

Workplace Health and Safety Queensland

# Labelling of Workplace Hazardous Chemicals

## Code of Practice 2011

Workplace Health and Safety Queensland  
Department of Justice and Attorney-General

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This code is based on a national model code of practice developed by Safe Work Australia and approved by the Workplace Relations Ministers' Council on 10 August 2011 as part of the harmonisation of work health and safety laws.

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## FOREWORD

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This code of practice for labelling 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 that 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, for example 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 10 August 2011.

## SCOPE AND APPLICATION

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This Code applies to substances, mixtures and articles used, handled or stored at the workplace and which are defined as hazardous chemicals under the WHS Regulations.

While this Code applies to hazardous chemicals as defined, it is recommended practice to provide a label for any chemical that is suspected of producing adverse health, safety or environmental effects but has insufficient information generated to allow it to be correctly classified. The label should reflect current state of knowledge.

This Code provides practical guidance to persons conducting a business or undertaking involved in the manufacture, import, supply or use of hazardous chemicals on how to correctly label hazardous chemicals used in the workplace.

### ***How to use this Code of Practice***

In providing guidance, the word 'should' is used in this Code to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

This Code also includes various references to provisions of the WHS Act and Regulations which set out the legal requirements. These references are not exhaustive. The words 'must', 'requires' or 'mandatory' indicate that a legal requirement exists and must be complied with.

## 1. INTRODUCTION

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This Code describes the type of information that is needed on labels for various hazardous chemicals so that users of these chemicals in workplaces can identify any hazards associated with the correct classification of the chemical and take appropriate steps to eliminate or minimise the risks.

### 1.1 When is a label under the WHS Regulations not required?

In general, a label is required for any substance, mixture or article classified as a hazardous chemical under the WHS Regulations. However, there are several types of hazardous chemical that are excluded from the labelling provisions under Regulation 335 or exempted from coverage from all provisions in Part 7.1 of the WHS Regulations.

#### **Dual use products**

Some hazardous chemicals may be intended for supply to both the consumer household markets and workplaces in identical containers and packaging. These products are sometimes referred to as dual use products. A dual use product label need only comply with the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) labelling requirements. If the manufacturer or importer determines that the use handling and storage of the product are predominantly related to a work activity, the label must meet WHS requirements.

#### **Food and beverages**

Food and beverage products that are packaged in a form intended for consumption do not require labelling under the WHS Regulations. However, large or bulk quantities must be labelled to meet workplace requirements. For example, a 1000 L container of flammable alcoholic spirits must be labelled to meet WHS requirements, while a 750 mL bottle of the same spirits does not.

#### **Therapeutic goods**

Therapeutic goods are regarded as correctly labelled under the WHS Regulations when labelled in accordance with Therapeutic Goods Administration (TGA) requirements and in a form:

- intended for intake or administration to or by a patient or consumer, or
- intended for use for therapeutic purposes.

When not in a form intended for intake or administration to or by a patient or consumer, or for therapeutic purposes, workplace labelling must be used.

For example, a pharmacist repacks a 1 kg container of formulated tablets in smaller containers for dispensing to patients. The 1 kg container must comply with TGA labelling requirements. However, a 1 kg container of the same material in powdered form used by a pharmacist in manufacturing or formulating products must be labelled according to workplace labelling requirements.

### 1.2 The meaning of key terms and abbreviations

**ADG Code** means the *Australian Code for the Transport of Dangerous Goods by Road and Rail, 7<sup>th</sup> edition*, approved by the Australian Transport Council. The ADG Code is accessible at the National Transport Commission website [www.ntc.gov.au](http://www.ntc.gov.au).

**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.

**Hazardous chemical** means any substance, mixture or article that satisfies the criteria for a hazard class in the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS) including a classification referred to in Schedule 6 of the WHS Regulations, but does not

include a substance, mixture or article that satisfies the criteria solely for one of 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
- acute hazard to the aquatic environment – Category 1, 2 or 3
- chronic hazard to the aquatic environment - Category 1, 2, 3 or 4, or
- hazardous to the ozone layer.

**Label** means the 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.

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

### 1.3 What are the duties in relation to labelling hazardous chemicals?

The WHS Regulations apply specific duties to various persons in relation to the correct labelling of workplace hazardous chemicals. These duties are summarised below.

Duty holder	Responsibilities
Manufacturers and importers	<ul style="list-style-type: none"><li>• Ensure that the chemical is correctly labelled.</li></ul>
Suppliers	<ul style="list-style-type: none"><li>• Must not supply a hazardous chemical to a workplace if the supplier knows, or ought reasonably to know, that the chemical is not correctly labelled.</li></ul>

Duty holder	Responsibilities
Person who is conducting a business or undertaking	<ul style="list-style-type: none"> <li>• Ensure that any hazardous chemical that is used, handled or stored at the workplace is correctly labelled in accordance with Schedule 9 of the WHS Regulations, except where: <ul style="list-style-type: none"> <li>○ the hazardous chemical is a consumer product, retaining its original label and only used in workplaces in household quantities and in a way that is incidental to the nature of the work, or</li> <li>○ a hazardous chemical is in transit.</li> </ul> </li> <li>• Ensure that a hazardous chemical is correctly labelled if the chemical is manufactured at the workplace; or transferred or decanted from the chemical's original container at the workplace.</li> <li>• Ensure, so far as reasonably practicable, that containers are correctly labelled while holding a hazardous chemical.</li> <li>• Ensure that containers that are labelled for holding a hazardous chemical are used only for the use, handling or storage of the hazardous chemical.</li> </ul> <p>Note: The three duties directly above do not apply if the hazardous chemical is used immediately after being put into the container and the container is thoroughly cleaned after the chemical has been used, handled or stored so it is in a condition it would be in if the container had never contained the chemical.</p> <ul style="list-style-type: none"> <li>• Ensure, so far as is reasonably practicable, that a hazardous chemical in pipe work is identified by a label, sign or another way on or near the pipe work.</li> </ul>

Note: a person who packages or re-labels a hazardous chemical with their own product name is considered to be a manufacturer and therefore will have the same obligations as the manufacturer or importer under the WHS Regulations to correctly label.

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

## 2. LABELLING HAZARDOUS CHEMICALS – GENERAL INFORMATION

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This chapter deals with the complete set of labelling elements that should be included on a container. A checklist for the preparation of a label is provided in Appendix B. In some situations it is not possible or reasonably practicable to legibly include the complete set of labelling elements on a label. Reduced label requirements are permitted in such situations. Guidance on the label requirements for these and other special situations is provided in Chapter 3 of this Code.

### 2.1 What information must be included on a label?

**Regulation 335, Part 3 of Schedule 9:** A hazardous chemical is correctly labelled if the chemical is packed in a container that includes the following:

- is written in English
- the product identifier
- the name, Australian address and business telephone number of either the manufacturer or importer
- the identity and proportion disclosed, in accordance with Schedule 8 of the WHS Regulations, for each chemical ingredient
- any hazard pictogram(s) consistent with the correct classification(s) of the chemical
- any hazard statement(s), signal word and precautionary statement(s) that is consistent with the correct classification(s) of the chemical
- any information about the hazards, first aid and emergency procedures relevant to the chemical, which are not otherwise included in the hazard statement or precautionary statement, and
- the expiry date of the chemical, if applicable.

You may include any information on the label that does not contradict or cast doubt on any other information that is required on the label.

The following additional information should also be included on the label, where available:

- an emergency phone number, for specific poisons or treatment advice
- the overseas name, address and telephone number of the manufacturer or supplier
- a valid website or internet address
- reference to the safety data sheet, for example a statement on the label that says: "Additional information is listed in the safety data sheet".

### 2.2 Product identifier, including details of ingredients

Information on the identity of a product includes a product identifier and the disclosure of certain ingredients. The product identifier and details of ingredients should be grouped together and located at the most prominent position on the label, for example at the top or centre of the label, or on a front panel.

A product identifier is a unique name or number by which the chemical is to be known, and which allows the product users to identify the hazardous chemical. The product identifier must be the same as that listed in the safety data sheet, and may be identical to the trade name.

A label must identify those ingredients, including their proportions, which contribute to the overall hazard class and hazard category of the hazardous chemical in accordance with Schedule 8 of the WHS Regulations. Disclosure of ingredient names is not required for ingredients that meet only physicochemical and/or environmental hazard classifications.

For pure substances, the identity of an ingredient can be identical to the product identifier.

The identity of a hazardous ingredient must be disclosed on a label using its *chemical identity*, unless the use of a generic name is permitted. The chemical identity of the hazardous ingredient can be disclosed by any of the following:

- the IUPAC name

- the CAS name
- the technical name (if different from the IUPAC or CAS name), which must be generally used in commerce, regulations and codes to identify a substance or mixture, and recognised by the scientific community.

Note: Trade names are not acceptable as technical names.

A generic name may be used to describe a hazardous ingredient if:

- the identity of the ingredient is commercially confidential, and
- an exposure standard has not been established for the ingredient, and
- the hazardous ingredient meets the criteria for any of the following GHS hazard classes and categories, and no other GHS health hazard classes and 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 toxicity (single exposure) – Category 3.

A guide for selecting generic names for ingredients is included in Appendix C of this Code.

### ***For complex mixtures***

The identity of all hazardous ingredients in a complex mixture must be determined so far as is reasonably practicable. In some situations it may be difficult to identify individual ingredients for example in natural products or extracts where the chemical composition of the mixture may vary according to the source. In these circumstances, technical names may be used to identify hazardous ingredients.

The ingredient and formulation details for hazardous complex mixtures must include as much information as possible. Chemical families or sub-families should be distinguished wherever possible. Chemical sub-families that may be used to represent a mixture of ingredients in complex mixtures include aliphatic hydrocarbons, aromatic hydrocarbons, aliphatic alcohols, aliphatic aldehydes and silicates.

### ***Disclosing proportions of ingredients***

The proportion of a disclosed ingredient, expressed as a weight or volume percentage of the hazardous chemicals must be described as an exact proportion, unless the exact concentration of an ingredient is commercially confidential. For multiple ingredients, proportions of hazardous ingredients should be listed in descending order by mass or volume.

Where the proportions of ingredients in the hazardous chemical are commercially confidential, the following ranges—or a narrower range as described in the paragraph immediately below—must be used as an alternative to disclosing exact proportions:

- <10%
- 10- <30%
- 30 – 60%
- >60%

The proportion of an ingredient may be disclosed using a narrower range than the applicable range listed above. For example, for an ingredient present at 35%, a range of 30 - 40% may be used instead of 30 - 60%.

For complex mixtures, proportion ranges should be used to cover any variability in the composition. Where the exact composition of a complex mixture is not known, this should be clearly indicated on the label.

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.

### **Example of how ingredients can be represented on the subsection of a label**

Flammable Liquid A contains the following ingredients:

Toluene	55 %
Ethyl methyl ketone	40 %
Methanol	3.5 %
2-butanol	1 %
Xylene	0.5 %

As both xylene and 2-butanol are not hazardous to health at these concentrations, they do not need to be disclosed in the ingredients subsection of the label.

Note: as they both have exposure standards they should be disclosed on the label as good practice.

The ingredients and their proportions may be disclosed on the label using the exact proportions:

Flammable Liquid A, contains:

Toluene	55 %
Ethyl methyl ketone	40 %
Methanol	3.5 %
Non-hazardous ingredients	1.5%

If the ingredient proportions are commercial-in-confidence, they may be disclosed on the label using a range:

Flammable Liquid A, contains:

Toluene	30 - 60 %
Ethyl methyl ketone	30 - 60%
Methanol	<10 %

## **2.3 Manufacturer/importer information**

The label must include the Australian contact details of the manufacturer or importer.

Additional information, including details of an overseas manufacturer or supplier – for example, a website or internet address – may be included on the label.

