

# **GUIDANCE ON THE CLASSIFICATION OF HAZARDOUS CHEMICALS UNDER THE WHS REGULATIONS**

IMPLEMENTATION OF THE GLOBALLY  
HARMONISED SYSTEM OF CLASSIFICATION  
AND LABELLING OF CHEMICALS (GHS)

APRIL 2012



**safe work australia**

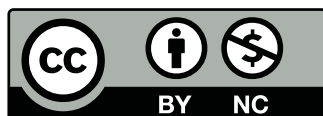


Safe Work Australia is an Australian Government statutory agency established in 2009. Safe Work Australia consists of representatives of the Commonwealth, state and territory governments, the Australian Council of Trade Unions, the Australian Chamber of Commerce and Industry and the Australian Industry Group.

Safe Work Australia works with the Commonwealth, state and territory governments to improve work health and safety and workers' compensation arrangements. Safe Work Australia is a national policy body, not a regulator of work health and safety. The Commonwealth, states and territories have responsibility for regulating and enforcing work health and safety laws in their jurisdiction.

ISBN 978-0-642-78340-0 [Online PDF]

ISBN 978-0-642-78341-7 [Online RTF]



### Creative Commons

Except for the logos of Safe Work Australia, SafeWork SA, WorkCover Tas, WorkSafe WA, Workplace Health and Safety QLD, NT WorkSafe, Work Cover NSW, Comcare and WorkSafe ACT, this copyright work is licensed under a Creative Commons Attribution-Noncommercial 3.0 Australia licence. To view a copy of this licence, visit

<http://creativecommons.org/licenses/by-nc/3.0/au/>

In essence, you are free to copy, communicate and adapt the work for non commercial purposes, as long as you attribute the work to Safe Work Australia and abide by the other licence terms.

### Contact information

**Safe Work Australia**

**Phone: +61 2 6121 5317**

**Email: [info@safeworkaustralia.gov.au](mailto:info@safeworkaustralia.gov.au)**

**Website: [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)**



# TABLE OF CONTENTS

<b>1. INTRODUCTION</b>	<b>3</b>
1.1 What is the GHS?	3
1.2 What are the duties in relation to classification?	4
<b>2. TRANSITIONAL ARRANGEMENTS</b>	<b>5</b>
<b>3. HOW TO CLASSIFY</b>	<b>6</b>
3.1 Classification according to the GHS	6
3.2 Concentration cut-off values for classification of mixtures	6
3.3 Classification of Articles	7
3.4 Classification of Engineered and Manufactured Nanomaterials	8
3.5 Non-GHS hazard information	8
3.6 New versions of the GHS	8
3.7 Where to find information on hazard classifications	9
<b>APPENDIX A: MEANING OF KEY TERMS AND DEFINITIONS</b>	<b>10</b>
<b>APPENDIX B: WHERE TO FIND VALID INFORMATION</b>	<b>11</b>
<b>APPENDIX C: COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES</b>	<b>13</b>
<b>APPENDIX D: COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS</b>	<b>18</b>
<b>APPENDIX E: TRANSLATION FOR NON-GHS SUPPLEMENTAL HAZARD STATEMENTS</b>	<b>30</b>
<b>APPENDIX F: ADDITIONAL NON-GHS HAZARD STATEMENTS AND CLASSIFICATION CRITERIA</b>	<b>32</b>
<b>APPENDIX G: SCHEDULE 6 OF THE WHS REGULATIONS - CLASSIFICATION OF MIXTURES</b>	<b>33</b>

# LIST OF TABLES

<b>TABLE 1:</b> Relevant databases for information on hazardous chemical classifications	<b>11</b>
<b>TABLE 2:</b> Translation between classification in accordance with the ADG Code and GHS classification criteria	<b>13</b>
<b>TABLE 3:</b> Translation between classification in accordance with the Approved Criteria and the GHS classification criteria	<b>18</b>
<b>TABLE 4:</b> Translation between additional non- GHS hazard statements	<b>30</b>
<b>TABLE 5:</b> New non-GHS hazard statements and classification criteria	<b>32</b>
<b>TABLE 6:</b> Classification of mixtures containing respiratory or skin sensitisers	<b>33</b>
<b>TABLE 7:</b> Classification of mixtures containing carcinogens	<b>33</b>
<b>TABLE 8:</b> Classification of mixtures containing reproductive toxicants	<b>34</b>
<b>TABLE 9:</b> Classification of mixtures containing specific target organ toxicants (STOT) single exposure	<b>34</b>
<b>TABLE 10:</b> Classification of mixtures containing specific target organ toxicants (STOT) repeat exposure	<b>34</b>

# 1. INTRODUCTION

This Guidance is intended for manufacturers and importers of substances, mixtures and articles who have a duty under the Work Health and Safety (WHS) Act and Regulations to classify them. It may also be useful for suppliers, persons undertaking business and undertakings, workers and other persons involved with hazardous chemicals.

