotoxicity should be provided using data from tests performed on aquatic and/or terrestrial organisms. This should include relevant available data on both acute and chronic aquatic toxicity for fish, crustaceans, algae, and other aquatic plants. In addition, toxicity data on other organisms (including soil micro and macro-organisms) such as birds, bees and plants, should be included when available. Where the hazardous chemical has inhibitory effects on the activity on micro-organisms, the possible impact on sewage treatment plants should be mentioned.

Persistence and degradability

Persistence and degradability is the potential for the hazardous chemical (or hazardous ingredients of a mixture) to degrade in the environment, either through biodegradation or other processes, such as oxidation or hydrolysis. Test results relevant to assess persistence and degradability should be given where available. If degradation half-lives are quoted an indication of whether these half-lives refer to mineralisation or to primary degradation should be provided. The potential of the hazardous chemical (or hazardous ingredients of a mixture) to degrade in sewage treatment plants may also be mentioned.

Bioaccumulative potential

Bioaccumulation is the potential for the hazardous chemical (or hazardous ingredients of a mixture) to accumulate in biota and possibly pass through the food chain. Test results relevant to assess the bioaccumulative potential should be given. This may include reference to the octanol-water partition coefficient (K_{ow}) and bioconcentration factor (BCF), if available.

Mobility in soil

Mobility in soil is the potential of a hazardous chemical (or hazardous ingredients of a mixture) released to the environment, to move under natural forces to the groundwater or to a distance from the site of release. The potential for mobility in soil should be provided in an SDS where the information is available. Information on mobility can be determined from relevant mobility data sets

⁷ Further ecological information, such as ecotoxicity, persistence, degradability and mobility, may be available from chemical assessments undertaken by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), the National Industrial Chemicals Notification and Assessment Scheme (NICNAS), or the Australian Pesticides and Veterinary Medicines Authority (APVMA).

such as absorption studies or leaching studies. For example, K_{oc}^8 values can be predicted from octanol/water partition coefficients (K_{ow}). Leaching and mobility can be predicted from models.

Where real data on the hazardous chemical is available, this data should take precedence over models and predictions.

Other adverse effects

Information on any other adverse effects to the environment should be included where data is available, such as environmental fate (exposure), ozone depletion potential, photochemical ozone creation potential, endocrine-disrupting potential and global warming potential.

3.13 Section 13 – Disposal considerations

This section of the SDS provides information on the most effective way to dispose of a chemical safely.

Disposal Methods

Information should be provided for proper disposal, recycling or reclamation of the hazardous chemical and its container to assist in the determination of safe and environmentally-preferred waste management options. This section should include:

- Disposal containers and methods.
- Physical/chemical properties that may affect disposal options.
- Effects of sewage disposal.
- Special precautions for incineration or landfill.

The disposal advice provided on the SDS should apply to the material as manufactured.

The WHS Act includes requirements for manufacturers of substances, such as hazardous chemicals, to ensure so far as is reasonably practicable that the substance is without risk to the health and safety of persons in relation to the proper use, handling, storage and disposal of the substance.

For the safety of persons conducting disposal, recycling or reclamation activities, refer to the information in Section 8 – *Exposure Controls* of the SDS.

The local council and /or state environment authority may be able to provide advice on the disposal of chemicals.

3.14 Section 14 – Transport Information

This section provides basic classification information for the transportation or shipment of a hazardous chemical by road, rail, sea or air as required by relevant transport legislation. Where information is not available or relevant this should be stated.

UN number

The UN number (i.e. four-figure identification number of the substance or article) as listed in the ADG Code should be provided.

⁸ Soil organic carbon partition coefficient

Proper shipping name or Technical Name

The Proper Shipping Name or Technical Name from the ADG Code should also be included. For hazardous chemicals the Proper Shipping Name or Technical name should be provided in this subsection even if it has not appeared as the product identifier or national or regional identifiers.

Transport hazard class

The SDS should provide the transport class/division (and subsidiary risks) assigned to the hazardous chemical according to the most predominant hazards that the chemical presents under the ADG Code.

Packing Group

If applicable, information should be provided on the Packing Group number found in the ADG Code. The Packing Group number is assigned to certain hazardous chemicals in accordance with their degree of hazard. Packing Group I is the highest hazard and Packing Group III the lowest.

Environmental hazards for Transport Purposes

The SDS should indicate whether the hazardous chemical is a known marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code), and if so, whether it is a "marine pollutant" or a "severe marine pollutant". Also it is recommended that the SDS indicate whether the substance or mixture is classified as having an acute aquatic toxicity hazard as required under the ADG Code.

Additional information for certain environmentally hazardous chemicals may be required on the SDS to comply with maritime transport laws, for example, for chemicals listed in Annex 1 of the International Convention for the Prevention of Pollution from Ships (MARPOL).

Special Precautions for user

Information should be provided on special precautions, which users should be aware of, or should comply with when transporting a hazardous chemical. Any other special requirements relevant to transport of the chemical should be stated here, such as shock sensitivity, specific storage requirements during transit/warehousing and overseas regulatory transport requirements if the hazardous chemical is for export.

Additional Information

Any additional information required by overseas regulatory agencies or relevant Regulations for the transport of goods by other modes should be included here.

Hazchem or Emergency Action Code

The relevant Hazchem (or Emergency Action) Code must be provided as specified in the ADG code.

3.15 Section 15 – Regulatory Information

This section of the SDS provides information on other regulatory information on the hazardous chemical that is not provided elsewhere in the SDS, for example whether the hazardous chemical is subject to the following international agreements:

- Montreal Protocol (Ozone depleting substances)⁹
- The Stockholm Convention (Persistent Organic Pollutants)¹⁰
- The Rotterdam Convention (Prior Informed Consent)¹¹
- Basel Convention (Hazardous Waste)¹²
- International Convention for the Prevention of Pollution from Ships (MARPOL).

Safety, health and environmental regulations

Other regulatory information specific to the hazardous chemical should also be included here, for example whether the substance is covered by the following requirements:

- the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) established under the *Therapeutic Goods Act 1989* (Cth) (as amended) – if so, list the relevant Poisons Schedule number
- any applicable prohibition or notification/licensing requirements, including for carcinogens under Commonwealth, State or Territory legislation
- the *Agricultural and Veterinary Chemicals Act 1988* (Cth) and/or applicable Commonwealth, State or Territory control-of-use legislation, and
- the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cth), including listing on the Australian Inventory of Chemical Substances (AICS), any condition of use associated with the listing on the AICS and/or whether any chemical or a chemical in the product is being introduced under a permit. In addition, it is recommended that information in a NICNAS assessment report be included.

3.16 Section 16 – Other information

This section of the SDS provides any other information relevant to the preparation of the SDS, including:

- the date of preparation of the latest revision of the SDS. When revisions are made to an SDS, clearly indicate where the changes have been made to the previous version of the SDS. Suppliers should maintain an explanation of the changes and be willing to provide it upon request; and
- a key/legend to abbreviations and acronyms used in the SDS.

Key literature references and sources for data used to compile the SDS should also be included.

⁹ Montreal Protocol means the Montreal Protocol on Substances that Deplete the Ozone Layer, as adjusted and/or amended.

¹⁰ Stockholm Convention means the Stockholm Convention on persistent organic pollutants.

¹¹ Rotterdam Convention means the Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade.

¹² Basel Convention means the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

APPENDIX A – DEFINITIONS AND ABBREVIATIONS

ADG Code means the *Australian Code for the Transport of Dangerous Goods by Road and Rail*, 7th edition, approved by the Australian Transport Council as in force from time to time.

The ADG code is accessible at www.ntc.gov.au.

Article means a manufactured item, other than a fluid or particle, that is formed into a particular shape or design during manufacture and has hazard properties and a function that are wholly or partly dependent on the shape or design.

AS (Australian Standard) means a standard published by Standards Australia.

AS/NZS (Australian/New Zealand Standard) means a standard published jointly by Standards Australia and Standards New Zealand.

Bioaccumulative potential is the potential for a chemical to accumulate in biota and possibly pass through the food chain.

Biological monitoring means the measurement and evaluation of a substance, or its metabolites, in the body tissue, fluids or exhaled air of a person exposed to that substance.

CAS Name is the chemical name recommended by the Chemical Abstracts Service for a chemical.

CAS number or CAS No. means a unique number assigned by the Chemical Abstracts Service, Columbus Ohio, USA to a chemical.

Chemical Identity means a name, in accordance with the nomenclature systems of the International Union of Pure and Applied Chemistry or the Chemical Abstracts Service, or a technical name, that gives a chemical a unique identity.

Class of dangerous goods, means a number in a class of dangerous goods are assigned in the ADG Code.

Combustible liquid means a liquid, other than a flammable liquid, that has a flash point, and a fire point less than its boiling point.

Combustible substance means a substance that is combustible and includes dust, fibres, fumes, mists or vapours produced by the substance.

Container means anything in or by which a hazardous chemical is, or has been, wholly or partly covered, enclosed or packed, including anything necessary for the container to perform its function as a container.

Correct classification means the set of hazard classes and hazard categories assigned to a hazardous chemical when it is correctly classified.

Division of dangerous goods, means a number, in a class of dangerous goods, to which the dangerous goods are assigned in the ADG Code.

Exposure standard means an exposure standard published by Safe Work Australia in the *Atmospheric Contaminant Workplace Exposure Standards*.

Note: The Atmospheric Contaminant Workplace Exposure Standards will replace the Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOSHC:1003(1995)].

Flammable Liquid means a liquid, a mixture of liquids, or a liquid containing solids in a solution or suspension, that gives off a flammable vapour at a temperature of not more than 60°C (closed-cup test) or 65.6°C (open-cup test).

Flash point means the lowest temperature (corrected to a standard pressure of 101.3 kPa) at which the application of an ignition source causes the vapours of a liquid to ignite under specified test conditions.

Generic Name means a name applied to a group of chemicals having a similar structure and properties.

Genuine research means systematic investigative or experimental activities that are carried out for either acquiring new knowledge (whether or not the knowledge will have a specific practical application) or creating new or improved materials, products, devices, processes or services.

GHS means the 'Globally Harmonized System of Classification and Labelling of Chemicals', published by the United Nations.

Hazard means a situation or thing that has the potential to harm people, property or the environment. The GHS covers physicochemical, health and environmental hazards for hazardous chemicals.

Hazard Category means a division of criteria within a hazard class in the GHS.

Hazard class means the nature of a physical, health or environmental hazard and includes a class of dangerous goods.