The manufacturer or importer identification may be provided in a less-prominent position on the label, for example the back portion of the label. It should be grouped with the expiry date, where applicable.

## **2.4 Label elements**

The combination of label elements required on the label of a hazardous chemical is directly linked to its hazard classification. Label elements apply to classification endpoints or hazard categories and must be determined as specified in the GHS.

Appendix D includes tables listing all the elements that apply to each hazard class and category or division.

The potential exists for duplication or redundancy of certain label elements where a hazardous chemical meets the criteria for more than one hazard class or category in the GHS. Duplicate or redundant information should not be included on a label. Rules of precedence of certain label elements and general guidance that should be used to determine when elements may be omitted from a label are provided in Appendix E.

Some hazardous chemicals, for example dangerous goods which cannot otherwise be classified into any hazard class described in the GHS, will not have any corresponding label elements. For these hazardous chemicals, hazard pictograms, hazard statements, signal words and

precautionary statements cannot be included on the label. The labels for these products should include information on the hazards and safety precautions. For example, for dry ice (solid carbon dioxide), information on the asphyxiation hazard and precautions for handling to avoid cryogenic burns should be included on the label.

The signal word, hazard pictograms and hazard statements should be grouped together in a prominent position on the label, and located either immediately following or adjacent to the product identifier and chemical ingredients.

### **Signal words**

Signal words are used to indicate the relative level of severity of a hazard. The GHS uses 'Danger' and 'Warning' as signal words. 'Danger' is used for a more severe or significant hazard, while 'Warning' is used for the less severe hazards.

Only one signal word should be present on any one label. If the signal word 'Danger' applies, then the signal word 'Warning' should not appear on the label.

Signal words should be represented in bold and uppercase text.

### **Hazard statements**

Hazard statements describe the nature of a hazard, including the degree of hazard, where appropriate. A unique hazard statement is assigned to each hazard class and category. The hazard statements and corresponding hazard class and category are provided in Appendix D. All relevant hazard statements must appear on the label. Where a hazard classification results in hazard statements with duplicate information, the information should only appear once, in line with the rules of precedence outlined in Appendix E.

Additionally Appendix D lists 12 non-GHS hazard statements that should be included on the label, where relevant.

A unique hazard statement code is assigned to each hazard statement. The hazard statement code is intended to be used for reference purposes only. It is not part of the hazard statement and should not be used to replace it or be included on the label.

Hazard statements should be represented in bold and sentence case text.

### **Precautionary statements**

Precautionary statements describe the recommended measures that should be taken to minimise or prevent adverse effects resulting from exposure to, or improper storage or handling of, a hazardous chemical. Precautionary statements are assigned to each hazard class and category.

Precautionary statements are separated into five categories:

- Prevention statements refer to precautions to be taken to prevent an accident or exposure.
- Response statements refer to instructions in case of an accident.
- Storage statements refer to instructions for safe storage of the chemical.
- Disposal statements refer to appropriate disposal instructions.
- General statements for use as appropriate.

The precautionary statements that correspond to each hazard class and category are provided in Appendix D. Not all precautionary statements relating to a particular hazard classification need to be used on the label. As a guide, a maximum of between six and ten precautionary statements should appear on the label, depending on the nature and severity of the hazards.

Where a hazard classification results in duplicate precautionary statements, the information should only appear once in line with the rules of precedence outlined in Appendix E.

A combination of precautionary statements may be used to save label space, improve readability and to provide flexibility in the application of precautionary phrases.

Related precautionary statements should be grouped together on a label to allow for ease of

location. Precautionary statements should be printed in sentence case text.

A unique precautionary statement code is assigned to each precautionary statement. The precautionary statement code is intended to be used for reference purposes only. It is not part of the precautionary statement and should not be used to replace it or be included on the label.

The general precautionary statements refer to general precautionary measures to be taken, for example:

- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Read label before use.

Unlike other precautionary statements, general precautionary statements are not linked to particular hazard classes or categories and their inclusion on labels of workplace hazardous chemicals is not mandatory.

Where general precautionary statements are used, they should be located in a prominent position on the label, for example adjacent to the product identifier. General precautionary statements should be printed in sentence case text.

### **Hazard pictograms**

The GHS specifies nine hazard pictograms, having regard to physical, health and environmental hazards. These are provided in Appendix F of this Code.

Hazard pictograms must be included on the label in most cases. In some circumstances however, pictograms may be omitted from the label in line with the rules of precedence outlined in Appendix E. In all other cases, where pictograms are required, all the relevant hazard pictograms must be included on the label.

Hazard pictograms should be in the shape of a square set at an angle of 45° (i.e. diamond-shaped) on its point. The hazard pictograms should have a black symbol on a white background with a red border or frame of sufficient width to be clearly visible. Pictograms with a black border may also be used.

Class labels recommended for the transport of dangerous goods as specified in the ADG Code may be used instead of the relevant hazard pictograms specified in the GHS. Never use both in the same label. A comparison of the hazard pictograms as specified in the GHS and the ADG Code class labels are shown in Appendix G<sup>1</sup>.

## **2.5 Expiry Date**

The expiry date for a chemical must be provided, where, for example degradation or decomposition of the chemical may occur over time, with the result that the hazard classification of the chemical changes, or where the chemical is no longer within acceptable specifications for potency and stability. For example ethers may form explosive peroxides over time.

An expiry date may be provided in a less prominent position of the label, for example the back portion of the label. It should be grouped with any manufacturer or importer identification information. An expiry date should be represented in sentence case text.

## **2.6 Pipe work**

**Regulation 343:** A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that a hazardous chemical in pipe work is identified by a label, sign or

<sup>1</sup> GHS pictograms can be downloaded from the GHS website at [www.unece.org/trans/danger/publi/ghs/pictograms.html](http://www.unece.org/trans/danger/publi/ghs/pictograms.html) or via the GHS homepage at [www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html). Transport of Dangerous Goods class labels can be downloaded from the National Transport Commission website at <http://www.ntc.gov.au/viewpage.aspx?documentid=1313>

another way on or near the pipe work.

Pipelines and pipe-work used for the conveyance of hazardous chemicals must be identified. The identification used should communicate information relevant to the identity of the chemical, its hazards and any necessary precautions to be observed. Methods for identifying hazardous chemicals in pipe work may include:

- signs adjacent to pipe-work
- markings on the pipe-work, for example colour coding (refer to *AS 1345-1995 Identification of the contents of pipes, conduits and ducts* for guidance)
- schematic layouts displayed prominently.

### 3. SPECIAL LABELLING SITUATIONS

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This chapter outlines requirements and guidelines for labelling hazardous chemicals in special situations where the full requirements do not apply. You should always aim to provide as much information on the hazards and safe use of the chemical on the label as possible.

Under the WHS Regulations, reduced labelling is permitted for hazardous chemicals that are:

- supplied in small containers
- research chemicals or samples for analysis
- decanted or transferred
- not supplied to another workplace, and where the hazards are known to the workers using the chemical
- hazardous wastes
- classified into the explosives hazard class and are not explosive articles.

This section also provides guidance on the acceptability of labels prepared in accordance with other labelling systems and handled in a workplace, specifically:

- hazardous chemicals classified in the explosive hazard class and labelled in compliance with the Australian Explosives Code (AEC)
- dangerous goods labelled in compliance with transport requirements
- consumer products
- agricultural or veterinary chemical products that are labelled in accordance with the requirements of the Australian Pesticides and Veterinary Medicines Authority.

#### 3.1 Small containers

**Regulation 335, Part 3 of Schedule 9:** Where a hazardous chemical is packaged in a container that is too small to attach a label with information that is required of hazardous chemical labels in general, then the label must be written in English and include the following:

- the product identifier
- the name, Australian address and business telephone number of either the manufacturer or importer.
- a hazard pictogram or hazard statement that is consistent with the correct classification of the chemical, and
- any other information required for hazardous chemicals labels in general that is reasonably practicable to include.

In addition to the mandatory items mentioned above, labels for small containers or packages must include as much labelling information required for hazardous chemical labels in general that is reasonably practicable to include. Priority should be given to the inclusion of those labelling elements relating to the most significant hazards of the hazardous chemical.

The most significant hazard will vary from chemical to chemical, and will be dependent upon, for example, likely routes of exposure based on its physical state (i.e. whether it is a gas, liquid or solid), its packaging and its intended use.

#### ***Examples of the most significant hazard***

- The information relating to a hazardous chemical's inhalation hazard properties may be considered most significant for a paint that is intended for application using a spray gun, but not where it is intended for application using a brush.
- The information relating to dermal toxicity may be considered most significant for a chemical that is packaged in an ampoule (i.e. where spillage could occur during opening), but not where the chemical is packaged in a ready-to-use syringe.

For hazardous chemicals with multiple hazard categories, the most stringent set of precautionary statements should be selected. This is appropriate for situations where rapid action or response may be crucial following accidental exposure, and therefore, information relating to these actions should be included in preference to non-critical information.

### **Example of the most stringent set of precautionary statements**

- If a chemical can cause long term systemic effects, and is also acutely toxic, then the first aid measures for acute toxicity will normally take precedence over those for longer term effects. However, medical attention for the delayed health effects may be required in some cases of incidental exposure, even if it is not associated with immediate symptoms of exposure. Therefore, the information relevant to medical attention that is required due to delayed health effects may be applicable.

Where certain hazard or other information has been omitted from the label, then it is recommended that alternative means for communicating the information should be used. The complete set of hazard and other information may be included on an outer box (for example for a box containing several very small ampoules), a swing tag or insert, or a leaflet inside a box.

Examples of acceptable labels for small containers are provided in *Appendix H*.

## **3.2 Research chemicals or samples for analysis**

A research chemical is a substance or mixture that has been manufactured in a laboratory for the purposes of genuine research and which is not for use or supply to others for a purpose other than genuine analysis or research. A chemical that is supplied commercially to another workplace is not included under the meaning of research chemical or samples for analysis under any circumstances.

**Regulation 335, Part 3 of Schedule 9:** If a hazardous chemical is used for research purposes only or is a sample for analysis, the label must, at a minimum, be written in English and include the product identifier and a hazard pictogram or hazard statement that is consistent with the correct classification of the chemical.

A research chemical or sample for analysis must be correctly classified and the identity of the substance or mixture must be determined.

The product identifier of a research chemical or sample for analysis may be:

- the actual name of the chemical
- a recognised abbreviation or acronym
- a chemical formula, structure or reaction components.

Where a research chemical or sample for analysis cannot be identified this should be indicated clearly on the label. Labels for research chemicals or samples for analysis should include as much hazard information as possible, based on the identity and the known or suspected hazards.

Where labelling the actual laboratory container is impractical due to its size or the conditions under which it is used, other methods of providing the information can be used, for example a secure swing tag, a sign attached to supporting apparatus or labelling an outer container.

For example, for a rack of test tubes, rather than label each individual test tube containing the same hazardous chemical, you may attach a label to the rack using a swing tag.

## **3.3 Decanted or transferred hazardous chemicals**

**Regulation 335, Part 3 of Schedule 9:** If a hazardous chemical has been decanted or transferred from the container in which it was packed and it will not be used immediately or it is supplied to someone else, the label must, at a minimum, be written in English and include the following:

- the product identifier, and

- a hazard pictogram or hazard statement consistent with the correct classification of the chemical.

For the purposes of this Code, *decant* means to transfer a hazard chemical from a correctly labelled container to another container within a workplace. Such a container may range from a small flask in a research laboratory to a large vessel that is used to contain reaction components prior to use in a mixing or reaction process.

Where the entire amount of a decanted hazardous chemical will be used immediately, labelling of its container is not required.