The document provides information and guidance on:

- the transitional arrangements for implementation of the GHS under the WHS Regulations, including when classifications, labels and safety data sheets need to be revised
- how to translate existing classifications for hazardous substances and dangerous goods to meet GHS requirements
- the requirements in the WHS Regulations that apply to the classification of specific types of hazardous chemicals, for example articles containing hazardous chemicals.

Under the WHS Regulations, a manufacturer or importer of substances, mixtures and articles has a duty to determine whether they are hazardous to the health and safety of persons, before they are supplied for workplace use.

The classification of a substance, mixture or article reflects the type and severity of the hazards of that substance, mixture or article, i.e. its potential to cause harm to human beings or the environment. The classification of chemicals also determines:

- what information is required on labels and safety data sheets
- whether certain provisions in work health and safety laws apply to their handling, use and storage in the workplace.

The WHS Regulations implement a new system of hazard classification criteria for chemicals used in the workplace based on the Globally Harmonised System of Classification and Labelling of Chemicals (the GHS).<sup>1</sup> The WHS Regulations also implement the harmonised hazard communication elements of the GHS that are to appear on labels and safety data sheets (SDS).

Key terms and definitions used in this Guide are included in Appendix A.

## 1.1 What is the GHS?

The GHS is an internationally agreed system of classification and labelling of chemicals, which was developed under the auspices of the United Nations (UN). The GHS document, which is known as the “purple book”, describes the harmonised classification criteria and the hazard communication elements by the type of hazard. It provides decision logics for each hazard, examples of classification of chemicals and mixtures and illustrates how to apply the criteria. The GHS includes harmonised criteria for the classification of:

- physical hazards (e.g. flammable liquids);
- health hazards (e.g. carcinogens); and
- environmental hazards (e.g. aquatic toxicity).

---

<sup>1</sup> Some hazard classes and categories of the GHS (3<sup>rd</sup> revised edition) are excluded from coverage under the WHS Regulations. Refer to the definition of hazardous chemical for these exclusions.

The GHS is intended to cover all hazardous chemical substances, dilute solutions and mixtures, address how labels and SDS should be used to convey information about their hazards, and how to protect people from adverse effects.

The GHS document (3<sup>rd</sup> Revised Edition) can be accessed online at the following website:

[http://www.unece.org/trans/danger/publi/ghs/ghs\\_rev03/03files\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html)

## 1.2 What are the duties in relation to classification?

The WHS Regulations impose a duty upon manufacturers and importers of chemicals supplied to a workplace to determine if a chemical is hazardous, and to correctly classify the chemical. It is the classification of the chemical that determines what information is required on labels and safety data sheets under the WHS Regulations.

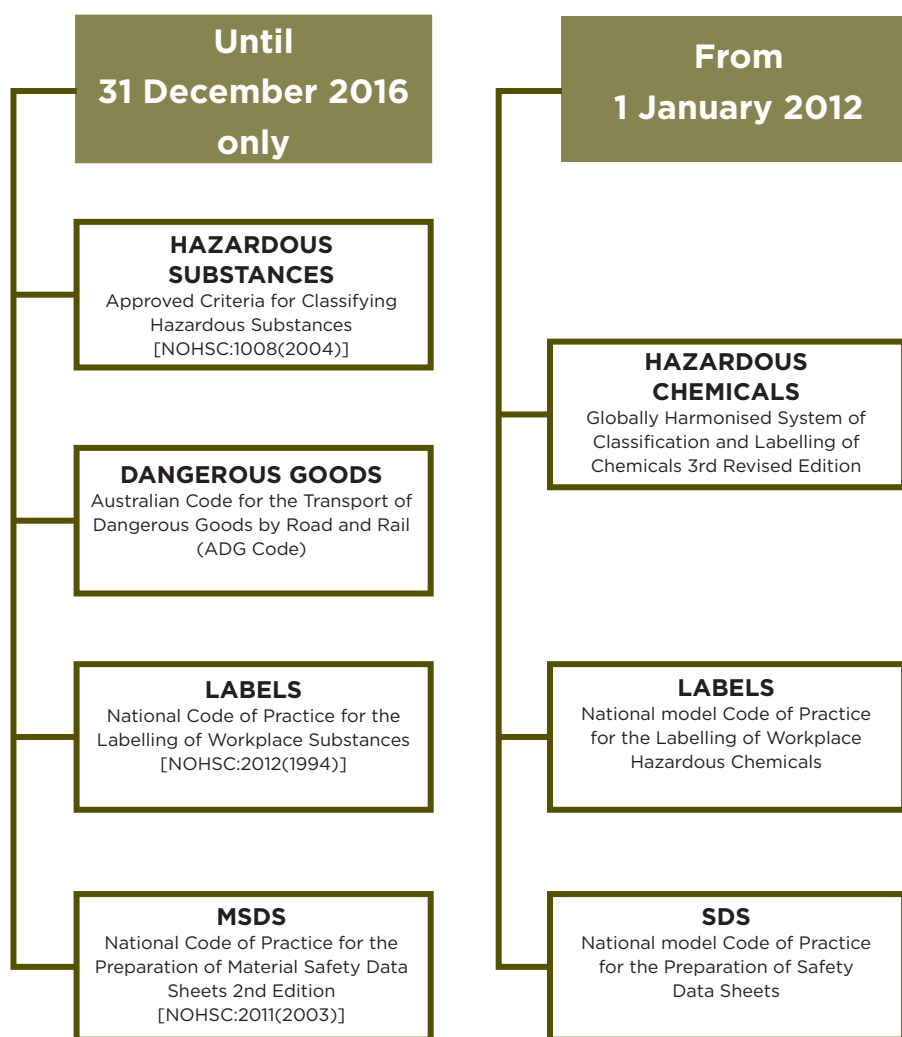
Duty holder	Responsibilities
Manufacturer or importer	<ul style="list-style-type: none"><li>■ determine whether a substance, mixture or article is a hazardous chemical</li><li>■ ensure the hazardous chemical is correctly classified</li><li>■ prepare and provide safety data sheets</li><li>■ ensure the hazardous chemical is correctly labelled</li><li>■ amend safety data sheets every 5 years and whenever necessary to ensure it contains correct, current information</li></ul>
Supplier	<ul style="list-style-type: none"><li>■ ensure the hazardous chemical is correctly labelled</li></ul>
Person conducting a business or undertaking	<ul style="list-style-type: none"><li>■ ensure the hazardous chemical is correctly labelled</li></ul>