Hazard pictogram means a graphical composition, including a symbol plus other graphical elements, that is assigned in the GHS to a hazard class or hazard category.

Hazard Statement means a statement assigned to a hazard class or hazard category describing the nature of the hazards of a hazardous chemical including, if appropriate, the degree of hazard.

Hazchem Code means 'Hazchem Code' under the ADG Code. Also known as the Emergency Action Code.

Health Surveillance, of a person, means monitoring the person to identify changes in the person's health status because of exposure to a hazardous chemical.

Import means to bring into the jurisdiction from outside Australia.

IUPAC name is the chemical name recommended by the International Union of Pure and Applied Chemistry.

Label means written, printed or graphical information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the container of a hazardous chemical.

Manufacture includes the activities of packing, repacking, formulating, blending, mixing, making, remaking and synthesizing of the chemical.

Mixture means a combination of, or a solution composed of, two or more substances that do not react with each other.

Physicochemical means the physical properties of a chemical.

Precautionary Statement means a phrase prescribed by the GHS that describes recommended measures to be taken to prevent or minimise the adverse effects of exposure to a hazardous chemical or the improper handling of a hazardous chemical.

Product Identifier means the name or number used to identify a product on a label or in a Safety Data Sheet (SDS).¹³

Proper shipping name means a proper shipping name under the ADG Code.

Research chemical means a substance or mixture that is manufactured in a laboratory for genuine research and is not for use or supply for a purpose other than analysis or genuine research.

Substance means a chemical element or compound in its natural state or obtained or generated by a process:

(a) including any additive necessary to preserve the stability of the element or compound and any impurities deriving from the process; but

(b) excluding any solvent that may be separated without affecting the stability of the element or compound, or changing its composition.

Supply includes selling or transferring ownership or responsibility for a chemical.

Technical name means a name that is:

(a) ordinarily used in commerce, regulations and codes to identify a substance or mixture, other than an International Union of Pure and Applied Chemistry or Chemical Abstracts Service name; and

(b) recognised by the scientific community.

United Nations (UN) Number means a number assigned to dangerous goods by the United Nations Subcommittee of Experts on the Transport of Dangerous Goods.¹⁴

¹³ The term 'product name' has previously been used for 'product identifier'.

¹⁴ UN Numbers are published in the UN Recommendations on the Transport of Dangerous Goods – Model Regulation, and in the ADG Code.

APPENDIX B – HEADER CHECKLIST

This checklist provides a summary of the information contained in Chapter 3 of this Code. It is not a comprehensive list of information required on the SDS. Refer to the relevant section for detailed instructions.

Section	Headers
1. Product identifier & identity for the chemical	<input type="checkbox"/> Product Identifier <input type="checkbox"/> Other means of identification <input type="checkbox"/> Recommended use of the chemical and restrictions on use <input type="checkbox"/> Suppliers name, address and phone number <input type="checkbox"/> Emergency phone number
2. Hazard Identification	<input type="checkbox"/> Classification of the hazardous chemical <input type="checkbox"/> Label elements, including precautionary statements <input type="checkbox"/> Other hazards which do not result in classification
3. Composition/information on ingredients	<input type="checkbox"/> Identity of chemical ingredients <input type="checkbox"/> CAS number and other unique identifiers <input type="checkbox"/> Concentration of ingredients
4. First Aid Measures	<input type="checkbox"/> Description of necessary first aid measures <input type="checkbox"/> Symptoms caused by exposure <input type="checkbox"/> Medical Attention and Special Treatment
5. Fire Fighting Measures	<input type="checkbox"/> Suitable extinguishing media <input type="checkbox"/> Specific hazards arising from the chemical <input type="checkbox"/> Special protective equipment and precautions for fire fighters
6. Accidental release measures	<input type="checkbox"/> Personal precautions, protective equipment and emergency procedures <input type="checkbox"/> Environmental precautions <input type="checkbox"/> Methods and materials for containment and cleaning up
7. Handling and Storage	<input type="checkbox"/> Precautions for safe handling <input type="checkbox"/> Conditions for safe storage, including any incompatibilities
8. Exposure controls/personal protection	<input type="checkbox"/> Control parameters – exposure standards, biological monitoring <input type="checkbox"/> Appropriate engineering controls <input type="checkbox"/> Personal protective equipment (PPE)
9. Physical and chemical properties	<input type="checkbox"/> Appearance <input type="checkbox"/> Odour

	<input type="checkbox"/> Odour threshold <input type="checkbox"/> pH <input type="checkbox"/> Melting point/freezing point <input type="checkbox"/> Boiling point and boiling range <input type="checkbox"/> Flash point <input type="checkbox"/> Evaporation rate <input type="checkbox"/> Flammability <input type="checkbox"/> Upper/lower flammability or explosive limits <input type="checkbox"/> Vapour pressure <input type="checkbox"/> Vapour density <input type="checkbox"/> Relative density <input type="checkbox"/> Solubility(ies) <input type="checkbox"/> Partition coefficient: n-octanol/water <input type="checkbox"/> Auto-ignition temperature <input type="checkbox"/> Decomposition temperature <input type="checkbox"/> Viscosity <input type="checkbox"/> Specific heat value <input type="checkbox"/> Particle size <input type="checkbox"/> Volatile organic compounds content <input type="checkbox"/> % volatile <input type="checkbox"/> Saturated vapour concentration <input type="checkbox"/> Release of invisible flammable vapours and gases
Additional parameters	<input type="checkbox"/> Shape and aspect ratio <input type="checkbox"/> Crystallinity <input type="checkbox"/> Dustiness <input type="checkbox"/> Surface area <input type="checkbox"/> Degree of aggregation or agglomeration <input type="checkbox"/> Ionisation (redox potential) <input type="checkbox"/> Biodurability or biopersistence
10. Stability and Reactivity	<input type="checkbox"/> Reactivity <input type="checkbox"/> Chemical stability <input type="checkbox"/> Conditions to avoid <input type="checkbox"/> Incompatible materials and possible hazardous reactions <input type="checkbox"/> Hazardous decomposition products

11. Toxicological information	<input type="checkbox"/> Information on routes of exposure <input type="checkbox"/> Symptoms related to exposure <input type="checkbox"/> Numerical measures of toxicity <input type="checkbox"/> Immediate, delayed and chronic health effects from exposure <input type="checkbox"/> Exposure Levels <input type="checkbox"/> Interactive effects <input type="checkbox"/> Data limitations
12. Ecological information	<input type="checkbox"/> Ecotoxicity <input type="checkbox"/> Persistence and degradability <input type="checkbox"/> Bioaccumulative potential <input type="checkbox"/> Mobility in soil <input type="checkbox"/> Other adverse effects
13. Disposal considerations	<input type="checkbox"/> Safe handling and disposal methods <input type="checkbox"/> Disposal of any contaminated packaging <input type="checkbox"/> Environmental regulations
14. Transport information	<input type="checkbox"/> UN number <input type="checkbox"/> Proper shipping name <input type="checkbox"/> Transport hazard class(es) <input type="checkbox"/> Packing group <input type="checkbox"/> Environmental hazards <input type="checkbox"/> Special precautions during transport <input type="checkbox"/> Hazchem Code
15. Regulatory information	<input type="checkbox"/> Safety, health and environmental regulations specific for the product in question <input type="checkbox"/> Poisons Schedule number
16. Other information	<input type="checkbox"/> Date of preparation or review <input type="checkbox"/> Key abbreviations or acronyms used

APPENDIX C – GUIDE FOR SELECTING GENERIC NAMES

This guide describes a procedure for naming hazardous chemicals and the division of substances into families, which is described in subsection C1.3. Generic names are not permitted for hazardous chemicals with health hazards above the concentration cut-off.

The families are defined in the following manner:

- a) inorganic or organic substances whose properties are identified by having a common chemical element as their chief characteristic. The family name is derived from the name of the chemical element. These families are identified in subsection C1.3 by the atomic number of the chemical element (Family No. 001 to 103); and
- b) organic substances whose properties are identified by having a common functional group as their chief characteristic.
 - (i) the family name is derived from the functional group name, and
 - (ii) these families are identified by the number convention found in subsection C1.3 (Family No. 601 to 650).
- c) Sub-families bringing together substances with a common specific character have been added in certain cases.

D1 Establishing the Generic Name

C1.1 General Principles

In selecting a generic name, the following approach is adopted:

- a) The most specific generic name must be chosen;
- b) Identity of the functional groups and chemical elements present in the molecule; and
- c) Determine the most important functional groups and chemical elements, which contribute to its properties.

The identified functional groups and elements taken into account are the names of the families and sub-families set out in subsection 3 in the form of a (non-restrictive) list.

C1.2 Practical application

After having conducted a search to see if the substance belongs to one or more families or sub-families on the list, the generic name can be established in the following way:

- a) If the name of a family or sub-family is sufficient to characterise the chemical elements or important functional groups, this name will be chosen as the generic name. For example:

Name	Family sub-family	Generic Name
1,4-dihydroxybenzene	604: Phenols and derivatives	Phenol derivative
Butanols	603: Alcohols and derivatives	Aliphatic alcohol

	Aliphatic alcohols	
2-isopropoxyethanol	603: Alcohols and derivatives Glycoethers	Glycolether
Methacrylate	607: Organic acids and derivatives Acrylates	Acrylate

- b) If the name of a family or sub-family is not sufficient to characterise the chemical elements of important functional groups, the generic name should be a combination of the corresponding different family or sub-family names. For example:

Name	Family sub-family	Generic Name
Lead hexafluorosilicate	009: Fluorine compounds Inorganic fluorides 082: Lead compounds Lead compounds	Inorganic lead fluoride
Chlorobenzene	602: Halogenated hydrocarbons Halogenated aromatic compounds 017: Chlorine compounds	Chlorinated aromatic compounds
2,3,6-trichlorophenylacetic acid	607: organic acids Halogenated aromatic acids 017: chlorine compounds	Chlorinated aromatic acid
1-chloro-1-nitropropane	610: chloronitrated derivatives 601: hydrocarbons Aliphatic hydrocarbons	Chloronitrated aliphatic hydrocarbon
Tetrapropyl dithiopyrophosphate	015: phosphorus compounds Phosphoric esters 016: sulphur compounds	Thiophosphoric ester

Note: In the case of certain elements, notably metals, the name of the family or sub-family may be indicated by the words 'organic' or 'inorganic'. For example:

Name	Family sub-family	Generic Name
Dimercury dichloride	080: mercury compounds	Inorganic mercury compound
Barium acetate	056: barium compounds	Organic
Ethyl nitrite	007: nitrogen compounds Nitrites	Organic nitrite
Sodium hydrosulphite	016: sulphur compounds	Inorganic sulphur compound