A decanted hazardous chemical can only be considered to be used immediately in situations where:

- it is not left unattended by the person who decanted it
- the decanted hazardous chemical is used only by a person present at the decanting process
- the container is subsequently rendered free from any hazardous chemical immediately after use, so the container is in the condition it would be in if it had never contained the chemical.

### **Examples**

- A sample of hydrocarbon solvent is dispensed from a bulk container into a 15 L container by Worker A. All of the decanted hydrocarbon solvent in the 15 L container is then used immediately by Worker A in the same shift. No hydrocarbon solvent is left in the 15 L container (as though it has never contained the chemical). The container with the dispensed solvent is not left unattended by Worker A before it is used. In this example, the decanted hydrocarbon solvent is considered to be used immediately.
- A sample of hydrocarbon solvent is dispensed from a bulk container into a 15 L container by Worker A. The solvent in the 15 L container is not completely used up by Worker A at the end of his/her work shift. Worker A has not left the container with the dispensed solvent unattended during the shift. The remainder of the solvent is left for Worker B. In this example, the decanted hydrocarbon solvent is not considered to be used immediately.

Where a container is repeatedly used for decanting as part of normal work procedures or processes, a permanent label with all the general labelling information must be attached to the container. Permanently labelled containers must not be used to contain any other substances or mixtures than those specified on the label.

### **3.4 Hazardous chemicals with known hazards that are not supplied to another workplace**

**Regulation 335, Part 3 of Schedule 9:** If a hazardous chemical is not being supplied to another workplace and the hazards associated with the chemical are known to the workers involved in using, handling or storing the chemical, then the label must, at a minimum, be written in English and include the following:

- the product identifier, and
- a hazard pictogram or hazard statement that are consistent with the correct classification of the chemical.

Where a hazardous chemical will not be supplied to another workplace, and your workers involved in its handling have sufficient knowledge of the associated hazards, then you may omit some of the information normally required in a label. The label should communicate enough information on the hazards as necessary to ensure its safe use.

### **Examples of labelling chemicals that are not supplied to another workplace**

- Hazardous Chemical A is manufactured at Site A. Batch samples of Hazardous Chemical A are routinely sent to a laboratory at the same manufacturing site for analysis. Samples of Hazardous Chemical A are handled on a regular basis at the on-site laboratory, and the hazards are well-known by the workers. Reduced labelling is permitted for the batch samples.
- Active Constituent A is manufactured at Site A and then later formulated into an end-use product, Agricultural Chemical Product A. The end-use product is formulated at the same facility, Site A, where the active ingredient is manufactured, and the workers undertaking the formulation step are aware of the hazards. In this case, the reduced labelling is permitted for Active Constituent A. However, Agricultural Chemical Product A must be labelled with all requisite labelling information.
- From the previous example, if Active Constituent A is transported to a different facility, Site B, for formulation into the end-use product Agricultural Chemical Product A, even where both facilities are owned and operated by the same company, Active Constituent A must be labelled with all requisite labelling information.

### 3.5 Hazardous waste products

Hazardous waste products must be identified and correctly classified, so far as is reasonably practicable. Where it is not reasonably practicable to undertake a complete hazard classification of waste material, the hazard classification must be determined or estimated using a precautionary approach based on the known or likely constituents of the waste.

**Regulation 335, Part 3 of Schedule 9:** If it is reasonably likely that a waste product is a hazardous chemical, then the label on the container of the hazardous waste must be written in English and at a minimum, include the following:

- the product identifier
- the name, Australian address and business telephone number of either the manufacturer or the importer, and
- a hazard pictogram and hazard statement that are consistent with the correct classification of the chemical.

The product identifier should reflect the nature of the waste as closely as possible and may depend on the extent of knowledge about the components of the waste. Examples of product identifiers may include:

- chlorinated solvent waste
- flammable waste
- chromium VI waste
- heavy metal waste.

Labels for hazardous wastes should include as much hazard information as reasonably practicable based on what is known about the identity and any suspected hazards. The label of any hazardous wastes should also include, where possible, the following information:

- the identity of any known or likely hazardous constituents or impurities and their proportions (for example, 'contains chromium VI, 5%', or 'may contain trace levels of organic peroxides')
- relevant precautionary statements
- relevant first aid and safety directions
- any other information that may assist identification of the hazardous waste and its associated hazards.

If you have made every reasonable attempt to identify and classify the chemical waste and have been unsuccessful, you should clearly indicate this on the label.

### 3.6 Hazardous chemicals classified in the explosive hazard class

**Regulation 335, Part 3 of Schedule 9:** If a hazardous chemical may be classified in the explosives hazard class and is not an explosive article, the chemical must be packed in a container that has a label in English that complies with the Australian Code for the Transport of Explosives by Road and Rail and includes the following:

- the proper shipping name and UN number of the chemical, and
- any hazard pictogram, any hazard statement and any precautionary statement that are consistent with the correct classification of the chemical in relation to health hazards.

The *Australian Code for the Transport of Explosives by Road and Rail* (Explosives Code) outlines requirements for labelling of explosives hazard class. This labelling regime is designed primarily for the communication of physical hazards of explosives during their transport.

Hazardous chemicals in the explosives class that meet the criteria for health hazards may require health and safety information on labels in addition to that required by the Explosives Code to meet workplace requirements.

Information on health hazards is not required on labels of explosives articles. Explosive articles should be labelled in accordance with the Explosives Code. However, where exposure to substances and mixtures within an article could occur during handling, any relevant health information should be included on labels.

### 3.7 Hazardous chemicals that are dangerous goods packaged for transport

Where a hazardous chemical has been packaged and labelled in accordance with dangerous goods transport requirements and is in-transit, the hazardous chemical is not subject to workplace labelling requirements. Where workplace hazardous chemicals are not in-transit, they must be labelled with all of the required labelling information.

Hazardous chemicals that are classified as dangerous goods and transported by road or rail must comply with the labelling or marking requirements that are specified in the ADG Code. Transport markings and class labels of the ADG Code are designed primarily to assist emergency services personnel in case of an accident or emergency.

Note: The ADG Code refers to dangerous goods pictograms as Class or Division labels. Other information required on a package or container is referred to as markings. The size and colour of labels and markings required for transport are specified in the ADG Code.

The ADG Code recognises the GHS as an appropriate labelling system for inner packages of dangerous goods during transport. As this code describes GHS-compliant labelling, labels prepared in accordance with this code should meet the inner package labelling requirements prescribed in the ADG Code for dangerous goods during transport.

To meet both workplace and transport labelling requirements, additional health and safety information may be required on some transport containers. The additional information would generally relate to chronic health hazards, which are not regulated for transport purposes.

For outer packaging used within the workplace, workplace labelling requirements may be met by attaching to the container a supplementary panel or label that includes the additional information. The additional information should be clearly distinguishable from the information required to meet transport laws.

### 3.8 Consumer products

**Regulation 335:** A hazardous chemical does not need to meet the labelling requirements under

the WHS Regulations if the chemical is a consumer product with the original label on its container and if it is reasonably foreseeable that the hazardous chemical will be used in the workplace only:

- in a quantity that is consistent with consumer household use
- in a way that is consistent with consumer household use, and
- in a way that is incidental to the nature of the work carried out by a worker using the chemical.

The following example shows how to distinguish between a consumer product and a workplace hazardous chemical:

Toilet cleaner is sold in 750 ml bottles for domestic use and is sold in 20 L containers to commercial cleaning businesses. The 750 ml bottle is intended for domestic use and does not need to be labelled in accordance with the WHS Regulations.

However, it is reasonably foreseeable that, due to the package size of the 20 L product, it would be used in a workplace rather than in a domestic situation. Therefore, the 20 L product must be labelled according to workplace labelling requirements.

Consumer products which do not meet the definition of a workplace hazardous chemical and are covered by the SUSMP must comply with SUSMP labelling requirements.

### 3.9 Agricultural or veterinary chemical products

**Regulation 335, Part 3 of Schedule 9:** Agricultural and veterinary chemicals must have a label in English that complies with the requirements of the Australian Pesticides and Veterinary Medicines Authority and also includes the following:

- any hazard statement that is consistent with the correct classification of the chemical, and
- any precautionary statement that is consistent with the correct classification of the chemical.

Agricultural or veterinary chemical refers to any agricultural chemical product or veterinary chemical product as defined in the Commonwealth's *Agricultural and Veterinary Chemicals Code Act 1994*.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) labelling codes for agricultural and veterinary chemical products are the *Ag Labelling Code* and the *Veterinary Labelling Code*, respectively. You may omit the hazard pictogram and signal word from the labels of these chemicals. However, the label must contain hazard statements and precautionary statements for all of the intrinsic hazards of the product.

Note: Hazard and precautionary statements required for some intrinsic hazards under the WHS Regulations may not be required on labels by APVMA legislation. As the manufacturer or importer, you must ensure that any additional hazard and precautionary statements required by the WHS Regulations are included on the label, provided they are not contrary to the information required by the APVMA legislation.

### 3.10 Products containing nanomaterials

For engineered or manufactured nanomaterials<sup>2</sup> or chemicals containing engineered or

<sup>2</sup> *ISO/TS 80004-1:2010 Nanotechnologies -- Vocabulary -- Part 1: Core terms* provides the following definitions:

- Engineered nanomaterial – designed for a specific purpose or function
- Manufactured nanomaterial – intentionally produced for commercial purposes to have specific properties or specific composition
- Nanomaterial – material with any external dimension in the nanoscale or having internal structure or surface structure in the nanoscale

manufactured nanomaterials, it is recommended that labels be prepared in accordance with this Code unless there is evidence that the nanomaterials are not hazardous.

The following label statements are recommended for products containing nanomaterials when the hazards are not fully characterised:

- Contains engineered/manufactured nanomaterials. Caution: Hazards unknown.
- Contains engineered/manufactured nanomaterials. Caution: Hazards not fully characterised.

These phrases are for use on an interim basis, as the manufacturer/importer has a duty to correctly classify the chemical and include information on known hazards on the label in accordance with the WHS Regulations.

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- Nanoscale – size range from approximately 1 nm to 100 nm

## 4. LABELLING DESIGN AND LAYOUT

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The label must be written English.

The size of a label should be:

- large enough to contain all of the relevant hazard and other information in a size and style that is easily visible and legible in the workplace
- appropriate to the size of the container, with larger labels present on larger containers.

The information on a label may be presented using one or more panels, or sections, dependent on the size and shape of the container. The label should be firmly secured to the outside of the container and should be visible in the normal storage position. The label should be sufficiently durable so as to remain legible and firmly attached to the container for the foreseeable lifetime of the product under normal storage and handling conditions.

The information and hazard pictograms on any label should be printed in a colour or colours that provide a distinct contrast to the background colour.

### 4.1 Grouping information

A label should group specific information together so that hazard or precautionary information can be easily located.

### 4.2 Orientation and size of label elements

The text, hazard pictograms and other information on a label should be of a size and style that is easily legible and is appropriate to the size of the label and container.

The following table is provided as a guide for the minimum dimensions for hazard pictograms and sizes of text on containers of various capacities:

Container capacity	Minimum hazard pictogram dimensions	Minimum text size
≤ 500 mL	15 x 15 mm	2.5 mm
> 500 mL and ≤ 5 L	20 x 20 mm	3 mm
> 5 L and ≤ 25 L	50 x 50 mm	5 mm
≥ 25 L	100 x 100 mm	7 mm

Note 1: Refer to the ADG Code for marking requirements for dangerous goods being transported.

Examples of labels that have been produced in accordance with the labelling system described in this Code are provided in Appendix H.

## 5 OTHER DUTIES IN RELATION TO LABELLING

**Regulation 342:** A person conducting a business or undertaking who manufactures hazardous chemicals at the workplace or decants or transfers a hazardous chemical from its original container, must ensure that the container is correctly labelled.

The person conducting a business or undertaking at the workplace must also ensure that a container labelled for a hazardous chemical is used only for the use, handling or storage of that hazardous chemical.