## 2. TRANSITIONAL ARRANGEMENTS

The new system of classification and hazard communication for labels and SDS will commence on 1 January 2012, with a transition period of 5 years. This transition period will allow chemical manufacturers and importers enough time to reclassify chemicals and implement necessary changes to labels and safety data sheets.

Workplace chemicals will not need to be re-classified or re-labelled immediately. During the transition period, manufacturers may use either the GHS for classification, labelling and SDS, or the previous hazardous substances and dangerous goods arrangements for classification, labelling and material safety data sheets. This applies to both new chemicals as well as existing chemicals. Further information on transition periods relating to the WHS Regulations can be found on the Safe Work Australia website at [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au).

After 31 December 2016 all workplace chemicals must be classified according to the GHS and labels and SDS must be in accordance with the GHS as implemented under the WHS Regulations. This timeline is illustrated in the following diagram, including the relevant documents to use for classification, labelling and SDS.



All of the above documents are available on the Safe Work Australia website at [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au).

## 3. HOW TO CLASSIFY

According to the transitional arrangements, manufacturers or importers can use either the GHS or the previous criteria for hazardous substances and dangerous goods.

For information on classification of hazardous substances and dangerous goods, refer to the Approved Criteria and the ADG Code.

### 3.1 Classification according to the GHS

#### **SINGLE SUBSTANCES**

Manufacturers and importers have two options for classifying chemicals according to the GHS:

##### *Option 1:*

This option involves:

- collecting available information (see section 3.7 below and Appendix B for useful information sources);
- evaluating the adequacy and reliability of the information;
- reviewing the information against the GHS classification criteria and decision logic
- making a decision on classification.

Classification done this way is sometimes referred to as classifying from first principles. Classifiers will need to refer to the criteria and decision logic in the GHS.

##### *Option 2:*

This option involves taking an existing hazardous substance or dangerous goods classification and translating it into the equivalent hazard classes and categories under the GHS. Appendices C – F of this Guide are provided to assist classifiers in this process.

Note however, that for some hazard classes and categories direct translation is not possible. In these cases, the raw data may need to be considered.

##### *Internet resources to assist translation*

The following website is an internet based resource that allows translation to GHS hazard classes and categories: <http://www.gischem.de/ghs/konverter/index.htm>

As this is a European resource, it should only be used as a guide to assist you in reclassifying a chemical, as it may not contain all hazard classes and categories adopted in the Australian WHS Regulations.

### 3.2 Concentration cut-off values for classification of mixtures

The official GHS text provides details of how the criteria should be applied to the classification of mixtures. This includes details of concentration cut-off values. For some hazard classes and categories in the GHS however, competent authorities are given an option of which concentration cut-off value to use.



Australia is implementing specific classification cut-off values and concentration limits for mixtures for the following hazard classes:

- respiratory and skin sensitisers;
- carcinogens;
- reproductive toxicants
- specific target organ toxicants single and repeat exposures.