C1.3 Division of substances into families and sub-families

Family No	Families Sub-Families
001	Hydrogen compounds Hydrides

003	Lithium compounds
004	Beryllium compounds
005	Boron compounds Boranes Borates
006	Carbon compounds Carbamates Inorganic carbon compounds Salts of hydrogen cyanide Urea and derivatives
007	Nitrogen compounds Quaternary ammonium compounds Acid nitrogen compounds Nitrates Nitrites
008	Oxygen compounds
009	Fluorine compounds Inorganic fluorides
011	Sodium compounds
012	Magnesium compounds Organometallic magnesium derivatives
013	Aluminium compounds Organometallic aluminium derivatives
014	Silicon compounds Silicones Silicates
015	Phosphorus compounds Acid phosphorus compounds Phosphonium compounds Phosphoric esters Phosphates Phosphites Phosphoramides and derivatives
016	Sulphur compounds Acid sulphur compounds Mercaptans Sulphates Sulphites
017	Chlorine compounds Chlorates Perchlorates
018	Argon compounds
019	Potassium compounds
020	Calcium compounds
021	Scandium compounds
022	Titanium compounds
023	Vanadium compounds
024	Chromium compounds Chromium VI compounds
025	Manganese compounds

026	Iron compounds
027	Cobalt compounds
028	Nickel compounds
029	Copper compounds
030	Zinc compounds Organometallic zinc derivatives
031	Gallium compounds
032	Germanium compounds
033	Arsenic compounds
034	Selenium compounds
035	Bromine compounds
036	Krypton compounds
037	Rubidium compounds
038	Strontium compounds
039	Yttrium compounds
040	Zirconium compounds
041	Niobium compounds
042	Molybdenum compounds
043	Technetium compounds
044	Ruthenium compounds
045	Rhodium compounds
046	Palladium compounds
047	Silver compounds
048	Cadmium compounds
049	Indium compounds
050	Tin compounds Organometallic tin derivatives
051	Antimony compounds
052	Tellurium compounds
053	Iodine compounds
054	Xenon compounds
055	Caesium compounds
056	Barium compounds
057	Lanthanum
058	Cerium compounds
059	Praseodymium compounds
060	Neodymium compounds
061	Promethium compounds
062	Samarium compounds
063	Europium compounds
064	Gandolinium compounds
065	Terbium compounds
066	Dysprosium compounds
067	Holmium compounds
068	Erbium compounds
069	Thulium compounds
070	Ytterbium compounds
071	Lutetium compounds

072	Hafnium compounds
073	Tantalum compounds
074	Tungsten compounds
075	Rhenium compounds
076	Osmium compounds
077	Iridium compounds
078	Platinum compounds
079	Gold compounds
080	Mercury compounds Organometallic mercury derivatives
081	Thallium compounds
082	Lead compounds Organometallic lead derivatives
083	Bismuth compounds
084	Polonium compounds
085	Astate compounds
086	Radon compounds
087	Francium compounds
088	Radium compounds
089	Actinium compounds
090	Thorium compounds
091	Protactinium compounds
092	Uranium compounds
093	Neptunium compounds
094	Plutonium compounds
095	Americium compounds
096	Curium compounds
097	Berkelium compounds
098	Californium compounds
099	Einsteinium compounds
100	Fermium compounds
101	Mendelevium compounds
102	Nobelium compounds
103	Lawrencium compounds
601	Hydrocarbons Aliphatic hydrocarbons Aromatic hydrocarbons Alicyclic hydrocarbons Polycyclic aromatic hydrocarbons (PAH)
602	Halogenated hydrocarbons* Halogenated aliphatic hydrocarbons* Halogenated aromatic hydrocarbons* Halogenated alicyclic hydrocarbons* * Specify according to family corresponding to halogen.

603	Alcohols and derivatives Aliphatic alcohols Aromatic alcohols Alicyclic alcohols Alcanolamines Epoxy derivatives Ethers Glycoethers Glycols and polyols
604	Phenols and derivatives Halogenated phenol derivatives* * Specify according to the family corresponding to halogen.
605	Aldehydes and derivatives Aliphatic aldehydes Aromatic aldehydes Alicyclic aldehydes Aliphatic acetals Aromatic acetals Alicyclic acetals
606	Ketones and derivatives Aliphatic Ketones Aromatic Ketones* Alicyclic Ketones * Quinones included

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607	<p>Organic acids and derivatives</p> <ul style="list-style-type: none"> Aliphatic acids Halogenated aliphatic acids* Aromatic acids Halogenated aromatic acids* Alicyclic acids Halogenated alicyclic acids* Aliphatic acid anhydrides Halogenated aliphatic acid anhydrides* Aromatic acid anhydrides Halogenated aromatic acid anhydrides* Alicyclic acid anhydrides Halogenated alicyclic acid anhydrides* Salts of aliphatic acid Salts of halogenated aliphatic acid* Salts of aromatic acid Salts of halogenated aromatic acid* Salts of alicyclic acid Salts of halogenated alicyclic acid* Esters of aliphatic acid Esters of halogenated alicyclic acid* Esters of aromatic acid Esters of halogenated aromatic acid* Esters of alicyclic acid Esters of halogenated alicyclic acid* Esters of glycol ether Acrylates Methacrylates Lactones Acyl halogenides <p>* Specify according to the family corresponding to halogen.</p>
608	Nitriles and derivatives
609	Nitrated derivatives
610	Chloronitrated derivatives
611	Azoxy and azoic derivatives
612	<p>Aminated derivatives</p> <ul style="list-style-type: none"> Aliphatic amines and derivatives Alicyclic amines and derivatives Aromatic amines and derivatives Aniline and derivatives Benzidine and derivatives
613	<p>Heterocyclic basis and derivatives</p> <ul style="list-style-type: none"> Benzimidazole and derivatives Imidazol and derivatives Pyrethrinoids Quinoline and derivatives Triazine and derivatives Triazole and derivatives
614	<p>Glucosides and alkaloids</p> <ul style="list-style-type: none"> Alkaloid and derivatives Glucosids and derivatives

615	Cyanates and isocyanates Cyanates Isocyanates
616	Amides and derivatives Acetamide and derivatives Anilides
617	Organic Peroxides
650	Various substances Do not use this family. Instead, use the families or sub-families mentioned above.

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APPENDIX D – GHS LABEL ELEMENTS FOR INCLUSION IN THE SDS

The information in this Appendix guides the selection of appropriate GHS signal words, pictograms, hazard statements and precautionary statements that apply to each GHS hazard class and category. It includes elements for all categories of precautionary action. All specific elements relating to particular hazard classes and categories should be used. General elements not linked in particular to a certain hazard class or category should also be used where appropriate.

The precautionary statements included in the following matrix cover general emergency response and first-aid. For some specific chemicals, supplementary first aid, treatment measures or specific antidotes or cleansing materials may be required. Poisons Centres and/or medical practitioners or specialist advice should be sought in such situations and included on labels where appropriate.

E1. Structure of hazard statement text

The text in bold should appear in the SDS, except as otherwise specified. The information in italics should also appear as part of the hazard statement in the SDS when the information is known, for example:

“causes damage to organs *(or state all organs affected, if known)* **through prolonged or repeated exposure** *(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)”*.

The hazard statement codes shown in the tables are intended to be used for reference purposes only. They are not part of the hazard statement text and should not be used to replace it in the SDS.

E2. Structure of precautionary statement text

There are five types of precautionary statements: **general**, **prevention**, **response** (in case of accidental spillage or exposure, emergency response and first aid), **storage** and **disposal**.

The core parts of the precautionary statements are shown in bold print. This is the text, except as otherwise specified, that should appear in the SDS.

The precautionary statement codes used in the tables are intended to be used for reference purposes only. They are not part of the precautionary statement text and should not be used to replace it in the SDS.

To provide flexibility in the application of precautionary phrases, a combination of statements may be used to improve the readability of phrases. Combination of phrases can also be useful for different types of hazard where the precautionary behaviour is similar, For example, **“Keep away from heat, sparks and open flame and store in a cool well ventilated place”**. Where precautionary statements have been modified or combined, clear plain language is essential to convey information on precautionary behaviour.

When a backslash or diagonal mark [/] appears in a precautionary statement text, it indicates that a choice has to be made between the phrases they separate. For example in P280 **“Wear protective gloves/protective clothing/eye protection/face protection”** could read **“Wear eye protection”** where the hazard classification does not warrant the additional personal protective equipment.

When three full stops [...] appears in a precautionary statement text, they indicate that all applicable conditions are not listed. For example in P241 “**Use explosion-proof electrical/ventilating/lighting/.../equipment.**”, the use of “...” indicates that other equipment should be specified.

When *text in italics* is used in the precautionary statement text, this indicates specific conditions apply to the use or allocation of the precautionary statement. This may relate to conditions attaching to either the general use of a precautionary statement or its use for a particular hazard class and/or hazard category. For example, for P241 “**Use explosion-proof electrical/ventilating/lighting/.../ equipment**”, only applies for flammable solids “*if dust clouds can occur*”.

E3. General precautionary measures

The general precautionary statements listed below are not aligned with any particular GHS hazard category. According to the GHS principles, these statements are required for consumer products only. However, manufacturers of hazardous chemicals may choose to include these in an SDS, particularly where it is foreseeable that the chemical may be used in a non-workplace situation.

Code (1)	General precautionary statements (2)	Conditions for use (5)
P101	If medical advice is needed, have product container or label at hand.	Consumer products
P102	Keep out of reach of children.	Consumer products
P103	Read label before use.	Consumer products

E4. Tables of label elements from the GHS

The tables below provide the following information for each hazard class and hazard category of the GHS:

- Hazard category;
- The assigned GHS symbol;
- The assigned signal word;
- The assigned hazard statement and code;
- The assigned precautionary statements, by precautionary statement type, and code.