These requirements do not apply if the hazardous chemical is used immediately after it is put into the container and the container is thoroughly cleaned immediately after use to the condition it would be in if it had never contained the material.

### 5.1 Containers found without correct labelling

If you find that a container of a hazardous chemical is not correctly labelled in accordance with the WHS Regulations, you should attach the product identifier to the container. You should not use a hazardous chemical that is not correctly labelled. Store it in isolation until it is appropriately labelled.

If the product identifier of an unlabelled chemical is not known, this should be clearly marked on the container, for example by attaching a label to the container with the statement:

**Caution - Do Not Use - Unknown Substance.**

You should take steps to either identify and correctly label the unknown chemical or dispose of the contents in accordance with relevant environmental regulations and, where necessary, in consultation with the relevant waste management authority.

### 5.2 Reviewing and updating information on labels

From time to time, the hazard classification of a hazardous chemical may change, for example where new information becomes available. Where the hazard classification of a hazardous chemical changes, the label must be reviewed and, if necessary, revised to reflect any required changes.

Importers, manufacturers and suppliers should review any new or significant information in relation to any hazardous chemicals they import, manufacture or supply. A review of the literature and other relevant sources of information should be undertaken on a regular basis.

It is good practice to review the label information of a hazardous chemical at the same time as the safety data sheet (SDS) is updated. SDSs are updated:

- when any new information about the hazardous chemical is known or received to ensure the SDS contains correct, current information
- at least once every five years.

If you have duty to label a workplace hazardous chemical, then you must ensure that the label contains correct information at the time it is affixed to the container of the hazardous chemical.

## APPENDIX A – DEFINITIONS AND ABBREVIATIONS

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**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.

**CAS Name** is the chemical name recommended by the Chemical Abstracts Service, Columbus, Ohio, USA.

**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*.

**Class label** means a pictogram described in the *ADG Code* for a class, or division of a class, of dangerous goods.

**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.

**Consumer product** means a thing that:

- is packed or repacked primarily for use by a household consumer or for use in an office
- if the thing is packed or repacked primarily for use by a household consumer—is packed in the way and quantity in which it is intended to be used by a household consumer
- if the thing is packed or repacked primarily for use in an office—is packed in the way and quantity in which it is intended to be used for office work.

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

**Explosives Code** means the *Australian Code for the Transport of Explosives by Road and Rail* endorsed by the Workplace Relations Ministers' Council as amended from time to time.

**Exposure standard** means an exposure standard published by Safe Work Australia in the *Workplace Exposure Standards for Airborne Contaminants*.

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

**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 Harmonised System of Classification and Labelling of Chemicals, Third revised edition, published by the United Nations.

**Hazard** means a situation or thing that has the potential to harm people, property or the environment.

**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.

**Import** means to bring into the jurisdiction from outside Australia.

**Ingredient** means any component of a mixture.

**In transit**—a thing is *in transit* if the thing:

- is supplied to, or stored at, a workplace in containers that are not opened at the workplace
- is not used at the workplace
- is kept at the workplace for not more than five consecutive days.

**ISO name** is a chemical name approved by the International Organisation for Standardisation.

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

**Laboratory** means a building or room equipped for analysis, genuine research or practical teaching, and which is not used for production purposes.

**Manufacture** includes the activities of packing, repacking, formulating, blending, mixing, making, remaking and synthesising.

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

**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.

**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.

**Safety data sheet (SDS)** means a document that describes the identity, properties (that is to say chemical and physical properties and health hazard and environmental hazard information), uses, precautions for use, safe handling procedures and safe disposal procedures of a hazardous chemical.

**Signal word** means the word **danger** or **warning** used on a label to indicate to a label reader the relative severity level of a hazard, and to alert the reader to a potential hazard, under the GHS.

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

- including any additive necessary to preserve the stability of the element or compound and any impurities deriving from the process, but
- excluding any solvent that may be separated without affecting the stability of the element or compound, or changing its composition.

**SUSMP** means the Standard for the Uniform Scheduling of Medicines and Poisons, published by the National Drugs and Poisons Schedule Committee as amended from time to time.

**Technical name** means a name that is:

- 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
- recognised by the scientific community.

**Transfer** includes the pumping, dispensing or decanting from one container into another or from one place to another.

**UN Number** means the number assigned to dangerous goods by the United Nations Subcommittee of Experts on the Transport of Dangerous Goods. UN Numbers are published in the UN Recommendations on the Transport of Dangerous Goods – Model Regulation, and in the *ADG Code*.

## APPENDIX B – CHECKLIST FOR PREPARATION OF A LABEL

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The following table lists the steps that are recommended for the preparation of a label for hazardous chemical. The information is intended for use as a quick reference guide. It may not apply to all situations. The relevant sections of this Code should be referred to for full details of the labelling requirements.

Step		Comments/Reference information
1	Select the suitable product identifier.	
2	Determine which ingredients require disclosure.	Refer to Subsection 2.2 for ingredient disclosure requirements.
3	Select the label elements which apply to classification endpoints or hazard categories, in accordance with correct hazard classification	Label elements applicable to all hazard categories are tabulated in Appendix D.
4	Combine all applicable elements, and then determine which elements may be omitted from the label to avoid duplication or redundancy.	Refer to Appendix E for precedence rules and hierarchy of elements.
5	Determine which label elements may be omitted where a special labelling situation may apply.	Refer to Chapter 3.
6	Determine whether other relevant health and safety information may be required.	Particularly important for hazard endpoints not covered by the GHS but where there are health and safety concerns
7	Select the appropriate supplier details to be included.	Other information, for example web address or emergency contact phone number, may be included.
8	Determine whether an expiry date is required.	Expiry date is required if degradation over time could change the hazard classification. For example, if a highly toxic impurity is formed.
9	Identify any other relevant information that may be required.	For example, reference to SDS or product use information.
10	Design the label layout and grouping of information.	Refer to Chapter 4.

## APPENDIX C – GUIDE FOR SELECTING GENERIC NAMES

This guide describes a procedure for naming hazardous chemicals and the division of substances into families.

The families are defined in the following manner:

- 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 as in subsection C1.3 below by the atomic number of the chemical element (001 to 103)
- organic substances whose properties are identified by having a common functional group as their chief characteristic.
  - the family name is derived from the functional group name, and
  - these families are identified by the number convention found in subsection C1.3 (601 to 650).
- sub-families bringing together substances with a common specific character have been added in certain cases.

### Establishing the Generic Name

#### C.1. General Principles

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

- identify the functional groups and chemical elements present in the molecule
- 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. These names are set out in subsection C.3 in the form of a (non-restrictive) list.

#### C.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.

#### Examples:

Name	Family Sub-family	Generic Name
1,4-dihydroxybenzene	604: Phenols and derivatives	Phenol derivative
Butanols	603: Alcohols and derivatives Aliphatic alcohols	Aliphatic alcohol
2-isopropoxyethanol	603: Alcohols and derivatives Glycolethers	Glycolether
Methacrylate	607: Organic acids and derivatives Methacrylates	Methacrylate

- 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.

**Examples:**

Name	Family Sub-family	Generic Name
Lead hexafluorosilicate	009: Fluorine compounds Inorganic fluorides 082: Lead compounds	Inorganic lead fluoride
Chlorobenzene	602: Halogenated hydrocarbons Halogenated aromatic hydrocarbons 017: Chlorine compounds	Chlorinated aromatic hydrocarbon
2,3,6-Trichlorophenylacetic acid	607: Organic acids and derivatives Halogenated aromatic acids 017: Chlorine compounds	Chlorinated aromatic acid
1-Chloro-1-nitropropane	610: Chloronitrated compounds 601: Hydrocarbons Aliphatic hydrocarbons	Chlorinated aliphatic hydrocarbon
Tetrapropyl dithiopyrophosphate	015: Phosphorus compounds Phosphoric esters 016: Sulphur compounds	Thiophosphoric ester

- c) 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'.

**Examples:**

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

**C.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

<b>Family No</b>	<b>Families Sub-families</b>
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

<b>Family No</b>	<b>Families Sub-families</b>
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	Gadolinium 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

<b>Family No</b>	<b>Families Sub-families</b>
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 Glycolethers 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

<b>Family No</b>	<b>Families Sub-families</b>
606	Ketones and derivatives Aliphatic Ketones Aromatic Ketones* Alicyclic Ketones * Quinones included
607	Organic acids and derivatives 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 * Specify according to the family corresponding to halogen.
608	Nitriles and derivatives
609	Nitro compounds
610	Chloronitrated compounds
611	Azoxy and azo compounds
612	Amine compounds Aliphatic amines and derivatives Alicyclic amines and derivatives Aromatic amines and derivatives Aniline and derivatives Benzidine and derivatives

<b>Family No</b>	<b>Families Sub-families</b>
613	Heterocyclic basis and derivatives Benzimidazole and derivatives Imidazol and derivatives Pyrethrinoids Quinoline and derivatives Triazine and derivatives Triazole and derivatives
614	Glycosides and alkaloids Alkaloid and derivatives Glycosides 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 – APPLICATION OF LABEL ELEMENTS

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This appendix is intended to provide guidance for the application of an appropriate signal word, and appropriate hazard pictograms, hazard statements, and precautionary statements. The tables at the end of this appendix specify the signal word, hazard pictograms, hazard statements and precautionary statements that apply to each hazard class and category.

### Structure of Hazard Statement Text

All of the hazard statement text that appears in bold should appear on the label, except as otherwise specified.

All of the information that appears in italics should appear as part of the hazard statement, where applicable.

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 on a label.

### 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**.

All of the precautionary statement text that appears in bold should appear on the label, except as otherwise specified.

To provide flexibility in the application of precautionary phrases, a combination of statements may be used to save label space and improve the readability of phrases. A combination of phrases can also be useful for different types of hazard where the precautionary behaviour is similar.

When a forward-slash or diagonal mark [/] appears in a precautionary statement text, it indicates that a choice has to be made between the phrases they separate

When three full stops [...] appear in a precautionary statement text, it indicates that all applicable conditions are not listed.

When text in the precautionary statement text appears in italics, this indicates that 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. The text in italics is not intended to be present on a label.

The precautionary statements included in the following matrices cover general emergency response and first-aid information. 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

The precautionary statement codes that are 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 on a label.

<b><i>Precautionary Statement Formed from a Combination of Phrases</i></b>
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**'Keep away from heat, sparks and open flame and store in a cool well ventilated place'.**

#### ***Precautionary Statement that Contains a Forward-Slash [/]***

The precautionary statement:

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.

#### ***Precautionary Statement that Contains Three Full Stops [...]***

For the precautionary statement:

P241 **'Use explosion-proof electrical/ventilating/lighting/.../equipment'**, the use of '...' indicates that other equipment may need to be specified.

#### ***Precautionary Statement that Contains Text in Italics***

The precautionary statement:

P241 **'Use explosion-proof electrical/ventilating/lighting/.../ equipment'**, only applies for flammable solids *'if dust clouds can occur'*.

### **General Precautionary Statements**

General precautionary statements are not aligned with any particular hazard category, and according to the GHS principles, these statements are required for consumer products only. Manufacturers of hazardous chemicals may choose to include these on workplace labels, particularly where it is foreseeable that the chemical may be used in a non-workplace situation.