These values and limits are prescribed in Schedule 6 of the WHS Regulations, and are reproduced in Appendix G of this guide. These tables replace the specified tables in the GHS. The cut-off values and concentration limits of Schedule 6 show the amount of the hazardous ingredient in a mixture or article that would result in classification of the mixture.

#### MIXTURES

For some mixtures, it may not be possible to directly translate its hazardous substance classification into a GHS classification because of differences in cut-off concentrations used in the Approved Criteria and the GHS. In these cases, additional steps may be required.

Where the mixture itself has been tested then the data on the mixture should always be used to classify the mixture in preference to calculations based on individual ingredients.

If there is no available test data or information on the mixture itself, then it is essential to obtain the list of ingredients and their percentage content in the mixture so that the correct GHS classification of the mixture can be determined. Each substance in the mixture can then be classified using options 1 or 2 detailed in section 3.1 above.

Using the hazard classification for each ingredient in the mixture, the mixture's classification can be determined using the criteria and decision logic described in the official GHS text for each hazard class.

### 3.3 Classification of Articles

Under the WHS regulations an **article** means a manufactured item, other than a fluid or particle, that:

- a. is formed into a particular shape or design during manufacture
- b. has hazard properties and a function that are wholly or partly dependent on the shape or design.

The most common examples of articles are explosives, where the type of packaging and shape of the item can change the hazard classification of the item compared to the component ingredients. For example:

A brick contains silica which is hazardous; however, the hazards associated with silica are not related to the shape of the brick. Therefore a brick is not an article according to this definition. A welding rod, though not hazardous itself, may liberate hazardous gases and fumes during use. Since the fumes released are not related to the shape of the welding rod, but rather to the conditions under which it is used, a welding rod is not considered an article according to the definition.

In the case of the welding rod, it is common practice to provide a SDS for these items to warn users of potential hazards and risks during use.

### 3.4 Classification of Engineered and Manufactured Nanomaterials

Manufacturers and importers must ensure that nanomaterials are classified according to GHS classification criteria and, if they meet the classification criteria, must comply with legislation. The WHS Regulations deal with all hazardous chemicals, regardless of size, shape or physical state.

Many nanomaterials are not yet classified because of a lack of specific information about their hazard properties. In these circumstances, Safe Work Australia recommends a precautionary approach in regard to the labelling and SDS for nanomaterials. If the health hazards are not fully characterised, it is recommended that an SDS be prepared and the container is labelled:

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

These phrases are for use on an interim basis, as the manufacturer or importer has a duty to correctly classify the chemical and include information on known hazards on the label, and within the SDS.

### 3.5 Non-GHS hazard information

The Approved Criteria contains a number of risk phrases for specific hazards. Some of these are being retained in Australia's adoption of the GHS for workplace hazardous chemicals. These non-GHS hazard statements are provided at the end of Appendix C of the Code of Practice: *Preparation of Safety Data Sheets for Hazardous Chemicals*, and Appendix D of the Code of Practice: *Labelling of Workplace Hazardous Chemicals*.

There are two further new additional hazard statements, which were not under the Approved Criteria, for use where appropriate:

- AUH070 – Toxic by eye contact; and
- AUH071 – Corrosive to the respiratory tract.

These additional hazard statements should be assigned in accordance with their criteria. All non-GHS hazard categories and their criteria are contained in Appendices E and F.

### 3.6 New versions of the GHS

The UN has published revised editions of the GHS every 2 years since 2003. The Australian implementation of the GHS under the WHS Regulations is based on the 3<sup>rd</sup> revised edition, published in 2009. Safe Work Australia will decide periodically whether to update classification and hazard communication requirements under the WHS Regulations to align with more recent versions of the GHS, based on an assessment of the costs and benefits.

### 3.7 Where to find information on hazard classifications

There are many sources of information on chemical hazard classification available both nationally and internationally. Appendix B contains a list of some useful references to assist classifiers.

Classifiers should consult all available information sources. However, a classifier also needs to be aware that lists of hazardous substances, such as those included in Appendix B, may not reflect a complete hazard classification, e.g. the list may not encompass all hazard endpoints or may not reflect Australian coverage of the GHS. Classifiers should also be aware of changes to hazard classification, and data should be updated:

- periodically, and
- when a chemical's SDS is updated.