EXPLOSIVES

Symbol Exploding bomb

Hazard category	Signal word	Hazard statement	
Unstable Explosive	Danger	H200 Unstable Explosive	

Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P201 Obtain special instructions before use.</p> <p>P202 Do not handle until all safety precautions have been read and understood.</p> <p>P281 Use personal protective equipment as required.</p>	<p>P372 Explosion risk in case of fire.</p> <p>P373 DO NOT fight fire when fire reaches explosives.</p> <p>P380 Evacuate area.</p>	<p>P401 Storein accordance with local/regional/national/international Regulations (to be specified).</p>	<p>P501 Dispose of contents/container toin accordance with local/regional/national/international Regulations (to be specified).</p>

EXPLOSIVES

Symbol
Exploding bomb

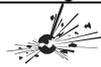


Hazard category	Signal word	Hazard statement
Division 1.1	Danger	H201 Explosive; mass explosion hazard
Division 1.2	Danger	H202 Explosive; severe projection hazard
Division 1.3	Danger	H203 Explosive; fire, blast or projection hazard

Precautionary statements			
Prevention	Response	Storage	Disposal

<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P230 Keep wetted with... ...Manufacturer/supplier or the competent authority to specify appropriate material. - <i>if drying out increases explosion hazard, except as needed for manufacturing or operating processes (e.g. nitrocellulose).</i></p> <p>P240 Ground/bond container and receiving equipment. - <i>if the explosive is electrostatically sensitive.</i></p> <p>P250 Do not subject to grinding/shock.../friction. ...Manufacturer/supplier or the competent authority to specify applicable rough handling.</p> <p>P280 Wear face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P370 +P380 In case of fire: evacuate area.</p> <p>P372 Explosion risk in case of fire.</p> <p>P373 DO NOT fight fire when fire reaches explosives.</p>	<p>P401 Storein accordance with local/regional/national/international Regulations (to be specified).</p>	<p>P501 Dispose of contents/container toin accordance with local/regional/national/international Regulations (to be specified).</p>
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EXPLOSIVES

<p>Hazard category Division 1.4</p>	<p>Signal word Warning</p>	<p>Hazard statement H204 Fire or projection hazard</p>	<p>Symbol Exploding bomb</p> 
Precautionary statements			
Prevention	Response	Storage	Disposal

<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P240 Ground/bond container and receiving equipment. <i>- if the explosive is electrostatically sensitive.</i></p> <p>P250 Do not subject to grinding/shock/.../friction. Manufacturer/supplier or the competent authority to specify applicable rough handling.</p> <p>P280 Wear face protection. Manufacturer/supplier or competent authority to specify type of equipment.</p>	<p>P370+P380 In case of fire: Evacuate area.</p> <p>P372 Explosion risk in case of fire. <i>- except if explosives are 1.4S AMMUNITION AND COMPONENTS THEREOF.</i></p> <p>P373 DO NOT fight fire when fire reaches explosives.</p> <p>P374 Fight fire with normal precautions from a reasonable distance. <i>- If explosives are 1.4S AMMUNITION AND COMPONENTS THEREOF.</i></p>	<p>P401 Storein accordance with local/regional/national/international Regulations (to be specified).</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>
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EXPLOSIVES

Hazard category	Signal word	Hazard statement	
Division 1.5	Danger	H205 May mass explode in fire	



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P230 <i>Keep wetted with...</i> ...Manufacturer/supplier or the competent authority to specify appropriate material.</p> <p>- <i>if drying out increases explosion hazard, except as needed for manufacturing or operating processes (e.g. nitrocellulose).</i></p> <p>P240 Ground/bond container and receiving equipment - <i>if the explosive is electrostatically sensitive.</i></p> <p>P250 Do not subject to grinding/shock.../friction. ...Manufacturer/supplier or the competent authority to specify applicable rough handling.</p> <p>P280 Wear face protection. Manufacturer/supplier or competent authority to specify type of equipment.</p>	<p>P370 + P380 In case of fire: Evacuate area.</p> <p>P372 Explosion risk in case of fire.</p> <p>P373 DO NOT fight fire when fire reaches explosives.</p>	<p>P401 Storein accordance with local/regional/national/international Regulations (to be specified).</p>	<p>P501 Dispose of contents/container to in accordance with local/regional/national/international Regulations (to be specified).</p>

*Note: This symbol is according to the ADG Code for the transport of dangerous goods

EXPLOSIVES

Hazard category	Signal word	Hazard statement	
Division 1.6	<i>No signal word</i>	H206 <i>No hazard statement</i>	

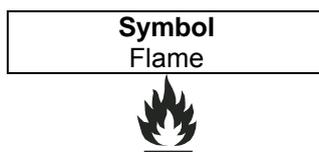


Precautionary statements			
Prevention	Response	Storage	Disposal
<i>No precautionary statements</i>	<i>No precautionary statements</i>	<i>No precautionary statements</i>	<i>No precautionary statements</i>

*Note: Symbol for Explosive Division 1.6 is the symbol used for the transport of dangerous goods

FLAMMABLE GASES

Hazard category	Signal word	Hazard statement	
1	Danger	H220 Extremely flammable gas	



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or competent authority to specify applicable ignition source(s).	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 Eliminate all ignition sources if safe to do so.	P403 Store in well-ventilated place.	

*This symbol is according to the ADG Code for the transport of dangerous goods

FLAMMABLE AEROSOLS

Symbol
Flame

Hazard category	Signal word	Hazard statement
1	Danger	H222 Extremely flammable aerosol
2	Warning	H223 Flammable aerosol



Precautionary statements

Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition sources(s).</p> <p>P211 Do not spray on an open flame or other ignition source.</p> <p>P251 Pressurized container: Do not pierce or burn, even after use.</p>		<p>P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.</p>	

OXIDISING GASES

Symbol
Flame over circle

Hazard category	Signal word	Hazard statement
1	Danger	H270 May cause or intensify fire; oxidiser



Precautionary statements

Prevention	Response	Storage	Disposal
<p>P220 Keep/Store away from clothing/.../combustible materials. ...Manufacturer/supplier or the competent authority to specify other incompatible materials.</p> <p>P244 Keep reduction valves free from grease and oil.</p>	<p>P370 + P376 In case of fire: Stop leak if safe to do so.</p>	<p>P403 Store in well-ventilated place.</p>	

GASES UNDER PRESSURE

Symbol Gas cylinder

Hazard category	Signal word	Hazard statement
Compressed gas	Warning	H280 Contains gas under pressure; may explode if heated
Liquefied gas	Warning	H280 Contains gas under pressure; may explode if heated
Dissolved gas	Warning	H280 Contains gas under pressure; may explode if heated



Precautionary statements			
Prevention	Response	Storage	Disposal
		P410 + P403 Protect from sunlight. Store in a well-ventilated place.	

GASES UNDER PRESSURE

Symbol Gas cylinder

Hazard category	Signal word	Hazard statement
Refrigerated liquefied gas	Warning	H281 Contains refrigerated gas; may cause cryogenic burns or injury



Precautionary statements			
Prevention	Response	Storage	Disposal
P282 Wear cold insulating gloves/face shield/eye protection.	P336 Thaw frosted parts with lukewarm water. Do not rub affected area. P315 Get immediate medical advice/attention	P403 Store in well-ventilated place.	

FLAMMABLE LIQUIDS

Symbol Flame

Hazard category	Signal word	Hazard statement
1	Danger	H224 Extremely flammable liquid and vapour
2	Danger	H225 Highly flammable liquid and vapour
3	Warning	H226 Flammable liquid and vapour



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces.– No	P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all	P403 + P235 Store in a well-ventilated place. Keep cool.	P501 Dispose of contents/container to...

<p>smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P233 Keep container tightly closed. P240 Ground/Bond container and receiving equipment</p> <ul style="list-style-type: none"> - <i>if electrostatically sensitive material is for reloading.</i> - <i>if product is volatile so as to generate hazardous atmosphere.</i> <p>P241 Use explosion-proof electrical/ventilating/lighting/.../equipment. ... Manufacturer/supplier or the competent authority to specify other equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P280 Wear protective gloves/eye protection/face protection Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>contaminated clothing. Rinse skin with water/shower. P370 + P378 In case of fire: Use ... for extinction. ...Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i></p>		<p>... in accordance with local/regional/national/international Regulations (to be specified).</p>
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NON-GHS HAZARD CATEGORY – C1 COMBUSTIBLE LIQUID

Precautionary statements			Symbol
Prevention	Response	Storage	Disposal
<p>P210 Keep away from flames and hot surfaces. – No smoking.</p> <p>P280 Wear protective gloves/eye protection/face protection Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P370 + P378 In case of fire: Use ... for extinction.</p> <p>... Manufacturer/supplier or the competent authority to specify appropriate media. <i>if water increases risk.</i></p>	<p>P403 + P235 Store in a well-ventilated place. Keep cool.</p>	<p>P501 Dispose of contents/container to... in accordance with local/regional/national/international Regulations (to be specified).</p>
<p>Hazard category Class C1 combustible liquid</p>	<p>Signal word Warning</p>	<p>Hazard statement H227 Combustible liquid</p>	<p><i>No symbol</i></p>

*Note: label elements for C1 combustible liquids are identical to those of GHS Flammable liquid category 4

FLAMMABLE SOLIDS

Symbol Flame

Hazard category	Signal word	Hazard statement	
1	Danger	H228 Flammable solid	
2	Warning	H228 Flammable solid	

Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P240 Ground/Bond container and receiving equipment. - <i>if electrostatically sensitive material is for reloading.</i> P241 Use explosion-proof electrical/ventilating/lighting/... /equipment. ... Manufacturer/supplier or the competent authority to specify other equipment. - <i>if dust clouds can occur.</i> P280 Wear protective gloves/eye protection/face protection Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 In case of fire: Use ... for extinction ...Manufacturer/supplier or the competent authority to specify appropriate media. <i>if water increases risk.</i>		

SELF-REACTIVE SUBSTANCES AND MIXTURES

Symbol Exploding bomb

Hazard category	Signal word	Hazard statement
Type A	Danger	H240 Heating may cause an explosion



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P220 Keep/Store away from clothing/.../combustible materials. ... Manufacturer/supplier or the competent authority to specify other incompatible materials. P234 Keep only in original container. P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 In case of fire: Use ... for extinction ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i> P370 + P380 + P375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.	P403 + P235 Store in a well-ventilated place. Keep cool. P411 Store at temperatures not exceeding ...°C/...°F. ... Manufacturer/supplier or the competent authority to specify temperature. P420 Store away from other materials.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

SELF-REACTIVE SUBSTANCES AND MIXTURES

Symbol Exploding bomb and flame
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Hazard category	Signal word	Hazard statement
Type B	Danger	H241 Heating may cause a fire or explosion



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P220 Keep/Store away from clothing/.../combustible materials. ... Manufacturer/supplier or the competent authority to specify other incompatible materials. P234 Keep only in original container. P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 In case of fire: Use ... for extinction. ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk</i> P370 + P380 + P375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.	P403 + P235 Store in a well-ventilated place. Keep cool. P411 Store at temperatures not exceeding ...°C/...°F. ... Manufacturer/supplier or the competent authority to specify temperature. P420 Store away from other materials.	P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).