#### **General Precautionary Statements**

P101 If medical advice is needed, have product container or label at hand  
P102 Keep out of reach of children  
P103 Read label before use

### **Allocation of label elements**

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

- a) hazard category; and
- b) the assigned symbol; and
- c) the assigned signal word; and
- d) the assigned hazard statement and code; and
- e) 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**

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

## EXPLOSIVES

**Symbol**  
Exploding bomb



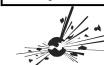
Hazard category	Signal word	Hazard statement
Division 1.1	Danger	H201 <b>Explosive; mass explosion hazard</b>
Division 1.2	Danger	H202 <b>Explosive; severe projection hazard</b>
Division 1.3	Danger	H203 <b>Explosive; fire, blast or projection hazard</b>

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

## EXPLOSIVES

<b>Symbol</b> Exploding bomb
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<b>Hazard category</b>	<b>Signal word</b>	<b>Hazard statement</b>
Division 1.4	Warning	H204 <b>Fire or projection hazard</b>



### Precautionary statements

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

## EXPLOSIVES

**Hazard category**  
Division 1.5

**Signal word**  
Danger

**Hazard statement**  
H205 **May mass explode in fire**

**Symbol\***



<b>Precautionary statements</b>			
<b>Prevention</b>	<b>Response</b>	<b>Storage</b>	<b>Disposal</b>
<p>P210 <b>Keep away from heat/sparks/open flames/hot surfaces. - No smoking.</b> Manufacturer/supplier or the competent authority to specify applicable ignition source(s). <b>P230</b> <i>Keep wetted with...</i> ...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 <b>Ground/bond container and receiving equipment</b> - <i>if the explosive is electrostatically sensitive.</i></p> <p>P250 <b>Do not subject to grinding/shock/.../friction.</b> ...Manufacturer/supplier or the competent authority to specify applicable rough handling.</p> <p>P280 <b>Wear face protection.</b> Manufacturer/supplier or competent authority to specify type of equipment.</p>	<p>P370 + P380 <b>In case of fire: Evacuate area.</b></p> <p>P372 <b>Explosion risk in case of fire.</b></p> <p>P373 <b>DO NOT fight fire when fire reaches explosives.</b></p>	<p>P401 <b>Store ...</b> ...in accordance with local/regional/national/international Regulations (to be specified).</p>	<p>P501 <b>Dispose of contents/container to .</b> ... 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** Division 1.6      **Signal word** *No signal word*      **Hazard statement** H206 *No hazard statement*

**Symbol\***



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

**Symbol**  
Flame



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

\*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 <b>Extremely flammable aerosol</b>
2	Warning	H223 <b>Flammable aerosol</b>

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

## OXIDISING GASES

**Symbol**  
Flame over circle



Hazard category	Signal word	Hazard statement
1	Danger	H270 <b>May cause or intensify fire; oxidiser</b>

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

## GASES UNDER PRESSURE

**Symbol**  
Gas cylinder

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



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

## GASES UNDER PRESSURE

**Symbol**  
Gas cylinder

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



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

## FLAMMABLE LIQUIDS

<b>Symbol</b> Flame
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Hazard category	Signal word	Hazard statement
1	Danger	H224 <b>Extremely flammable liquid and vapour</b>
2	Danger	H225 <b>Highly flammable liquid and vapour</b>
3	Warning	H226 <b>Flammable liquid and vapour</b>

Precautionary statements			
Prevention	Response	Storage	Disposal
P210 <b>Keep away from heat/sparks/open flames/hot surfaces.</b> Manufacturer/supplier or the competent authority to specify applicable ignition source(s). P233 <b>Keep container tightly closed.</b> P240 <b>Ground/Bond container and receiving equipment</b> - <i>if electrostatically sensitive material is for reloading.</i> - <i>if product is volatile so as to generate hazardous atmosphere.</i> P241 <b>Use explosion-proof electrical/ventilating/lighting/.../equipment.</b> ... Manufacturer/supplier or competent authority to specify other equipment. P242 <b>Use only non-sparking tools.</b> P243 <b>Take precautionary measures against static discharge.</b> P280 <b>Wear protective gloves/eye protection/face protection</b> Manufacturer/supplier or competent authority to specify type of equipment.	P303 + P361 + P353 <b>IF ON SKIN (or hair):</b> <b>Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</b> P370 + P378 <b>In case of fire: Use ... for extinction.</b> ...Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>	P403 + P235 <b>Store in a well-ventilated place. Keep cool.</b>	P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).

## FLAMMABLE LIQUIDS

<b>Symbol</b> No symbol
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<b>Hazard category</b> 4	<b>Signal word</b> Warning	<b>Hazard statement</b> H227 <b>Combustible liquid</b>
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Precautionary statements			
Prevention	Response	Storage	Disposal
P210 <b>Keep away from flames and hot surfaces. – No smoking.</b> P280 <b>Wear protective gloves/eye protection/face protection</b> Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 <b>In case of fire: Use ... for extinction.</b> ... Manufacturer/supplier or the competent authority to specify appropriate media. <i>if water increases risk.</i>	P403 + P235 <b>Store in a well-ventilated place. Keep cool.</b>	P501 <b>Dispose of contents/container to...</b> in accordance with local/regional/national/international Regulations (to be specified).

## FLAMMABLE SOLIDS

<b>Symbol</b> Flame
------------------------



Hazard category	Signal word	Hazard statement
1	Danger	H228 <b>Flammable solid</b>
2	Warning	H228 <b>Flammable solid</b>

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

## SELF-REACTIVE SUBSTANCES AND MIXTURES

**Symbol**  
Explosion



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

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

## SELF-REACTIVE SUBSTANCES AND MIXTURES

**Symbol**  
Exploding bomb and flame



Hazard category	Signal word	Hazard statement
Type B	Danger	H241 <b>Heating may cause a fire or explosion</b>

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

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

## PYROPHORIC LIQUIDS

**Symbol**  
Flame



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

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

## PYROPHORIC SOLIDS

**Symbol**  
Flame



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

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

## SELF-HEATING SUBSTANCES AND MIXTURES

<b>Symbol</b> Flame
------------------------



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

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

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

<b>Symbol</b> Flame
------------------------



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

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

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

<b>Hazard category</b> 3	<b>Signal word</b> Warning	<b>Hazard statement</b> H261 <b>In contact with water releases flammable gases</b>	<table border="1"> <tr> <td><b>Symbol</b> Flame</td> </tr> </table> 	<b>Symbol</b> Flame
<b>Symbol</b> Flame				
<b>Precautionary statements</b>				
<b>Prevention</b>	<b>Response</b>	<b>Storage</b>	<b>Disposal</b>	
P231 + P232 <b>Handle under inert gas. Protect from moisture.</b>  P280 <b>Wear protective gloves/eye protection/face protection.</b> Manufacturer/supplier or the competent authority to specify type of equipment.	P370 + P378 <b>In case of fire: Use ... for extinction.</b> ...Manufacturer/supplier or the competent authority to specify appropriate media. - <i>if water increases risk.</i>	P402 + P404 <b>Store in a dry place. Store in a closed container.</b>	P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).	

## OXIDISING LIQUIDS

**Symbol**  
Flame over circle

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



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

## OXIDISING LIQUIDS

<b>Symbol</b> Flame over circle
------------------------------------

Hazard category	Signal word	Hazard statement
2	Danger	H272 <b>May intensify fire; oxidiser</b>
3	Warning	H272 <b>May intensify fire; oxidiser</b>



### Precautionary statements

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

## OXIDISING SOLIDS

**Symbol**  
Flame over circle

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



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

## OXIDISING SOLIDS

<b>Symbol</b> Flame over circle
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Hazard category	Signal word	Hazard statement
2	Danger	H272 <b>May intensify fire; oxidiser</b>
3	Warning	H272 <b>May intensify fire; oxidiser</b>



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

## ORGANIC PEROXIDES

**Symbol**  
Exploding bomb



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

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

## ORGANIC PEROXIDES

**Symbol**  
Exploding bomb and  
flame

**Hazard category**  
Type B

**Signal word**  
Danger

**Hazard statement**  
H241 **Heating may cause a fire  
or explosion**



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P210 <b>Keep away from heat/sparks/open flames/hot surfaces. - No smoking.</b> Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P220 <b>Keep /Store away from clothing/.../combustible materials.</b> ... Manufacturer/supplier or the competent authority to specify incompatible materials.</p> <p>P234 <b>Keep only in original container.</b></p> <p>P280 <b>Wear protective gloves/eye protection/face protection.</b> Manufacturer/supplier or the competent authority to specify type of equipment.</p>		<p>P411 + P235 <b>Store at temperatures not exceeding ...°C/...°F. Keep cool.</b> Manufacturer/supplier or the competent authority to specify temperature.</p> <p>P410 <b>Protect from sunlight.</b></p> <p>P420 <b>Store away from other materials.</b></p>	<p>P501 <b>Dispose of contents/container to...</b> ... 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 <b>Keep away from heat/sparks/open flames/hot surfaces. - No smoking.</b> Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p>P220 <b>Keep/Store away from clothing/.../ combustible materials</b> ... Manufacturer/supplier or the competent authority to specify incompatible materials.</p> <p>P234 <b>Keep only in original container.</b></p> <p>P280 <b>Wear protective gloves/eye protection/face protection.</b> Manufacturer/supplier or the competent authority to specify type of equipment.</p>		<p>P411 + P235 <b>Store at temperatures not exceeding ...°C/...°F. Keep cool.</b> ... Manufacturer/supplier or the competent authority to specify temperature.</p> <p>P410 <b>Protect from sunlight.</b></p> <p>P420 <b>Store away from other materials.</b></p>	<p>P501 <b>Dispose of contents/container to...</b> ... 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** 1  
**Signal word** Warning  
**Hazard statement** H290 **May be corrosive to metals**



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

## ACUTE TOXICITY - ORAL

**Symbol**  
Skull and crossbones

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



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

## ACUTE TOXICITY – ORAL

<b>Symbol</b> Skull and crossbones
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<b>Hazard category</b> 3	<b>Signal word</b> Danger	<b>Hazard statement</b> H301 Toxic if swallowed
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Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P264 <b>Wash ... thoroughly after handling.</b> ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P270 <b>Do not eat, drink or smoke when using this product.</b></p>	<p>P301 + P310 <b>IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</b></p> <p>P321 <b>Specific treatment (see ... on this label)</b> ... Reference to supplemental first aid instruction. - <i>if immediate administration of antidote is required.</i></p> <p>P330 <b>Rinse mouth.</b></p>	<p>P405 <b>Store locked up.</b></p>	<p>P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).</p>

## ACUTE TOXICITY – ORAL

<b>Symbol</b> Exclamation mark
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<b>Hazard category</b> 4	<b>Signal word</b> Warning	<b>Hazard statement</b> H302 Harmful if swallowed
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Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P264 <b>Wash ... thoroughly after handling.</b> ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P270 <b>Do not eat, drink or smoke when using this product.</b></p>	<p>P301 + P312 <b>IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.</b></p> <p>P330 <b>Rinse mouth.</b></p>		<p>P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).</p>

## ACUTE TOXICITY - DERMAL

<b>Symbol</b> Skull and crossbones
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Hazard category	Signal word	Hazard statement
1	Danger	H310 <b>Fatal in contact with skin</b>
2	Danger	H310 <b>Fatal in contact with skin</b>



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

## ACUTE TOXICITY - DERMAL

<b>Symbol</b> Skull and crossbones
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Hazard category    Signal word    Hazard statement



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

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

## ACUTE TOXICITY – DERMAL

<b>Symbol</b> Exclamation mark
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<b>Hazard category</b> 4	<b>Signal word</b> Warning	<b>Hazard statement</b> H312 Harmful in contact with skin
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Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P280 <b>Wear protective gloves/protective clothing</b> Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P302 + P352 <b>IF ON SKIN: Wash with plenty of soap and water.</b></p> <p>P312 <b>Call a POISON CENTER or doctor/physician if you feel unwell.</b></p> <p>P322 <b>Specific measures (see ... on this label)</b> ... Reference to supplemental first aid instruction. - <i>if measures such as specific cleansing agent is advised.</i></p> <p>P363 <b>Wash contaminated clothing before reuse.</b></p>		<p>P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).</p>

## ACUTE TOXICITY - INHALATION

<b>Symbol</b> Skull and crossbones
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Hazard category	Signal word	Hazard statement
1	Danger	H330 <b>Fatal if inhaled</b>
2	Danger	H330 <b>Fatal if inhaled</b>



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

## ACUTE TOXICITY - INHALATION

**Symbol**  
Skull and crossbones

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



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

## ACUTE TOXICITY - INHALATION

**Symbol**  
Exclamation mark

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



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

## SKIN CORROSION/IRRITATION

<b>Symbol</b> Corrosion
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<b>Hazard category</b> 1A to 1C	<b>Signal word</b> Danger	<b>Hazard statement</b> H314 <b>Causes severe skin burns and eye damage</b>
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Precautionary statements			
Prevention	Response	Storage	Disposal
P260 <b>Do not breathe dusts or mists.</b> <i>- if inhalable particles of dusts or mists may occur during use.</i>  P264 <b>Wash ...thoroughly after handling.</b> ...Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.  P280 <b>Wear protective gloves/protective clothing/eye protection/face protection.</b> Manufacturer/supplier or the competent authority to specify type of equipment.	P301 + P330 + P331 <b>IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</b>  P303 + P361 + P353 <b>IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</b>  P363 <b>Wash contaminated clothing before reuse.</b>  P304 + P340 <b>IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</b>  P310 <b>Immediately call a POISON CENTER or doctor/physician.</b>  P321 <b>Specific treatment (see ... on this label)</b> ... Reference to supplemental first aid instruction. <i>- Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i>  P305 + P351 + P338 <b>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</b>	P405 <b>Store locked up.</b>	P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).