# APPENDIX A: MEANING OF KEY TERMS AND DEFINITIONS

**Approved Criteria** means the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)].

**ADG Code** means the Australian Code for the Transport of Dangerous Goods by Road and Rail, 7<sup>th</sup> Edition. See <http://www.ntc.gov.au/viewpage.aspx?documentid=1147>

**Dangerous goods** means a substance, mixture or article that meets the criteria of, or is listed in, the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

**GHS** means the Globally Harmonised System of Classification and Labelling of Chemicals, 3<sup>rd</sup> revised edition. See [http://www.unece.org/trans/danger/publi/ghs/ghs\\_rev03/03files\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html)

**Hazardous chemical** means a substance, mixture or article that satisfies the criteria for a hazard class in the GHS (including a classification referred to in Schedule 6), but does not include a substance, mixture or article that satisfies the criteria solely for the following hazard classes:

- a. acute toxicity – oral, dermal and inhalation – category 5;
- b. skin corrosion/irritation – category 3;
- c. serious eye damage/eye irritation – category 2B;
- d. aspiration hazard – category 2;
- e. flammable gas – category 2;
- f. acute hazard to the aquatic environment – categories 1, 2 and 3;
- g. chronic hazard to the aquatic environment – categories 1, 2, 3 and 4;
- h. hazardous to the ozone layer.

**Note:** The WHS Regulations Schedule 6 tables replace some tables in the GHS.

**Hazard classification** means an indication of the intrinsic hazardous properties of substances and mixtures. It involves:

- a. identification of relevant data regarding the hazards of a substance or mixture;
- b. subsequent review of those data to ascertain the hazards associated with the substance or mixture; and
- c. a decision on whether the substance or mixture will be classified as a hazardous substance or mixture and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.

**Hazardous substance** means a substance or mixture that meets the criteria specified in the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)] (the Approved Criteria)

**Safety Data Sheet (SDS)** means a document that provides information on the properties of hazardous chemicals and how they affect health and safety in the workplace. Previously known as a material safety data sheet (MSDS).

**Substance** means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of that product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

## APPENDIX B: WHERE TO FIND VALID INFORMATION

Manufacturers and importers can classify hazardous chemicals through collection, evaluation and review of valid information on the hazards of a chemical. Information may be available:

- from epidemiological data and acknowledged experiences on the effects of chemicals on humans;
- from tests that are conducted according to internationally recognised scientific principles published in scientific journal articles;
- on labels and within SDS; or
- on databases or lists of chemicals such as HSIS (see Table 2 below).

Before using the information from any of the sources listed below you need to be aware of the limitations of the data. For example, the HSIS database does not contain information for all hazard endpoints for all chemicals. Other information sources should be considered.

**Table 1: Relevant databases for information on hazardous chemical classifications**

Name:	Maintained by:	Link:	Contains:
HSIS (Hazardous Substances Information System)	Australia	<a href="http://hsis.ascc.gov.au/">http://hsis.ascc.gov.au/</a>	Information on substances that have been classified in accordance with the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition  Note this database does not contain comprehensive information for all hazard endpoints for all chemicals.
ESIS (European chemical Substances Information System)	EU	<a href="http://esis.jrc.ec.europa.eu/">http://esis.jrc.ec.europa.eu/</a>	Information on chemicals classified in accordance with the GHS for those classes and categories captured by European regulations (refer to Annex I).
CCID (Chemical Classification and Information Database)	New Zealand	<a href="http://www.epa.govt.nz/search-databases/pages/hsno-ccid.aspx">http://www.epa.govt.nz/search-databases/pages/hsno-ccid.aspx</a>	Information on chemicals classified in accordance with the GHS under the Hazardous Substances and New Organisms (HSNO) regulations.

## APPENDIX B. WHERE TO FIND VALID INFORMATION

Name:	Maintained by:	Link:	Contains:
CSI (Chemical Sampling Information)	United States	<a href="http://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html">http://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html</a>	Hazard data on a large number of chemical substances that may be encountered in industrial hygiene investigations.
eChemPortal	OECD	<a href="http://www.echemportal.org/echemportal/index?pageID=0&amp;request_locale=en">http://www.echemportal.org/echemportal/index?pageID=0&amp;request_locale=en</a>	Information on physical and chemical properties, environmental fate and behaviour, ecotoxicity and toxicity of substances. Classification according to GHS provided when available.
UN Model Regulations (transport of dangerous goods)	UN	<a href="http://live.unece.org/trans/danger/publi/unrec/rev13/13files_e.html">http://live.unece.org/trans/danger/publi/unrec/rev13/13files_e.html</a>	Internationally agreed classification criteria for dangerous goods. Does not contain information for health hazards except acute toxicity categories 1, 2 and 3.
GESTIS – Substance Database	Germany	<a href="http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp#">http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp#</a>	Information for the safe handling of hazardous chemicals at work (health effects, necessary protective measures, first aid), and on physical and chemical properties.
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)	Australia	<a href="http://www.infrastructure.gov.au/transport/australia/dangerous/dg_code_6e.aspx">http://www.infrastructure.gov.au/transport/australia/dangerous/dg_code_6e.aspx</a>	Australian classification criteria for dangerous goods. Does not contain information for health hazards except acute toxicity categories 1, 2 and 3.
Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	UN	<a href="http://live.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html">http://live.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html</a>	GHS classification criteria.
European Chemicals Agency (ECHA)	EU	<a href="http://echa.europa.eu/clp/classification_en.asp">http://echa.europa.eu/clp/classification_en.asp</a>	Information on how to classify.