SELF-REACTIVE SUBSTANCES AND MIXTURES

Symbol Flame

Hazard category	Signal word	Hazard statement	
Type C	Danger	H242 Heating may cause a fire	
Type D	Danger	H242 Heating may cause a fire	
Type E	Warning	H242 Heating may cause a fire	
Type F	Warning	H242 Heating may cause a fire	

Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P220 Keep/Store away from clothing/.../combustible materials. ...Manufacturer/supplier or the competent authority to specify other incompatible materials. P234 Keep only in original container. P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 In case of fire: Use ... for extinction ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>	P403 + P235 Store in a well-ventilated place. Keep cool. P411 Store at temperatures not exceeding ...°C/...°F. ...Manufacturer/supplier or the competent authority to specify temperature. P420 Store away from other materials.	P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).

Note: Hazard category Type G: There are no label elements allocated to this hazard category

PYROPHORIC LIQUIDS

Symbol Flame

Hazard category	Signal word	Hazard statement
1	Danger	H250 Catches fire spontaneously if exposed to air



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition sources(s). P222 Do not allow contact with air. P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P302 + P334 IF ON SKIN: Immerse in cool water/wrap with wet bandages P370 + P378 In case of fire: Use ... for extinction ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>	P422 Store contents under Manufacturer/supplier or the competent authority to specify appropriate liquid or inert gas.	

PYROPHORIC SOLIDS

Symbol Flame

Hazard category	Signal word	Hazard statement
1	Danger	H250 Catches fire spontaneously if exposed to air



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P222 Do not allow contact with air. P280 Wear protective gloves/eye protection/face protection Manufacturer/supplier or the competent authority to specify type of equipment.	P335 + P334 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. P370 + P378 In case of fire: Use ... for extinction ... Manufacturer/supplier or the competent authority to specify appropriate media. <i>- if water increases risk.</i>	P422 Store contents underManufacturer/supplier or the competent authority to specify appropriate liquid or inert gas.	

SELF-HEATING SUBSTANCES AND MIXTURES

Symbol Flame

Hazard category	Signal word	Hazard statement
1	Danger	H251 Self-heating; may catch fire
2	Warning	H252 Self-heating in large quantities; may catch fire



Precautionary statements			
Prevention	Response	Storage	Disposal
P235 + P410 Keep cool. Protect from sunlight. P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.		P407 Maintain air gap between stacks/pallets. P413 Store bulk masses greater than ... kg/...lbs at temperatures not exceeding ...°C/...°F. ... Manufacturer/supplier or the competent authority to specify mass and temperature. P420 Store away from other materials.	

SUBSTANCES AND MIXTURES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

Symbol
Flame



Hazard category	Signal word	Hazard statement
1	Danger	H260 In contact with water releases flammable gases, which may ignite spontaneously
2	Danger	H261 In contact with water releases flammable gases

Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.</p> <p>P231 + P232 Handle under inert gas. Protect from moisture.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P335 + P334 Brush off loose particles from skin and immerse in cool water/wrap in wet bandages.</p> <p>P370 + P378 In case of fire: Use ... for extinction ... Manufacturer/supplier or the competent authority to specify appropriate media. <i>- if water increases risk.</i></p>	<p>P402 + P404 Store in a dry place. Store in a closed container.</p>	<p>P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).</p>

SUBSTANCES AND MIXTURES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

Hazard category 3
Signal word Warning
Hazard statement H261 In contact with water releases flammable gases

Symbol
Flame



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P231 + P232 Handle under inert gas. Protect from moisture.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P370 + P378 In case of fire: Use ... for extinction. ...Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i></p>	<p>P402 + P404 Store in a dry place. Store in a closed container.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

OXIDISING LIQUIDS

Hazard category 1
Signal word Danger
Hazard statement H271 May cause fire or explosion; strong oxidiser

Symbol
Flame over circle



Precautionary statements			
Prevention	Response	Storage	Disposal

<p>P210 Keep away from heat.</p> <p>P220 Keep/Store away from clothing and other combustible materials.</p> <p>P221 Take any precaution to avoid mixing with combustibles/... ... Manufacturer/supplier or the competent authority to specify other incompatible materials.</p> <p>P280 Wear protective gloves /eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p> <p>P283 Wear fire/flame resistant/retardant clothing.</p>	<p>P306 + P360 IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.</p> <p>P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.</p> <p>P370 + P378 In case of fire: Use ... for extinction. ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i></p>		<p>P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).</p>
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OXIDISING LIQUIDS

Symbol Flame over circle

Hazard category	Signal word	Hazard statement
2	Danger	H272 May intensify fire; oxidiser
3	Warning	H272 May intensify fire; oxidiser



Precautionary statements

Prevention	Response	Storage	Disposal
P210 Keep away from heat.			
P220 Keep/Store away from clothing/.../combustible materials. ...Manufacturer/supplier or the competent authority to specify other incompatible materials.			
P221 Take any precaution to avoid mixing with combustibles/... ... Manufacturer/supplier or the competent authority to specify other incompatible materials.	P370 + P378 In case of fire: Use ... for extinction. ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>		
P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.			P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).

OXIDISING SOLIDS

Symbol Flame over circle

Hazard category	Signal word	Hazard statement
1	Danger	H271 May cause fire or explosion; strong oxidiser



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat.</p> <p>P220 Keep away from clothing and other combustible materials.</p> <p>P221 Take any precaution to avoid mixing with combustibles/... ...Manufacturer/supplier or the competent authority to specify other incompatible materials.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p> <p>P283 Wear fire/flare resistant/retardant clothing.</p>	<p>P306 + P360 IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.</p> <p>P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.</p> <p>P370 + P378 In case of fire: Use ... for extinction. ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i></p>		<p>P501 Dispose of contents/container to... ...in accordance with local/regional/national/international Regulations (to be specified).</p>

OXIDISING SOLIDS

Symbol Flame over circle

Hazard category	Signal word	Hazard statement
2	Danger	H272 May intensify fire; oxidiser
3	Warning	H272 May intensify fire; oxidiser



Precautionary statements

Prevention	Response	Storage	Disposal
P210 Keep away from heat.	P370 + P378 In case of fire: Use ... for extinction. ... Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).
P220 Keep/Store away from clothing/.../combustible materials. ... Manufacturer/supplier or the competent authority to specify incompatible materials.			
P221 Take any precaution to avoid mixing with combustibles/... ...Manufacturer/supplier or the competent authority to specify other incompatible materials.			
P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.			

ORGANIC PEROXIDES

Symbol Explosion

Hazard category	Signal word	Hazard statement
Type A	Danger	H240 Heating may cause an explosion



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat/sparks/open flames/hot surfaces.- No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P220 Keep/Store away from clothing/.../combustible materials. ... Manufacturer/supplier or the competent authority to specify incompatible materials.</p> <p>P234 Keep only in original container.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>		<p>P411 + P235 Store at temperatures not exceeding ... °C/... °F. Keep cool. ... Manufacturer/supplier or the competent authority to specify temperature.</p> <p>P410 Protect from sunlight.</p> <p>P420 Store away from other materials.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

ORGANIC PEROXIDES

Symbol Exploding bomb and flame
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Hazard category	Signal word	Hazard statement
Type B	Danger	H241 Heating may cause a fire or explosion



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P220 Keep /Store away from clothing/.../combustible materials. ... Manufacturer/supplier or the competent authority to specify incompatible materials.</p> <p>P234 Keep only in original container.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>		<p>P411 + P235 Store at temperatures not exceeding ...°C/...°F. Keep cool. Manufacturer/supplier or the competent authority to specify temperature.</p> <p>P410 Protect from sunlight.</p> <p>P420 Store away from other materials.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

ORGANIC PEROXIDES

Symbol Flame



Hazard category	Signal word	Hazard statement
Type C	Danger	H242 Heating may cause a fire
Type D	Danger	H242 Heating may cause a fire
Type E	Warning	H242 Heating may cause a fire
Type F	Warning	H242 Heating may cause a fire

Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P220 Keep/Store away from clothing/.../combustible materials ... Manufacturer/supplier or the competent authority to specify incompatible materials.</p> <p>P234 Keep only in original container.</p> <p>P280 Wear protective gloves/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>		<p>P411 + P235 Store at temperatures not exceeding ...°C/...°F. Keep cool. ... Manufacturer/supplier or the competent authority to specify temperature.</p> <p>P410 Protect from sunlight.</p> <p>P420 Store away from other materials.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

Note: Hazard category Type G: There are no label elements allocated to this hazard category

CORROSIVE TO METALS

Symbol
Corrosion

Hazard category	Signal word	Hazard statement
1	Warning	H290 May be corrosive to metals



Precautionary statements			
Prevention	Response	Storage	Disposal
P234 Keep only in original container.	P390 Absorb spillage to prevent material damage.	P406 Store in corrosive resistant/... container with a resistant inner liner. ... Manufacturer/supplier or the competent authority to specify other compatible materials.	