## SKIN CORROSION/IRRITATION

<b>Symbol</b> Exclamation mark
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<b>Hazard category</b> 2	<b>Signal word</b> Warning	<b>Hazard statement</b> H315 Causes skin irritation
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Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P264 <b>Wash ... thoroughly after handling.</b> ...</p> <p>Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P280 <b>Wear protective gloves.</b> Manufacturer/supplier or the competent authority to specify type of equipment.</p>	<p>P302 + P352 <b>IF ON SKIN: Wash with plenty of soap and water.</b></p> <p>P321 <b>Specific treatment (see ... on this label)</b> ... 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 <b>If skin irritation occurs: Get medical advice/attention.</b></p> <p>P362 <b>Take off contaminated clothing and wash before reuse.</b></p>		

## SERIOUS EYE DAMAGE/IRRITATION

**Symbol**  
Corrosion

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



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

## SERIOUS EYE DAMAGE/IRRITATION

**Symbol**  
Exclamation mark

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



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

## SENSITISATION – RESPIRATORY

**Symbol**

**Hazard category**  
1, 1A, 1B

**Signal word**  
Danger

**Hazard statement**  
H334 **May cause allergy or asthma symptoms or breathing difficulties if inhaled**

Health hazard



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

## SENSITISATION – SKIN

**Hazard category**  
1, 1A, 1B

**Signal word**  
Warning

**Hazard statement**  
H317 **May cause an allergic skin reaction**

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

## GERM CELL MUTAGENICITY

<b>Symbol</b> Health hazard
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Hazard category	Signal word	Hazard statement
1A, 1B	Danger	H340 <b>May cause genetic defects</b> <...>
2	Warning	H341 <b>Suspected of causing genetic defects</b> <...> <...> (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 <b>Obtain special instructions before use.</b>  P202 <b>Do not handle until all safety precautions have been read and understood.</b>  P281 <b>Use personal protective equipment as required.</b>	P308 + P313 <b>IF exposed or concerned: Get medical advice/attention.</b>	P405 <b>Store locked up.</b>	P501 <b>Dispose of contents/container to...</b> ... 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 <b>May cause cancer</b> <...>
2	Warning	H351 <b>Suspected of causing cancer</b> <...> <...> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

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

## TOXIC TO REPRODUCTION

<b>Symbol</b> Health hazard
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Hazard category	Signal word	Hazard statement
1A, 1B	Danger	H360 <b>May damage fertility or the unborn child</b> <...> <<...>>
2	Warning	H361 <b>Suspected of damaging fertility or the unborn child</b> <...> <<...>> <...> (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 <b>Obtain special instructions before use.</b>  P202 <b>Do not handle until all safety precautions have been read and understood.</b>  P281 <b>Use personal protective equipment as required.</b>	P308 + P313 <b>IF exposed or concerned: Get medical advice/attention.</b>	P405 <b>Store locked up.</b>	P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).

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

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

## SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

<b>Symbol</b> Health hazard
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<b>Hazard category</b> 1	<b>Signal word</b> Danger	<b>Hazard statement</b> H370 <b>Causes damage to organs</b> <...> <<...>> <...> (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
<p>P260 <b>Do not breathe dust/fume/gas/mist/vapours/spray.</b> Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p>P264 <b>Wash ...thoroughly after handling.</b> ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P270 <b>Do not eat, drink or smoke when using this product.</b></p>	<p>P307 + P311 <b>IF exposed: Call a POISON CENTER or doctor/physician.</b></p> <p>P321 <b>Specific treatment (see ... on this label)</b> ... Reference to supplemental first aid instruction. - if immediate measures are required.</p>	<p>P405 <b>Store locked up.</b></p>	<p>P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).</p>

## SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

<b>Symbol</b> 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)



Precautionary statements			
Prevention	Response	Storage	Disposal
<p>P260 <b>Do not breathe dust/fume/gas/mist/vapours/spray.</b> Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p>P264 <b>Wash ... thoroughly after handling.</b> ... Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling.</p> <p>P270 <b>Do not eat, drink or smoke when using this product.</b></p>	<p>P309 + P311 <b>IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.</b></p>	<p>P405 <b>Store locked up.</b></p>	<p>P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).</p>

## SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

Hazard category  
3

Signal word  
Warning

Hazard statement  
H335 **May cause respiratory irritation;** or  
H336 **May cause drowsiness or dizziness**

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

## SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE)

<b>Symbol</b> Health hazard
--------------------------------

**Hazard category**  
1

**Signal word**  
Danger

**Hazard statement**  
H372 **Causes 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)



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

## SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE)

<b>Hazard category</b> 2	<b>Signal word</b> Warning	<b>Hazard statement</b> H373 <b>May cause damage to organs &lt;...&gt; through prolonged or repeated exposure &lt;&lt;...&gt;&gt;</b> <...> (state all organs affected, if known) <<...>> (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	<b>Symbol</b> Health hazard 
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Precautionary statements			
Prevention	Response	Storage	Disposal
P260 <b>Do not breathe dust/fume/gas/mist/vapours/spray.</b> Manufacturer/supplier or the competent authority to specify applicable conditions.	P314 <b>Get medical advice/attention if you feel unwell.</b>		P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).

## ASPIRATION HAZARD

<b>Hazard category</b> 1	<b>Signal word</b> Danger	<b>Hazard statement</b> H304 <b>May be fatal if swallowed and enters airways</b>	<b>Symbol</b> Health hazard 
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Precautionary statements			
Prevention	Response	Storage	Disposal
	P301 + P310 <b>IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</b>  P331 <b>Do NOT induce vomiting.</b>	P405 <b>Store locked up.</b>	P501 <b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international Regulations (to be specified).

## ADDITIONAL NON-GHS HAZARD STATEMENTS

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**Regulation 335, Schedule 9:** A label must include any information about the hazards, first aid and emergency procedures relevant to the chemical, not otherwise included in the hazard statement and precautionary statements.

The following twelve non-GHS hazard statements should be used on labels of hazardous chemicals 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 that are unstable at ambient temperatures, for example acetylene.

*AUH014: Reacts violently with water*

For substances and mixtures that react violently with water, for example acetyl chloride, alkali metals and titanium tetrachloride.

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

For substances and mixtures not classified as flammable themselves but 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 that may form explosive peroxides during storage, for example 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 and mixtures that 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, when in contact with water or damp air, evolve gases classified for acute toxicity in Category 1, 2 or 3 in potentially dangerous amounts, for example aluminium phosphide, phosphorus pentasulphide.

*AUH031: Contact with acids liberates toxic gas*

For substances and mixtures that react with acids to evolve gases classified for acute toxicity in Category 3 in dangerous amounts, for example sodium hypochlorite and barium polysulphide.

*AUH032: Contact with acids liberates very toxic gas*

For substances and mixtures that react with acids to evolve gases classified for acute toxicity in Category 1 or 2 in dangerous amounts, for example 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 should also be applied if there is evidence in humans for systemic toxicity after eye contact.

The statement should 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 is available that indicates 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 is available and which may be inhaled.

## APPENDIX E – PRECEDENCE RULES OF LABEL ELEMENTS

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This appendix provides information on the rules of precedence of certain label elements, and general guidance for when redundant elements may be omitted from a label.

Duplication or redundancy of label elements may occur where a hazardous chemical meets the criteria for more than one hazard class or category. Duplication of an element may occur where:

- a specific precautionary statement applies to several hazard categories into which a particular chemical is classified
- an element may become redundant because a more stringent control applies to another hazard category (for example, the type of PPE required).

Duplicate or redundant information should not be included on a label.

### Multiple Hazards and Precedence of Hazard Information

#### ***Hazard pictograms***

The following rules apply for the use of hazard pictograms on a label:

- where a transport of dangerous goods class label (pictogram) is required on the container to meet transport regulations, the equivalent hazard pictogram, as specified in the GHS, should not appear
- if the skull and crossbones hazard pictogram applies, the exclamation mark hazard pictogram should not appear
- if the corrosive hazard pictogram applies, the exclamation mark hazard pictogram should not appear if it is used to communicate skin or eye irritation
- if the health hazard pictogram appears for respiratory sensitisation, the exclamation mark hazard pictogram should not appear if it is used to communicate skin sensitisation, or for skin or eye irritation.

#### ***Hazard statements***

Where hazard statements are required to be present on a label, then all of the assigned hazard statements must appear on the label except where:

- the statement duplicates or conflicts with another statement or other hazard information that is required on the label
- omission of the statement would not decrease the level of protection or information in relation to the hazards.

#### ***Signal words***

Where the signal word 'Danger' applies, the signal word 'Warning' should not appear concomitantly.

#### ***Precautionary statements***

Where precautionary statements are required to be present on a label, then normally not more than six to ten precautionary statements are required, unless necessary to reflect the nature and the severity of the hazards. For example, precautionary statements can be omitted if:

- the statement duplicates or conflicts with another statement or other hazard information that is required on the label; and
- omission of the statement would not decrease the level of protection or information in relation to the hazards.

Any conflict that arises between precautionary statements that are present on labels may be resolved by modifying the statements. However, the new statement(s) must give equivalent levels of information or protection.

**Note:** It is not mandatory to include information relating to environmental hazard categories on the label of a workplace hazardous chemical. However, this information should be included if a fully GHS-compliant label is desired.

**Example of where the omission of a precautionary statement is acceptable**

An example where the omission of a precautionary statement on the label may be acceptable (and recommended) is where the use of personal protective equipment applies to different hazard categories for the same hazardous chemical.

For example, where the precautionary statements ‘Wear face protection’ and ‘Wear gloves and face protection’ are specified, then only the latter statement should appear on the label as it relates to the more stringent protective measures.

**Example that illustrates how some of the precedence rules for elements should be applied on labels**

In the following example, the chemical meets the criteria for flammable liquid (Category 2) and skin sensitisation (Category 1), as specified in the GHS.