## APPENDIX C: COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES

Table 3 provides translation of chemicals defined as 'dangerous goods' under The Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code), to the classification assigned under the GHS. The table includes ecotoxicological hazard classes and hazard categories, which are presented as information only and are not mandatory under WHS Regulations. They may be used to supplement the classification of a substance or a mixture that has been classified on the basis of its health effects and physicochemical properties or to comply with other environmental legislations.

**Table 2: Translation between classification in accordance with the ADG Code and GHS classification criteria**

Classification under the ADG Code	Physical state	Classification and hazard statements assigned under GHS Classification Criteria	
		Classification	Hazard Statement
Explosives too hazardous for transport		Unstable explosive	H200 – Unstable explosive
Substances too hazardous for transport		Self-reactive Substances and Mixtures: Type A	H240 – Heating may cause an explosion
		Organic Peroxides Type A	H240 – Heating may cause an explosion
Division 1.1 Explosives		Explosives Division 1.1	H201 – Explosive; mass explosion hazard
Division 1.2 Explosives		Explosives Division 1.2	H202 – Explosive; severe projection hazard
Division 1.3 Explosives		Explosives Division 1.3	H203 – Explosive; fire, blast or projection hazard
Division 1.4 Explosives		Explosives Division 1.4	H204 – Fire or projection hazard
Division 1.5 Explosives		Explosives Division 1.5	H205 – May mass explode in fire
Division 1.6 Explosives		Explosives Division 1.6	<i>None</i>
Class 2 Gases	Gas	Gases under pressure Gases under pressure – Compressed Gas Gases under pressure – Liquefied Gas Gases under pressure – Dissolved Gas	H280 – Contains gas under pressure; may explode if heated
		Gas under pressure – Refrigerated Liquefied Gas	H281 – Contains refrigerated gas; may cause cryogenic burns or injury

## APPENDIX C. COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES

Classification under the ADG Code	Physical state	Classification and hazard statements assigned under GHS Classification Criteria	
		Classification	Hazard Statement
Division 2.1 Flammable Gases	Gas	Flammable Gases Category 1	H220 – Extremely flammable gas
		Flammable Aerosol Category 1	H222 – Extremely flammable aerosol
		Flammable Aerosol Category 2	H223 – Flammable aerosol
Division 2.2 Non-flammable, non-toxic Gases	Gas Liquid/ Gas	Compressed Gas, Liquefied Gas & Dissolved Gas	H280 – Contains gas under pressure; may explode if heated
	Gas Liquid/ Gas	Refrigerated Liquefied Gas	H281 – Contains refrigerated gas; may cause cryogenic burns or injury
Divisions 2.2 / Sub-risk. 5.1 Oxidising Gases, Non-flammable, non-toxic Gases, Sub-risk Oxidising Substances	Gas	Oxidising Gases Category 1	H270 – May cause or intensify fire; Oxidiser
		Gases under pressure not otherwise specified	H280 – Contains gas under pressure; may explode if heated
Division 2.3 Toxic Gases	Gas	Acute Inhalation Toxicity (gas) Category 1	H330 – Fatal if inhaled
		Acute Inhalation Toxicity (gas) Category 2	H330 – Fatal if inhaled
		Acute Inhalation Toxicity (gas) Category 3	H331 – Toxic if inhaled
		Skin Corrosion Sub-category 1A – 1C	H314 – Causes severe skin burns and eye damage
Class 3: PG I Flammable Liquids	Liquid	Flammable Liquids Category 1	H224 – Extremely flammable liquid and vapour
Class 3: PG II Flammable Liquids	Liquid	Flammable Liquids Category 2	H225 – Highly flammable liquid and vapour
Class 3: PG III Flammable Liquids	Liquid	Flammable Liquids Category 3	H226 – Flammable liquid and vapour
Division 4.1: PG II Flammable Solids	Solid	Flammable Solids Category 1	H228 – Flammable solid
Division 4.1: PG III Flammable Solids	Solid	Flammable Solids Category 2	H228 – Flammable solid
Division 4.1: Self-reactive Substance Type A	Solid	Self-reactive Substances and Mixtures: Type A	H240 – Heating may cause an explosion