ACUTE TOXICITY - ORAL

Symbol
Skull and crossbones

Hazard category	Signal word	Hazard statement
1	Danger	H300 Fatal if swallowed
2	Danger	H300 Fatal if swallowed



Precautionary statements			
Prevention	Response	Storage	Disposal
P264 Wash ...thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if immediate administration of antidote is required.</i> P330 Rinse mouth.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY – ORAL

Symbol Skull and crossbones

Hazard category	Signal word	Hazard statement
3	Danger	H301 Toxic if swallowed



Precautionary statements			
Prevention	Response	Storage	Disposal
P264 Wash ... thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if immediate administration of antidote is required.</i> P330 Rinse mouth.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY – ORAL

Symbol Exclamation mark

Hazard category	Signal word	Hazard statement
4	Warning	H302 Harmful if swallowed



Precautionary statements			
Prevention	Response	Storage	Disposal
P264 Wash ... thoroughly after handling. ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY - DERMAL

Symbol Skull and crossbones

Hazard category	Signal word	Hazard statement
1	Danger	H310 Fatal in contact with skin
2	Danger	H310 Fatal in contact with skin



Precautionary statements			
Prevention	Response	Storage	Disposal
P262 Do not get in eyes, on skin, or on clothing. P264 Wash ... thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing. Manufacturer/supplier or the competent authority to specify type of equipment.	P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water. P310 Immediately call a POISON CENTRE or doctor/physician. P322 Specific measures (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if immediate measures such as specific cleansing agent is advised.</i> P361 Remove/Take off immediately all contaminated clothing. P363 Wash contaminated clothing before reuse.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY - DERMAL

Symbol
Skull and crossbones



Hazard category Signal word Hazard statement

3 Danger H311 **Toxic in contact with skin**

Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P280 Wear protective gloves/protective clothing. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P302 + P352 IF ON SKIN: Wash with plenty of soap and water.</p> <p>P312 Call a POISON CENTRE or doctor/physician if you feel unwell.</p> <p>P322 Specific measures (see ... on this label) ... Reference to supplemental first aid instruction. <i>- if measures such as specific cleansing agent is advised.</i></p> <p>P361 Remove/Take off immediately all contaminated clothing.</p> <p>P363 Wash contaminated clothing before reuse.</p>	<p>P405 Store locked up.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

ACUTE TOXICITY – DERMAL

Hazard category	Signal word	Hazard statement
4	Warning	H312 Harmful in contact with skin

Symbol Exclamation mark



Precautionary statements			
Prevention	Response	Storage	Disposal
P280 Wear protective gloves/protective clothing Manufacturer/supplier or the competent authority to specify type of equipment.	P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P322 Specific measures (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if measures such as specific cleansing agent is advised.</i> P363 Wash contaminated clothing before reuse.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY - INHALATION

Symbol Skull and crossbones

Hazard category	Signal word	Hazard statement
1	Danger	H330 Fatal if inhaled
2	Danger	H330 Fatal if inhaled



Precautionary statements			
Prevention	Response	Storage	Disposal
P260 Do not breathe dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions. P271 Use only outdoors or in a well-ventilated area. P284 Wear respiratory protection. Manufacturer/supplier or the competent authority to specify equipment.	P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician. P320 Specific treatment is urgent (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if immediate administration of antidote is required.</i>	P403 + P233 Store in a well-ventilated place. Keep container tightly closed. - <i>if product is volatile as to generate hazardous atmosphere.</i> P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ACUTE TOXICITY - INHALATION

Symbol Skull and crossbones

Hazard category	Signal word	Hazard statement
3	Danger	H331 Toxic if inhaled



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p>	<p>P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P311 Call a POISON CENTER or doctor/physician.</p> <p>P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. <i>- if immediate specific measures are required.</i></p>	<p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed. <i>- if product is volatile so as to generate hazardous atmosphere.</i></p> <p>P405 Store locked up.</p>	<p>P501 Dispose of content/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

ACUTE TOXICITY - INHALATION

Symbol Exclamation mark

Hazard category	Signal word	Hazard statement
4	Warning	H332 Harmful if inhaled



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p>P271 Use only outdoors or in a well-ventilated</p>	<p>P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P312 Call a POISON CENTER or doctor/physician if you feel unwell.</p>		

area.			
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SKIN CORROSION/IRRITATION

Symbol Corrosion

Hazard category	Signal word	Hazard statement
1A to 1C	Danger	H314 Causes severe skin burns and eye damage



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P260 Do not breathe dusts or mists. <i>- if inhalable particles of dusts or mists may occur during use.</i></p> <p>P264 Wash ...thoroughly after handling. ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P310 Immediately call a POISON CENTER or doctor/physician.</p> <p>P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction.</p>	<p>P405 Store locked up.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

	<p>- <i>Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i></p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>		
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SKIN CORROSION/IRRITATION

<p>Symbol Exclamation mark</p>

Hazard category	Signal word	Hazard statement
2	Warning	H315 Causes skin irritation



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P264 Wash ... thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P280 Wear protective gloves. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P302 + P352 IF ON SKIN: Wash with plenty of soap and water.</p> <p>P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. - <i>Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i></p> <p>P332 + P313 If skin irritation occurs: Get medical advice/attention.</p> <p>P362 Take off contaminated clothing and wash before reuse.</p>		

SERIOUS EYE DAMAGE/IRRITATION

Symbol
Corrosion

Hazard category **Signal word** **Hazard statement**
1 Danger H318 Causes serious eye damage



Precautionary statements			
Prevention	Response	Storage	Disposal
P280 Wear eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/physician.		

SERIOUS EYE DAMAGE/IRRITATION

Symbol
Exclamation mark

Hazard category **Signal word** **Hazard statement**
2A Warning H319 Causes serious eye irritation



Precautionary statements			
Prevention	Response	Storage	Disposal
P264 Wash ... thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P280 Wear eye protection/face protection. Manufacturer/supplier or the competent authority to specify type of equipment.	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 If eye irritation persists: Get medical advice/attention.		

SENSITISATION – RESPIRATORY

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1, 1A, 1B	Danger	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled



Precautionary statements			
Prevention	Response	Storage	Disposal
P261 Avoid breathing dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions.	P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).
P285 In case of inadequate ventilation wear respiratory protection. Manufacturer/supplier or the competent authority to specify equipment	P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.		

SENSITISATION – SKIN

Symbol Exclamation mark

Hazard category	Signal word	Hazard statement
1, 1A, 1B	Warning	H317 May cause an allergic skin reaction



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p>P272 Contaminated work clothing should not be allowed out of the workplace.</p> <p>P280 Wear protective gloves. Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P302 + P352 IF ON SKIN: Wash with plenty of soap and water.</p> <p>P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. <i>- Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i></p> <p>P363 Wash contaminated clothing before reuse.</p>		<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>

GERM CELL MUTAGENICITY

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1A, 1B	Danger	H340 May cause genetic defects <...>
2	Warning	H341 Suspected of causing genetic defects <...> <...> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)



Precautionary statements			
Prevention	Response	Storage	Disposal
P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P281 Use personal protective equipment as required.	P308 + P313 IF exposed or concerned: Get medical advice/attention.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

CARCINOGENICITY

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1A, 1B	Danger	H350 May cause cancer <...>
2	Warning	H351 Suspected of causing cancer <...> <...> <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).</i>



Precautionary statements			
Prevention	Response	Storage	Disposal
P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P281 Use personal protective equipment as required.	P308 + P313 IF exposed or concerned: Get medical advice/attention.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

TOXIC TO REPRODUCTION

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1A, 1B	Danger	H360 May damage fertility or the unborn child <...> <<...>>
2	Warning	H361 Suspected of damaging fertility or the unborn child <...> <<...>> <...> (state specific effect if known) <<...>> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)



Precautionary statements			
Prevention	Response	Storage	Disposal
P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P281 Use personal protective equipment as required.	P308 + P313 IF exposed or concerned: Get medical advice/attention.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

**TOXIC TO REPRODUCTION
(effects on or via lactation)**

Symbol <i>No symbol</i>

Hazard category <i>(additional)</i>	Signal word <i>No signal word</i>	Hazard statement H362 May cause harm to breast-fed children
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Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P201 Obtain special instructions before use.</p> <p>P260 Do not breathe dusts or mists. <i>- if inhalable particles of dusts or mists may occur during use.</i></p> <p>P263 Avoid contact during pregnancy/while nursing.</p> <p>P264 Wash ... thoroughly after handling. ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p>	<p>P308 + P313 IF exposed or concerned: Get medical advice/attention.</p>		

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure)

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1	Danger	H370 Causes damage to organs <...> <<...>> <...> (or state all organs affected if known) <<...>> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)



Precautionary statements			
Prevention	Response	Storage	Disposal
P260 Do not breathe dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions. P264 Wash ...thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician. P321 Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. - <i>if immediate measures are required.</i>	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure)

Symbol Health hazard

Hazard category 2	Signal word Warning	Hazard statement H371 May cause damage to organs <...> <<...>> <...> (or state all organs affected, if known) <<...>> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
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Precautionary statements			
Prevention	Response	Storage	Disposal
P260 Do not breathe dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions. P264 Wash ... thoroughly after handling. ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P309 + P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure)

Hazard category	Signal word	Hazard statement	Symbol Exclamation mark
3	Warning	H335 May cause respiratory irritation; or H336 May cause drowsiness or dizziness	

Precautionary statements			
Prevention	Response	Storage	Disposal
P261 Avoid breathing dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions. P271 Use only outdoors or in a well-ventilated area.	P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell.	P403 + P233 Store in a well-ventilated place. Keep container tightly closed. <i>- if product is volatile so as to generate hazardous atmosphere.</i> P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure)

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1	Danger	H372 Causes damage to organs <...> through prolonged or repeated exposure <<...>> <...> <i>(state all organs affected, if known)</i> <<...>> <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i>



Precautionary statements			
Prevention	Response	Storage	Disposal
P260 Do not breathe dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions. P264 Wash ... thoroughly after handling. ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling. P270 Do not eat, drink or smoke when using this product.	P314 Get medical advice/attention if you feel unwell.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure)

Symbol Health hazard

Hazard category	Signal word	Hazard statement
2	Warning	<p>H373 May cause damage to organs <...> through prolonged or repeated exposure <<...>> <...> (state all organs affected, if known) <<...>> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</p>



Precautionary statements			
Prevention	Response	Storage	Disposal
P260 Do not breathe dust/fume/gas/mist/vapours/spray. Manufacturer/supplier or the competent authority to specify applicable conditions.	P314 Get medical advice/attention if you feel unwell.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ASPIRATION HAZARD

Symbol Health hazard

Hazard category	Signal word	Hazard statement
1	Danger	<p>H304 May be fatal if swallowed and enters airways</p>



Precautionary statements			
Prevention	Response	Storage	Disposal
	P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P331 Do NOT induce vomiting.	P405 Store locked up.	P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

ADDITIONAL NON-GHS HAZARD STATEMENTS¹⁵

There are twelve additional non-GHS hazard statements that should be used on SDS where applicable.

Physical hazard statements

AUH001: Explosive when dry

For explosive substances and mixtures placed on the market wetted with water or alcohols or diluted with other chemicals to suppress their explosives properties.

AUH006: Explosive with or without contact with air

For substances and mixtures which are unstable at ambient temperatures, such as acetylene.

AUH014: Reacts violently with water

For substances and mixtures which react violently with water, such as acetyl chloride, alkali metals, titanium tetrachloride.

AUH018: In use, may form flammable/explosive vapour-air mixture

For substances and mixtures not classified as flammable themselves, which may form flammable/explosive vapour-air mixtures. For substances this might be the case for halogenated hydrocarbons and for mixtures this might be the case due to a volatile flammable component or due to the loss of a volatile non-flammable component.

AUH019: May form explosive peroxides

For substances and mixtures which may form explosive peroxides during storage, such as diethyl ether, 1,4-dioxan.