The label that contains all of the elements required to meet the criteria for a substance or mixture that is classified as a flammable liquid (Category 2) and skin sensitiser (Category 1) is provided below. No precedence rules are applied:

	<b>Flammable liquid (Category 2)</b>	<b>Skin sensitisation (Category 1)</b>
<i>Signal word</i>	<b>Danger</b>	<b>Warning</b>
<i>Hazard statement</i>	<b>Highly flammable liquid and vapour</b>	<b>May cause an allergic skin reaction</b>
<i>Hazard Pictogram</i>		

<p><i>Precautionary Statements</i></p>	<p><b>- Keep away from heat/sparks/open flames/hot surfaces.– No smoking.</b>  Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</p> <p><b>- Keep container tightly closed.</b></p> <p><b>- Ground/Bond container and receiving equipment</b></p> <ul style="list-style-type: none"> <li>- <i>if electrostatically sensitive material is for reloading</i></li> <li>- <i>if product is volatile so as to generate hazardous atmosphere.</i></li> </ul> <p><b>- Use explosion-proof electrical/ventilating/lighting/.../equipment.</b>  Manufacturer/supplier or the competent authority to specify other equipment.</p> <p><b>- Use only non-sparking tools.</b></p> <p><b>Take precautionary measures against static discharge.</b></p> <p><b>- Wear protective gloves/eye protection/face protection</b>  Manufacturer/supplier or the competent authority to specify type of equipment</p> <p><b>- IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing.</b></p> <p><b>- Rinse skin with water/shower.</b></p> <p><b>- In case of fire: Use ... for extinction.</b>  Manufacturer/supplier or the competent authority to specify appropriate media</p> <ul style="list-style-type: none"> <li>- <i>if water increases risk.</i></li> </ul> <p><b>- Store in a well-ventilated place.</b></p> <p><b>- Keep cool.</b></p> <p><b>- Dispose of contents/container to ...</b>  In accordance with local requirements (to be specified).</p>	<p><b>- Avoid breathing dust/fume/gas/mist/vapours/spray.</b>  Manufacturer/supplier or the competent authority to specify applicable conditions.</p> <p><b>- Contaminated work clothing should not be allowed out of the workplace.</b></p> <p><b>- Wear protective gloves.</b>  Manufacturer/supplier or the competent authority to specify type of equipment.</p> <p><b>- IF ON SKIN: Wash with plenty of soap and water.</b></p> <p><b>- If skin irritation or rash occurs: Get medical advice/attention.</b></p> <p><b>- Specific treatment (see ... on this label)</b>  Reference to supplemental first aid instruction.</p> <ul style="list-style-type: none"> <li>- <i>Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i></li> </ul> <p><b>- Wash contaminated clothing before reuse.</b></p> <p><b>- Dispose of contents/container to...</b>  In accordance with local requirements (to be specified).</p>
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According to the precedence rules described above, the following elements should be omitted from the label:

- The signal word ‘Warning’ because ‘Danger’ applies.
- The precautionary statement ‘Wear protective gloves...’ because the statement ‘Wear protective gloves and eye protection/face protection...’ also applies, and therefore provides for more stringent PPE controls.

- The statement 'Dispose of contents/container to...' as this is duplicated and should only appear on the label once.

The following precautionary statements refer to similar controls and may be combined to aid comprehensibility and to save label space:

- IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing
- IF ON SKIN: Wash with plenty of soap and water

These statements could be combined to read:

- IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing and wash skin (or hair) with plenty of soap and water.

The label elements that apply to a flammable liquid (Category 2) and skin sensitiser (Category 1) with the precedence rules applied are:

<i>Signal word</i>	<b>Danger</b>
<i>Hazard statement</i>	<b>Highly flammable liquid and vapour May cause an allergic skin reaction</b>
<i>Hazard Pictogram</i>	
<i>Precautionary Statements</i>	<ul style="list-style-type: none"> <li>- <b>Keep container tightly closed.</b></li> <li>- <b>Keep away from heat/sparks/open flame/hot surfaces – No smoking.</b> Manufacturer/supplier or the competent authority to specify applicable ignition source(s).</li> <li>- <b>Ground/Bond container and receiving equipment.</b> - <i>if electrostatically sensitive material is for reloading.</i> - <i>if product is as volatile as to generate hazardous atmosphere:</i></li> <li>- <b>Use explosion-proof electrical/ventilating/lighting/.../equipment.</b> Manufacturer/supplier or the competent authority to specify other equipment.</li> <li>- <b>Use only non-sparking tools.</b></li> <li>- <b>Take precautionary measures against static discharge.</b></li> <li>- <b>Wear protective gloves and eye protection/face protection</b> Manufacturer/supplier or the competent authority to specify type of equipment.</li> <li>- <b>Avoid breathing dust/fume/gas/mist/vapours/spray.</b> Manufacturer/supplier or the competent authority to specify applicable conditions.</li> <li>- <b>Contaminated work clothing should not be allowed out of the workplace.</b></li> <li>- <b>In case of fire: Use ... for extinction.</b> Manufacturer/supplier or the competent authority to specify appropriate media.. - <i>if water increases risk.</i></li> <li>- <b>IF ON SKIN (or hair) Remove/take off immediately all contaminated clothing and wash skin (or hair) with plenty of soap and water.</b></li> <li>- <b>Rinse skin with water/shower.</b></li> <li>- <b>If skin irritation or rash occurs: Get medical advice/attention.</b></li> </ul>

	<ul style="list-style-type: none"><li>- <b>Wash contaminated clothing before re-use.</b></li><li>- <b>Specific treatment (see ... on this label)</b> ...Reference to supplemental first aid instruction – <i>Manufacturer/supplier or the competent authority may specify a cleansing agent if appropriate.</i></li><li>- <b>Store in a well-ventilated place.</b></li><li>- <b>Keep cool.</b></li><li>- <b>Dispose of contents/container to ...</b>in accordance with local/regional/national/international Regulations (to be specified).</li></ul>
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## APPENDIX F – HAZARD PICTOGRAMS

The nine hazard pictograms that are representative of the physical, health and/or environmental hazards are shown below:

<u>Pictogram</u>	<u>Hazard</u>
	- Explosive
Exploding bomb	
	- Flammability
Flame	
	- Oxidising
Flame over circle	
	- Chronic Health hazards
Health hazard	
	- Environmental hazard
Environment	

<u>Pictogram</u>	<u>Hazard</u>
	- Gases under pressure
Gas cylinder	
	- Corrosive
Corrosion	
	- Acute toxicity
Skull and crossbones	
	- Certain health Hazards (e.g. sensitisers)
Exclamation mark	

Chronic health hazards include carcinogens, reproductive toxins, mutagens, specific target organ toxicants, and aspiration toxicants.

## APPENDIX G – COMPARISON OF HAZARD PICTOGRAMS WITH ADG CODE CLASS LABELS

The table below compares hazard pictograms from the GHS with the corresponding ADG Code class labels.

Hazard Pictograms	GHS Hazard	Dangerous Goods class labels (pictograms)	Dangerous goods classes
	Explosives Self-reactives Organic peroxides	   	Explosive
	Flammables Self-reactives Pyrophorics Self-heating Emits flammable gas in contact with water Organic peroxides	      	<ul style="list-style-type: none"> <li>• Flammability (Liquid, Solid or Gas)</li> <li>• Pyrophoric,</li> <li>• Emits Flammable Gas</li> <li>• Organic Peroxide</li> </ul>
	Oxidisers	 	<ul style="list-style-type: none"> <li>• Oxidiser</li> <li>• Oxidising gas</li> </ul>
	Gases under pressure	    	Non-toxic non-flammable gas, flammable gas, oxidising gas, toxic gas
	Acute toxicity	 	<ul style="list-style-type: none"> <li>• Acute toxicity</li> <li>• Acute Toxic gas</li> </ul>
	Acute toxicity Skin irritants Eye irritants Skin sensitisers	No equivalent	

	Carcinogens Respiratory sensitisers Reproductive toxicants Target organ toxicants Germ cell mutagens	No equivalent	
	Eye corrosion Skin corrosion Corrosive to metal		Corrosive to metals
	Aquatic toxicity. Not covered within the scope of workplace hazardous chemicals requirements		Environmental hazard
No equivalent hazard pictogram			Miscellaneous dangerous goods
Not covered within the scope of workplace hazardous chemicals requirements			Infectious
Not covered within the scope of workplace hazardous chemicals requirements			Radioactive

## APPENDIX H – EXAMPLE LABELS

This appendix contains example labels that have been produced in accordance with the labelling system described in this Code. Examples 1-4 are prepared for a hypothetical hazardous mixture, *Flammosol*. *Flammosol* contains 95% aliphatic hydrocarbons and 5% toxicole and is classified as a flammable liquid (Category 2), acute toxicity – oral (Category 3) and skin corrosion/irritation (Category 2).

**Note:** it is assumed that toxicole is an acceptable technical name.

### Example 1: *Flammosol* label containing the full set of workplace labelling information

The general precautionary statements 'Read label before use' and 'Keep out of reach of children' have been included. Inclusion of these statements is not mandatory. In accordance with precedence rules described in Appendix E, the exclamation mark hazard pictogram and 'Warning' signal word have been omitted and duplicate precautionary statements have not been included.

Read label before use. Keep out of reach of children

# Flammosol

## FLAMMABLE LIQUID, TOXIC N.O.S.

(aliphatic hydrocarbons, toxicole)

### UN 1992

Contains:  
Aliphatic hydrocarbons 95%  
Toxicole 5%

# 4 L



## DANGER

**Highly flammable liquid and vapour**  
**Toxic if swallowed**  
**Causes skin irritation**

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use.  
Rinse skin using plenty of soap and water.

In case of fire: Use powder for extinction.

If skin irritation occurs: Get medical advice/attention.

Keep away from sparks and open flames. – No smoking.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.  
Rinse mouth.

Keep container tightly closed.

Store locked up in a well-ventilated place. Keep cool.

Ground/bond container and receiving equipment.

Dispose of contents/container in accordance with Jurisdictional regulations.

Use explosion-proof electrical equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Refer to the Safety Data Sheet before use.

Wear protective gloves and eye and face protection.

Wash hands thoroughly after handling.

Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000  
[www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au)

Do not eat, drink or smoke when using this product.

**Example 2: *Flammosol* label containing the full set of workplace labelling information using 2 separate panels**

**Front panel**

Read label before use. Keep out of reach of children

**Flammosol**  
**FLAMMABLE LIQUID, TOXIC N.O.S.**  
**(aliphatic hydrocarbons, toxicole)**  
**UN 1992**

Contains:  
Aliphatic hydrocarbons 95%  
Toxicole 5%

**4 L**



**DANGER**

**Highly flammable liquid and vapour**  
**Toxic if swallowed**  
**Causes skin irritation**

Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000  
[www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au)

**Back panel**

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use.  
Rinse skin using plenty of soap and water.  
If skin irritation occurs: Get medical advice/attention.  
IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.  
Rinse mouth.

In case of fire: Use powder for extinction.  
Keep away from sparks and open flames. – No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Wear protective gloves and eye and face protection.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.

Store locked up in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with Jurisdictional Regulations.

Refer to the Safety Data Sheet before use.

### Example 3: *Flammosol* label that meets both transport and workplace labelling requirements (single container)

The equivalent dangerous goods (transport) classification for *Flammosol* is a class 3 (flammable liquid, packing group II) and a class 6.1 (oral toxicity, packing group III). The transport markings should be in the most prominent position on the container and should be clearly distinguishable from the workplace labelling. Hazard pictograms are not included on the workplace label panel as the equivalent class labels appear on the transport panel.