## APPENDIX C. COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES

Classification under the ADG Code	Physical state	Classification and hazard statements assigned under GHS Classification Criteria	
		Classification	Hazard Statement
Division 4.1: Self-reactive Substance Type B	Solid	Self-reactive Substances and Mixtures: Type B	H241 – Heating may cause a fire or explosion
Division 4.1: Self-reactive Substance Type C	Solid	Self-reactive Substances and Mixtures: Type C	H242 – Heating may cause a fire
Division 4.1: Self-reactive Substance Type D	Solid	Self-reactive Substances and Mixtures: Type D	H242 – Heating may cause a fire
Division 4.1: Self-reactive Substance Type E	Solid	Self-reactive Substances and Mixtures: Type E	H242 – Heating may cause a fire
Division 4.1: Self-reactive Substance Type F	Solid	Self-reactive Substances and Mixtures: Type F	H242 – Heating may cause a fire
Division 4.1: Self-reactive Substance Type G	Solid	Self-reactive Substances and Mixtures: Type G	<i>None</i>
Division 4.2: PG I Pyrophoric Substances	Liquid	Pyrophoric Liquids Category 1	H250 – Catches fire spontaneously if exposed to air
Division 4.2: PG I Pyrophoric Substances	Solid	Pyrophoric Solids Category 1	H250 – Catches fire spontaneously if exposed to air
Division 4.2: PG II Self-heating Substances		Self-heating Substances and Mixtures Category 1	H251 – Self-heating; may catch fire
Division 4.2: PG III Self-heating Substances		Self-heating Substances and Mixtures Category 2	H252 – Self-heating in large quantities; may catch fire
Division 4.3: PG I Substances which in contact with water emit flammable gases		Substances which, in contact with water, emit flammable gases Category 1	H260 – In contact with water releases flammable gases, which may ignite spontaneously
Division 4.3: PG II Substances which in contact with water emit flammable gases		Substances which, in contact with water, emit flammable gases Category 2	H261 – In contact with water releases flammable gases

## APPENDIX C. COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES

Classification under the ADG Code	Physical state	Classification and hazard statements assigned under GHS Classification Criteria	
		Classification	Hazard Statement
Division 4.3: PG III Substances which in contact with water emit flammable gases		Substances which, in contact with water, emit flammable gases Category 3	H261 – In contact with water releases flammable gases
Division 5.1: PG I Oxidising Substances	Liquid	Oxidising Liquids Category 1	H271 – May cause fire or explosion; Strong oxidiser
	Solid	Oxidising Solids Category 1	
Division 5.1: PG II Oxidising Substances	Liquid	Oxidising Liquids Category 2	H272 – May intensify fire; Oxidiser
	Solid	Oxidising Solids Category 2	
Division 5.1: PG III Oxidising Substances	Liquid	Oxidising Liquids Category 3	H272 – May intensify fire; Oxidiser
	Solid	Oxidising Solids Category 3	
Division 5.2: Type A Organic Peroxides		Organic Peroxides Type A	H240 – Heating may cause an explosion
Division 5.2: Type B Organic Peroxides		Organic Peroxides Type B	H241 – Heating may cause a fire or explosion
Division 5.2: Type C Organic Peroxides		Organic Peroxides Type C	H242 – Heating may cause a fire
Division 5.2: Type D Organic Peroxides		Organic Peroxides Type D	H242 – Heating may cause a fire
Division 5.2: Type E Organic Peroxides		Organic Peroxides Type E	H242 – Heating may cause a fire
Division 5.2: Type F Organic Peroxides		Organic Peroxides Type F	H242 – Heating may cause a fire
Division 5.2: Type G Organic Peroxides		Organic peroxides Type G	None
Division 6.1: PG I Toxic Substances		Acute Oral Toxicity Category 1	H300 – Fatal if swallowed
		Acute Dermal Toxicity Category 1	H310 – Fatal in contact with skin
	Dust/ mist/ vapour	Acute Inhalation Toxicity Category 1	H330 – Fatal if inhaled

## APPENDIX C. COMPARISON OF ADG CODE AND GHS CLASSES AND CATEGORIES

Classification under the ADG Code	Physical state	Classification and hazard statements assigned under GHS Classification Criteria	
		Classification	Hazard Statement
Division 6.1: PG II Toxic Substances		Acute Oral Toxicity Category 2	H300 – Fatal if swallowed
		Acute Dermal Toxicity Category 2	H310 – Fatal in contact with skin
	Dust/ mist/ vapour	Acute Inhalation Toxicity Category 2	H330 – Fatal if inhaled
Division 6.1: PG III Toxic Substances		Acute Oral Toxicity Category 3	H301 – Toxic if swallowed
		Acute Dermal Toxicity Category 3	H311 – Toxic in contact with skin
	Dust/ mist/ vapour	Acute Inhalation Toxicity Category 3	H331 – Toxic if inhaled
Division 6.2: Infectious Substances		Not covered by GHS Classification Criteria	
Class 7: Radioactive Material		Not covered by GHS Classification Criteria	
Class 8: PG I Corrosive Substances		Skin Corrosion Sub-category 1A	H314 – Causes severe skin burns and eye damage
Class 8: PG II Corrosive Substances		Skin Corrosion Sub-category 1B	H314 – Causes severe skin burns and eye damage
Class 8: PG III Corrosive Substances		Skin Corrosion Sub-category 1C	H314 – Causes severe burns and eye damage
		Corrosive to Metals Category 1	H290 – May be corrosive to metals
Class 9: Acute Aquatic Toxicity I		Acute Aquatic Toxicity Category 1	H400 – Very toxic to aquatic life
Class 9: Chronic Aquatic Toxicity I		Chronic Aquatic Toxicity Category 1	H410 – Very toxic to aquatic life with long lasting effects
Class 9: Chronic Aquatic Toxicity II		Chronic Aquatic Toxicity Category 2	H411 – Toxic to aquatic life with long lasting effects