AUH044: Risk of explosion if heated under confinement

For substances and mixtures not classified as explosive but which may nevertheless display explosive properties in practice if heated under sufficient confinement. In particular, substances which decompose explosively if heated in a steel drum do not show this effect if heated in less-strong containers.

Human health hazard statements

AUH029: Contact with water liberates toxic gas

For substances and mixtures which in contact with water or damp air, evolve gases classified for acute toxicity in category 1, 2 or 3 in potentially dangerous amounts, such as aluminium phosphide, phosphorus pentasulphide.

AUH031: Contact with acids liberates toxic gas

For substances and mixtures which react with acids to evolve gases classified for acute toxicity in category 3 in dangerous amounts, such as sodium hypochlorite, barium polysulphide.

AUH032: Contact with acids liberates very toxic gas

¹⁵ The additional six non-GHS physical hazard statements and six health hazard statements align with hazard statements that appeared in the National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)], 3rd edition, 2004.

For substances and mixtures which react with acids to evolve gases classified for acute toxicity in category 1 or 2 in dangerous amounts; such as salts of hydrogen cyanide, sodium azide.

AUH066: Repeated exposure may cause skin dryness or cracking

For substances and mixtures which may cause concern as a result of skin dryness, flaking or cracking but which do not meet the criteria for skin irritancy.

AUH070: Toxic by eye contact

For substances or mixtures where an eye irritation test has resulted in overt signs of systemic toxicity or mortality among the animals tested, which is likely to be attributed to absorption of the substance or mixture through the mucous membranes of the eye. The statement must also be applied if there is evidence in humans for systemic toxicity after eye contact.

The statement must also be applied where a substance or a mixture contains another substance labelled for this effect, if the concentration of this substance is equal to, or greater than 0.1 %.

AUH071: Corrosive to the respiratory tract

For substances and mixtures in addition to classification for inhalation toxicity, if data are available that indicate the mechanism of toxicity was corrosivity.

In addition to an appropriate acute toxicity symbol, a 'corrosion' symbol (similar to the 'corrosion' symbol used for skin and eye corrosivity) is added along with the hazard statement AUH071 Corrosive to the respiratory tract.

For substances and mixtures in addition to classification for skin corrosivity, if no acute inhalation test data are available and which may be inhaled.

GH S CATEGORIES WHICH ARE NON-MANDATORY UNDER THE WHS REGULATIONS

The hazard communication elements for the following GHS categories are not required under Australian work health and safety regulations. However, these may be required to meet overseas SDS requirements or, for environmental hazards, to meet environmental legislation in Australia.

HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD

			Symbol Environment
Hazard category	Signal word	Hazard statement	
1	Warning	H400 Very toxic to aquatic life	
Precautionary statements			
Prevention	Response	Storage	Disposal
P273 Avoid release to the environment. - if this is not the intended use.	P391 Collect spillage.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD

			Symbol <i>No symbol</i>
Hazard category	Signal word	Hazard statement	
2	<i>No signal word</i>	H401 Toxic to aquatic life	
3	<i>No signal word</i>	H402 Harmful to aquatic life	
Precautionary statements			
Prevention	Response	Storage	Disposal
P273 Avoid release to the environment. - if this is not the intended use.			P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

HAZARDOUS TO THE AQUATIC ENVIRONMENT - LONG-TERM HAZARD

			Symbol Environment
Hazard category	Signal word	Hazard statement	
1	Warning	H410 Very toxic to aquatic life with long lasting effects	
2	<i>No signal word</i>	H411 Toxic to aquatic life with long lasting effects	
Precautionary statements			

Prevention	Response	Storage	Disposal
P273 Avoid release to the environment. - if this is not the intended use.	P391 Collect spillage.		P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

HAZARDOUS TO THE AQUATIC ENVIRONMENT - LONG-TERM HAZARD

Symbol No symbol

Hazard category	Signal word	Hazard statement
3	No signal word	H412 Harmful to aquatic life with long lasting effects
4	No signal word	H413 May cause long lasting harmful effects to aquatic life

Precautionary statements			
Prevention	Response	Storage	Disposal
P273 Avoid release to the environment. - if this is not the intended use.			P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).

HAZARDOUS TO THE OZONE LAYER

Symbol Exclamation mark

Hazard category	Signal word	Hazard statement
1	Warning	H420 Harms public health and the environment by destroying ozone in the upper atmosphere



Precautionary statements			
Prevention	Response	Storage	Disposal
			P502 Refer to manufacturer/supplier for information on recovery/recycling

FLAMMABLE GASES

Symbol No symbol

Hazard category	Signal word	Hazard statement
2	Warning	H221 Flammable gas

Precautionary statements			
Prevention	Response	Storage	Disposal

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or the competent authority to specify applicable ignition sources(s).	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 Eliminate all ignition sources if safe to do so.	P403 Store in well-ventilated place.	
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ACUTE TOXICITY - ORAL

Symbol
No symbol

Hazard category 5 **Signal word** Warning **Hazard statement** H303 **May be harmful if swallowed**

Precautionary statements			
Prevention	Response	Storage	Disposal
	P312 Call a POISON CENTER/doctor/physician if you feel unwell.		

ACUTE TOXICITY – DERMAL

Symbol
No symbol

Hazard category 5 **Signal word** Warning **Hazard statement** H313 **May be harmful in contact with skin**

Precautionary statements			
Prevention	Response	Storage	Disposal
	P312 Call a POISON CENTER or doctor/physician if you feel unwell.		

ACUTE TOXICITY - INHALATION

Symbol
No symbol

Hazard category 5 **Signal word** Warning **Hazard statement** H333 **May be harmful if inhaled**

Precautionary statements			
Prevention	Response	Storage	Disposal
	P304 + P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.		

SKIN CORROSION/IRRITATION

Symbol No symbol

Hazard category 3 **Signal word** Warning **Hazard statement** H316 Causes mild skin irritation

Precautionary statements

Prevention	Response	Storage	Disposal
	P332 + P313 If skin irritation occurs: Get medical advice/attention.		

SERIOUS EYE DAMAGE/IRRITATION

Symbol No symbol

Hazard category 2B **Signal word** Warning **Hazard statement** H320 Causes eye irritation

Precautionary statements

Prevention	Response	Storage	Disposal
P264 Wash ... thoroughly after handling. ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 If eye irritation persists: Get medical advice/attention.		

ASPIRATION HAZARD

Symbol Health hazard

Hazard category 2 **Signal word** Warning **Hazard statement** H305 May be harmful if swallowed and enters airways



Precautionary statements

Prevention	Response	Storage	Disposal

	<p>P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</p> <p>P331 Do NOT induce vomiting.</p>	<p>P405 Store locked up.</p>	<p>P501 Dispose of contents/container to... ... in accordance with local/regional/national/international Regulations (to be specified).</p>
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APPENDIX E – OVERSEAS SDS REQUIREMENTS - GUIDANCE FOR EXPORTERS

The information in this appendix guides Australian exporters on differing SDS requirements that may apply to some export countries. Some countries may require an SDS for the following mixtures of certain hazardous ingredients that are not classified as hazardous according to the WHS Regulations.

Any mixture containing the following substances may require an SDS in an importing country:

- a category 1 skin sensitiser present in a mixture (all physical states) at a concentration between $\geq 0.1\%$ and $< 1.0\%$; or
- a category 1 respiratory sensitiser present in a solid or liquid mixture at a concentration between $\geq 0.1\%$ and $< 1.0\%$; or
- a category 1 respiratory sensitiser present in a gaseous mixture at a concentration between $\geq 0.1\%$ and $< 0.2\%$; or
- a category 2 carcinogen present in a mixture (all physical states) at a concentration between $\geq 0.1\%$ and $< 1.0\%$; or
- a category 1 reproductive toxicant present in a mixture (all physical states) at a concentration between $\geq 0.1\%$ and $< 0.3\%$; or
- a category 2 reproductive toxicant present in a mixture (all physical states) at a concentration between $\geq 0.1\%$ and $< 3.0\%$; or
- a category 2 specific target organ toxicant present in a mixture (all physical states) at a concentration between $\geq 1.0\%$ and $< 10.0\%$; or
- a substance classified in the additional category for effects on or via lactation present in a mixture (all physical states) as an ingredient at a concentration between $\geq 0.1\%$ and $< 0.3\%$.

APPENDIX F – REFERENCE DOCUMENTS AND USEFUL LINKS

Information sources relevant to the preparation of Safety Data Sheets include, but are not limited to:

Hazard Classification

- Australian Inventory of Chemical Substances (AICS) (NICNAS)(<http://www.nicnas.gov.au/Industry/AICS/Search.asp>)
- Chemical Assessment Reports (NICNAS) (<http://www.nicnas.gov.au/Publications/CAR.asp>)
- Exposure Standards (*Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]*)
- Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (United Nations) (http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)
- Global Portal to Information on Chemical Substances (OECD¹⁶) (<http://webnet3.oecd.org/echemportal/>)
- HSIS database (www.safeworkaustralia.gov.au)
- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (ECHA¹⁷) (http://echa.europa.eu/reach_en.asp)

Standards applicable to all, or several, classes of hazardous chemicals

AS 1319	<i>Safety Signs for the Occupational Environment</i>
AS 1345	<i>Rules for the identification of piping, conduits and ducts</i>
AS 2430	<i>Classification of hazardous areas – Examples of area classification - General</i>
AS/NZS 3833	<i>The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers</i>
AS 4897	<i>The design, installation and operation of underground petroleum storage systems</i>
AS 4977	<i>Petroleum products – Pipeline, road tanker compartment and underground tank identification</i>
AS 4976	<i>The removal and disposal of underground petroleum storage tanks</i>
AS/NZS 60079.10	<i>Electrical apparatus for use in the presence of combustibile dust - Classification of hazardous areas</i>
AS/NZS 61241.10	<i>Electrical apparatus for explosive gas atmospheres - Classification of areas where dust may be present</i>
AS HB76	<i>Dangerous goods – Initial emergency response guide</i>

¹⁶ OECD means the Organisation for Economic Co-operation and Development

¹⁷ ECHA means European Chemicals Agency

Standards specific to one particular class of dangerous goods or specific types of dangerous goods within a class

- Gases (in particular DG class 2.1, 2.2 and 2.3)