#### Transport markings label portion (to comply with transport Regulations)

<b>Flammosol</b> <b>FLAMMABLE LIQUID, TOXIC N.O.S.</b> (aliphatic hydrocarbons, toxicole) <b>UN 1992</b>   Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State.
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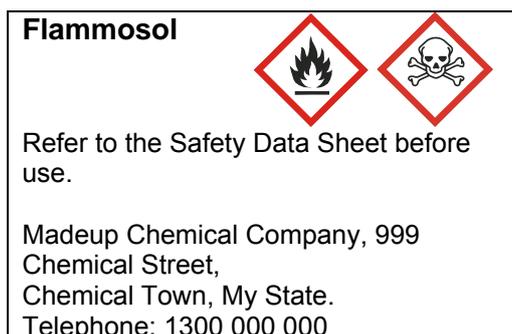
#### Workplace information label panel:

<b>Flammosol</b> <b>DANGER</b> Highly flammable liquid and vapour Toxic if swallowed Causes skin irritation  IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use. Rinse skin using plenty of soap and water. If skin irritation occurs: Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth  In case of fire: Use powder for extinction. Keep away from sparks and open flames. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves and eye and face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.  Store locked up in a well-ventilated place. Keep cool.  Dispose of contents/container in accordance with Jurisdictional Regulations.  Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000 <a href="http://www.madeup-chemical-company.com.au">www.madeup-chemical-company.com.au</a>	Contains: Aliphatic hydrocarbon 95% Toxicole 5%  <b>4 L</b>
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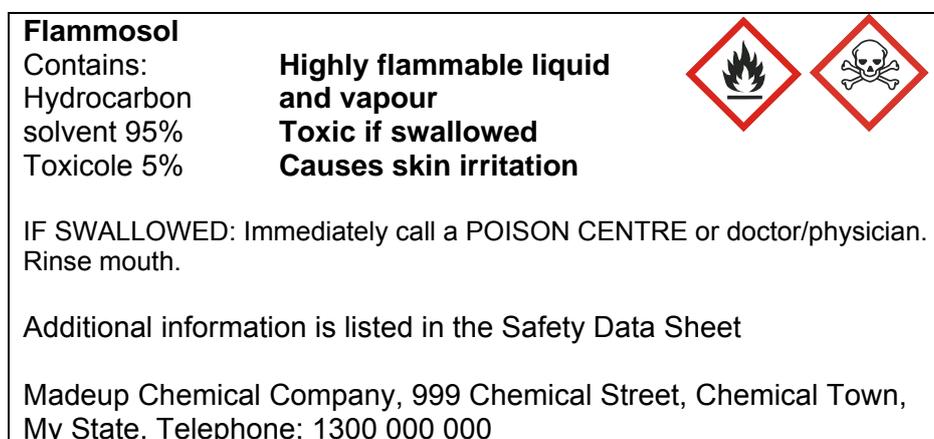
#### Example 4: *Flammosol* labels that are appropriate for small containers

The amount of information included on the label of a small container will vary, and be dependent on the size and shape of the container; and the number of label elements to be included, particularly where the hazardous chemical meets the criteria for multiple hazard classes. As a mandatory minimum, small containers must be labelled with the product identifier, manufacturer or importer information and hazard pictograms or hazard statements. Labels for small containers or packages must include as much labelling information as reasonably practicable

- a) This example contains the minimum labelling information permitted and a reference to the safety data sheet.



- b) This label has sufficient room to include additional labelling information. Following the guidance provided in Appendix E, hazard statements, the identity and proportions of the hazardous ingredients, critical first aid instructions and reference to the safety data sheet have been included.



## Example 5: Example labels for hazardous waste

### a) Hazardous Waste label that meets both transport and workplace labelling requirements (single container)

Selected precautionary statements relating to first aid instructions, accident prevention and personal protective equipment and disposal advice have been included. Hazard pictograms have not been included as the corresponding transport class labels already appear. The generic type of waste solvent is expected to be known e.g. alcohols, esters, ketones, aliphatic hydrocarbons, aromatic hydrocarbons or chlorinated hydrocarbons.

<p><b>Flammable Toxic Waste - Batch 1</b> <b>FLAMMABLE LIQUID, TOXIC</b> <b>N.O.S.</b> <b>(hydrocarbons, organotin compound)</b> <b>UN 1992</b></p> <p>Contains Mixed aromatic and aliphatic hydrocarbons (90%) Alkyl tin (5%)</p> <p><b>Flammable liquid and vapour</b> <b>Toxic if swallowed</b></p> <p>IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.</p> <p>Keep away from ignition sources. – No smoking. In case of fire: Use powder for extinction. Wear protective gloves, eye and face protection.</p> <p>Dispose of contents in accordance with Jurisdictional Regulations</p> <p>Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000 <a href="http://www.madeup-chemical-company.com.au">www.madeup-chemical-company.com.au</a></p>	 
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**b) Hazardous Waste label that meets workplace labelling requirements and transport inner packaging requirements**

The main differences between this and the previous example are that hazard pictograms are used and the proper shipping name and UN number are not included.

<h1>Flammable Toxic Waste – Batch 1</h1>	 
<p>Contains Mixed aromatic and aliphatic hydrocarbons (90%) Alkyl tin (5%)</p>	
<p><b>Flammable liquid and vapour</b> <b>Toxic if swallowed</b></p>	
<p><b>IF SWALLOWED:</b> Immediately call a POISON CENTRE or doctor/physician.</p>	
<p>Keep away from ignitions sources. – No smoking. In case of fire: Use powder for extinction. Wear protective gloves/eye protection/face protection.</p>	
<p>Dispose of contents in accordance with Jurisdictional Regulations</p>	
<p>Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000 <a href="http://www.madeup-chemical-company.com.au">www.madeup-chemical-company.com.au</a></p>	

**c) Labelling of hydrochloric acid waste that meets workplace labelling requirements and transport inner packaging requirements**

## Hydrochloric acid waste



**May be corrosive to metals  
Causes serious eye damage**

Wear eye/face protection

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do so. Continue rinsing.

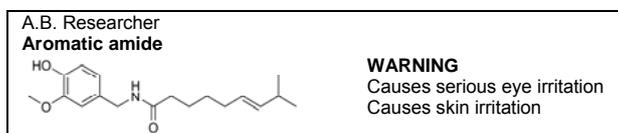
Immediately call a POISON CENTRE or doctor/physician.

Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000

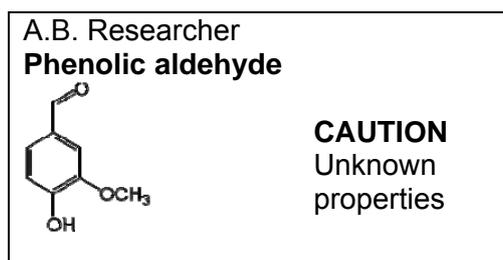
[www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au)

**Example 6: Example labels for research chemicals or samples for analysis**

- a) In this example, the chemical identity and some of the hazardous properties are known, and are therefore, included on the label.



- b) In this example, the identity of the chemical is known. However, the hazardous properties have not been determined.



Note: For examples 6(a) and 6(b), a generic name in accordance with Appendix C *should* be used, as chemical structures are difficult to communicate in the event of an incident.

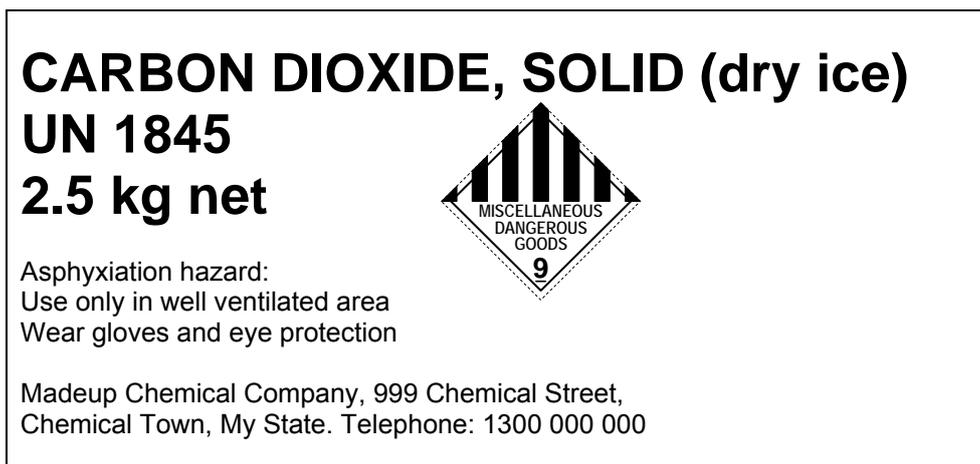
- c) In the following example, neither the identity nor the hazardous properties of the substance are known.



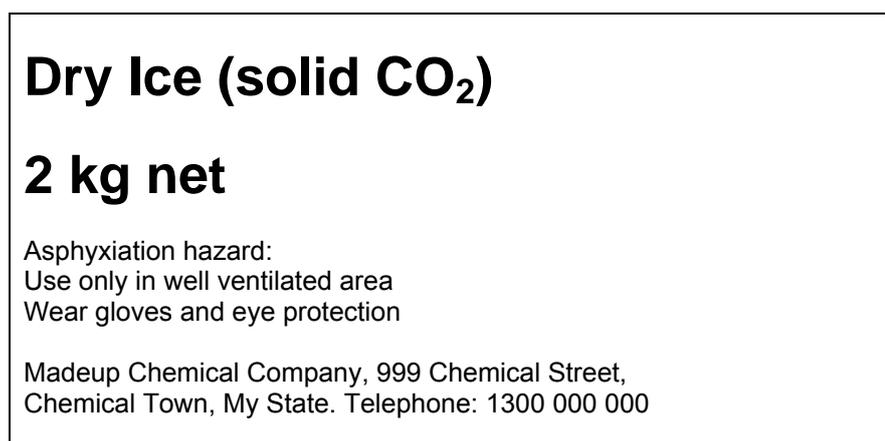
**Example 7: Example labels for a substance not otherwise classifiable under the GHS.**

The following two example labels are for carbon dioxide (dry ice). Dry ice does not meet any of the hazard categories of the GHS, and therefore cannot be assigned any label elements. However there are health and safety issues associated with the handling, use and storage of dry ice and information on these hazards should be included on labels.

- a) The following label meets road transport labelling requirements. It also meets workplace labelling requirements as it includes other health and safety information that are applicable to its workplace storage, handling and use.



- b) The following label meets workplace labelling requirements and road transport inner packaging requirements. No hazard pictograms or class labels are present. However, health and safety information relating to storage, handling and use in the workplace is included.



## APPENDIX I – OTHER RELEVANT INFORMATION

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- ADG Code (7th Edition) for download  
<http://www.ntc.gov.au/ViewPage.aspx?documentid=01147>
- ADG Code class labels for download  
[www.ntc.gov.au/ViewPage.aspx?documentid=01313](http://www.ntc.gov.au/ViewPage.aspx?documentid=01313)
- ADG Code publication information  
[www.infrastructure.gov.au/transport/australia/dangerous/index.aspx](http://www.infrastructure.gov.au/transport/australia/dangerous/index.aspx)
- *Code of Practice: Preparation of Safety Data Sheets*
- GHS hazard pictograms for download  
[www.unece.org/trans/danger/publi/ghs/pictograms.html](http://www.unece.org/trans/danger/publi/ghs/pictograms.html)
- GHS revision 3 – Official text and corrigenda:  
[http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)
- Labelling of Agricultural and Veterinary chemicals
  - For Veterinary Chemicals/Products:  
[www.apvma.gov.au/MORAG\\_vet/vol\\_5/vet\\_labelling\\_code.html](http://www.apvma.gov.au/MORAG_vet/vol_5/vet_labelling_code.html)
  - For Agricultural Chemicals/Products:  
[www.apvma.gov.au/MORAG\\_ag/vol\\_5/ag\\_labelling\\_code.html](http://www.apvma.gov.au/MORAG_ag/vol_5/ag_labelling_code.html)
- SUSMP publication information  
[www.tga.gov.au/ndpsc/susdp.htm](http://www.tga.gov.au/ndpsc/susdp.htm)
- UN Model Regulations for the Transport of Dangerous Goods  
<http://live.unece.org/index.php?id=3304>