AS 1375	<i>Industrial fuel fire appliances</i>
AS/NZS 1596	<i>Storage and handling of LP Gas</i>
AS 1697	<i>Installation and maintenance of steel pipe systems for gas</i>
AS 1894	<i>The storage and handling of non-flammable cryogenic and refrigerated liquids</i>
AS/NZS 2022	<i>Anhydrous Ammonia – Storage and handling</i>
AS 2030	<i>The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases</i>
AS 2030.1	<i>Cylinders for compressed gases other than acetylene</i>
AS 2030.2	<i>Cylinders for dissolved acetylene</i>
AS 2030.4	<i>Welded steel cylinders, insulated</i>
AS 2337	<i>Gas cylinder test stations, part 1 General requirements, inspection and tests - Gas cylinders</i>
AS 2658	<i>LP gas – portable and mobile appliances</i>
AS 2896	<i>Medical gas systems – Installation and testing of non-flammable medical gas pipeline systems</i>
AS/NZS 2927	<i>The storage and handling of liquefied chlorine gas</i>
AS 3814	<i>Industrial and commercial gas fired appliances (originally published as AG 501)</i>
AS 3961	<i>Liquefied natural gas – storage and handling</i>
AS 4289	<i>Oxygen and acetylene gas reticulation systems</i>
AS 4332	<i>The storage and handling of gases in cylinders</i>
AS 5601(AG 601)	<i>Gas installations</i>

- Flammable liquids (in particular DG class 3)

AS 1692	<i>Tanks for flammable and combustible liquids</i>
AS 1940	<i>The storage and handling of flammable and combustible liquids</i>
AS (/NZS) 2106	<i>Methods for the determination of the flashpoint of flammable liquids (closed cup) – all parts</i>
AS/NZS 2906	<i>Fuel Containers – Portable – plastics and metal</i>

- Flammable solids, self-reactive substances, pyrophoric liquids and solids, self-heating substances and substances which in contact with water emit flammable gases (in particular DG class 4.1, 4.2, and 4.3)

AS/NZS 4745	<i>Code of practice for handling combustible dusts</i>
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- Oxidising liquids and solids, organic peroxides (in particular DG class 5.1 and 5.2)

AS 2714	<i>The storage and handling of hazardous chemical materials – Class 5.2 substances (organic peroxides)</i>
AS 4326	<i>The storage and handling of oxidising substances</i>

- Toxic substances (in particular DG class 6.1)

AS/NZS 4081 *The storage, handling and transport of liquid and liquefied polyfunctional isocyanates*

AS/NZS 4452 *The storage and handling of toxic substances*

- Corrosive substances (in particular DG class 8)

AS 3780 *The storage and handling of corrosive substances*

- Miscellaneous substances (in particular DG class 9)

AS/NZS 4681 *The storage and handling of class 9 (miscellaneous) dangerous goods*

Standards applicable to an industry or particular situation

AS 2243 *Safety in laboratories*

AS 2243.1 *Planning and operational aspects*

AS 2243.2 *Chemical aspects*

AS 2243.6 *Mechanical aspects*

AS 2243.7 *Electrical aspects*

AS 2243.8 *Fume cupboards*

AS 2243.9 *Recirculating fume cupboards*

AS 2243.10 *Storage of chemicals*

AS 2507 *The storage and handling of agricultural and veterinary chemicals*

AS/NZS 2865 *Safe working in a confined space*

AS/NZS 2982.1 *Laboratory design and construction – General requirements*

AS 3846 *The handling and transport of dangerous cargoes in port areas*

AS 4041 *Pressure piping*

AS/NZS 4114 *Spray painting booths – design, construction and testing*

Standards and Codes applicable to particular design requirements

AS 1530.4 *Methods for fire tests on building materials, components and structures – Fire resistance tests of elements of building construction*

AS 1668.2 *the use of ventilation and air-conditioning in buildings - Ventilation design for indoor air contaminant control*

AS/NZS 1680 *Interior lighting*

AS 2809 *Road tank vehicles for dangerous goods*

AS 2809.1 *General*

AS 2809.2 *Tankers for flammable liquids*

AS 2809.3 *Tankers for compressed liquefied gases*

AS 2809.4 *Tankers for toxic and corrosive cargoes*

AS 2809.5 *Tankers for bitumen based products*

AS 2809.6 *Tankers for cryogenic liquids*

AS/NZS 2885 *Pipelines – gas and liquid petroleum*

AS 3788 *Pressure equipment – In-service inspection*

AS 3873 *Pressure equipment – Operation and maintenance*

AS 3892 *Pressure equipment – Installation*

- Australian Building Codes Board
Building Code of Australia (BCA)
- British Occupational Hygiene Society
BOHS Technical guide No 7 Controlling airborne contaminants in the workplace
- American Conference of Governmental Industrial Hygienists
Industrial ventilation, a manual of recommended practice

Standards and codes for the sampling and analysis of atmospheric contaminants

- AS 2985 *Workplace atmospheres – Method for sampling and gravimetric determination of respirable dust*
- AS 2986.1 *Workplace air quality – Sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography – Pumped sampling method*
- AS 2986.2 *Workplace air quality – Sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography – Diffusive sampling method*
- AS 3640 *Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust*
- AS 3853.1 *Health and safety in welding and allied processes – Sampling of airborne particles and gases in the operator's breathing zone – Sampling of airborne particles*
- AS 3853.2 *Health and safety in welding and allied processed – Sampling of airborne particles and gases in the operator's breathing zone – Sampling of gases*
- Health and Safety Executive (UK)
*Monitoring strategies for toxic substances, Environmental Hygiene, No.42
Methods for the determination of hazardous chemicals, MDHS Series*
 - National Institute for Occupational Safety and Health (USA)
*NIOSH manual of analytical methods
Occupational exposure sampling strategy manual*

Standards for personal protective equipment (PPE)

- AS/NZS 1336 *Recommended practices for occupational eye protection*
- AS/NZS 1337 *Eye protectors for industrial applications*
- AS/NZS 1715 *Selection, use and maintenance of respiratory protective devices*
- AS/NZS 1716 *Respiratory protective devices*
- AS/NZS 2161 *Occupational protective gloves*
- AS/NZS 2161.1 *Selection, use and maintenance*
- AS/NZS 2161.2 *General requirements*
- AS/NZS 2161.10 *Protective gloves against chemicals and micro-organisms*
- AS/NZS 2210 *Occupational protective footwear*
- AS/NZS 2210.1 *Guide to selection, care and use*
- AS/NZS 2210.2 *Requirements and test methods*
- AS 2919 *Industrial clothing*
- AS 3765 *Clothing for protection against hazardous chemicals*
- AS 3765.1 *Protection against general or specific chemicals*
- AS 3765.2 *Limited protection against specific chemicals*

Fire prevention standards

AS/NZS 1020	<i>Control of undesirable static electricity</i>
AS/NZS 1768	<i>Lightning protection</i>
AS 2359.12	<i>Powered industrial trucks – Hazardous areas</i>

Fire protection standards - General

AS/NZS 1221	<i>Fire hose reels</i>
AS 1603	<i>Automatic fire detection and alarm systems</i>
AS 1603.1	<i>Heat detectors</i>
AS 1603.2	<i>Point type smoke detectors</i>
AS 1603.3	<i>Heat alarms</i>
AS 1603.5	<i>Manual call points</i>
AS 1603.11	<i>Visual warning devices</i>
AS 1603.13	<i>Duct sampling units</i>
AS 1603.14	<i>Point type carbon monoxide detectors</i>
AS 1603.15	<i>Remote indicators</i>
AS 1603.16	<i>In situ testers</i>
AS 1670	<i>Fire detection, warning, control and intercom systems - System design, installation and commissioning</i>
AS 1670.1	<i>Fire</i>
AS 1670.2	<i>Local fire</i>
AS 1670.3	<i>Fire alarm monitoring</i>
AS 1670.5	<i>Sound systems and intercom systems for emergency purposes</i>
AS 1670.6	<i>Smoke alarms</i>
AS 1851	<i>Maintenance of fire protection equipment</i>
AS 1851.1	<i>Portable fire extinguishers and fire blankets</i>
AS 1851.2	<i>Fire hose reels</i>
AS 1851.3	<i>Automatic fire sprinklers</i>
AS 1851.4	<i>Fire hydrant installations</i>
AS 1851.5	<i>Automatic smoke/heat venting systems</i>
AS 1851.6	<i>Management procedures for maintaining the fire and smoke control features of air handling systems</i>
AS 1851.7	<i>Fire-resistant door sets</i>
AS 1851.8	<i>Automatic fire detection and alarm systems</i>
AS 1851.9	<i>Delivery lay flat fire hose</i>
AS 1851.10	<i>Emergency warning and intercommunication systems</i>
AS 1851.11	<i>Halon 1301 total flooding systems</i>
AS 1851.12	<i>Gaseous fire extinguishing systems</i>
AS 1851.13	<i>Wheeled fire extinguishers</i>
AS 1851.14	<i>Pump set systems</i>
AS 1851.15	<i>Local fire alarm systems</i>
AS 1851.16	<i>Pyrogen fire extinguishing aerosol systems</i>
AS 2118	<i>Automatic fire sprinkler installations</i>
AS 2118.1	<i>General requirements</i>
AS 2118.2	<i>Wall wetting sprinklers (Drenchers)</i>
AS 2118.3	<i>Deluge</i>
AS 2118.6	<i>Combined sprinkler and hydrant</i>
AS 2118.9	<i>Piping support and installation</i>

AS 2419	<i>Fire hydrant installations</i>
AS 2419.1	<i>System design, installation and commissioning</i>
AS 2419.2	<i>Fire hydrant valves</i>
AS 2419.3	<i>Fire brigade booster connections</i>
AS 2441	<i>Installation of fire hose reels</i>
AS 2941	<i>Fixed fire protection installations – Pump set systems</i>

- **Fire Extinguishers**

AS/NZS 1841	<i>Portable fire extinguishers</i>
AS/NZS 1841.1	<i>General requirements</i>
AS/NZS 1841.2	<i>Specific requirements for water type extinguishers</i>
AS/NZS 1841.3	<i>Specific requirements for wet-chemical type extinguishers¹⁸</i>
AS/NZS 1841.4	<i>Specific requirements for foam type extinguishers</i>
AS/NZS 1841.5	<i>Specific requirements for powder type extinguishers</i>
AS/NZS 1841.6	<i>Specific requirements for carbon dioxide type</i>
AS/NZS 1841.7	<i>Specific requirements for vaporising – liquid type extinguishers</i>
AS/NZS 1850	<i>Portable fire extinguishers – Classification, rating and performance testing</i>
AS 2444	<i>Portable fire extinguishers and fire blankets – Selection and location</i>
AS 4265	<i>Wheeled fire extinguishers</i>

¹⁸ Wet chemical extinguishers covered by AS 1841.3 are designed for fires involving cooking oils and fats, many of which are combustible liquids.