# APPENDIX D: COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

If a substance, mixture or article has been previously classified under the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008 (2004)], manufacturers and importers have the option of using translation tables to re-classify the chemical in accordance with the GHS Classification Criteria or perform a full re-classification based on the available data. The following table shows the link between the classification under the Approved Criteria.

**Table 3: Translation between classification in accordance with the Approved Criteria and the GHS classification criteria**

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>E</b> – Danger: Explosive;  <b>R2</b> – Risk of explosion by shock, friction, fire or other sources of ignition		No translation possible. Reclassify utilising GHS criteria for Explosives.		
<b>E</b> – Danger: Explosive;  <b>R3</b> – Extreme risk of explosion by shock, friction, fire or other sources of ignition		No translation possible. Reclassify utilising GHS Criteria for Explosives.		
<b>O</b> – Danger: Oxidising;  <b>R7</b> – May cause fire		Organic Peroxides Type C and D	H242 – Heating may cause a fire	
		Organic Peroxides Type E and F	H242 – Heating may cause a fire	
<b>O</b> – Danger: Oxidising;  <b>R8</b> – Contact with combustible material may cause fire	Gas	Oxidising Gases Category 1	H270 – May cause or intensify fire; Oxidiser	
<b>O</b> – Danger: Oxidising;  <b>R8</b> – Contact with combustible material may cause fire	Liquid, solid	No translation possible. Reclassify utilising GHS criteria for Oxidising Liquids or Oxidising Solids.		

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>O</b> – Danger: Oxidising; <b>R9</b> – Explosive when mixed with combustible material	Liquid	Oxidising Liquids Category 1	H271 – May cause fire or explosion; Strong oxidiser	
<b>O</b> – Danger: Oxidising; <b>R9</b> – Explosive when mixed with combustible material	Solid	Oxidising Solids Category 1	H271 – May cause fire or explosion; Strong oxidiser	
<b>R10</b> – Flammable	Liquid	Flammable Liquids Category 1: if flashpoint <23°C and initial boiling point ≤ 35°C	H224 – Extremely flammable liquid and vapour	
		Flammable Liquids Category 2: if flashpoint <23°C and initial boiling point >35°C	H225 – Highly flammable liquid and vapour	
		Flammable Liquids Category 3: if flashpoint ≥ 23°C	H226 – Flammable liquid and vapour	
<b>F</b> – Danger: Highly Flammable; <b>R11</b> – Highly flammable	Liquid	Flammable Liquids Category 1: if initial boiling point ≤ 35°C	H224 – Extremely flammable liquid and vapour	
		Flammable Liquids Category 2: if initial boiling point >35°C	H225 – Highly flammable liquid and vapour	
<b>F</b> – Danger: Highly Flammable; <b>R11</b> – Highly flammable	Solid	No translation possible. Reclassify utilising GHS criteria for Flammable Solids.		
<b>F+</b> – Danger: Highly Flammable; <b>R12</b> – Extremely flammable	Gas	Flammable Gases Category 2	none	(10)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>F+</b> – Danger: Highly Flammable; <b>R12</b> – Extremely flammable	Liquid	Flammable Liquids Category 1	H224 – Extremely flammable liquid and vapour	(8)
<b>F+</b> – Danger: Highly Flammable; <b>R12</b> – Extremely flammable	Liquid	Self-reactive substances and mixtures Type C and D	H242 – Heating may cause a fire	(8)
		Self-reactive substances and mixtures Type E and F	H242 – Heating may cause a fire	(8)
		Self-reactive substances and mixtures Type G	None	(8)
<b>F</b> – Danger: Highly Flammable; <b>R15</b> – Contact with water liberates extremely flammable gases		Substances and mixtures which, in contact with water, emit flammable gases Category 3	H261 – In contact with water releases flammable gases	
<b>F</b> – Danger: Highly Flammable; <b>R17</b> – Spontaneously flammable in air	Liquid	Pyrophoric Liquids Category 1	H250 – Catches fire spontaneously if exposed to air	
<b>F</b> – Danger: Highly Flammable; <b>R17</b> – Spontaneously flammable in air	Solid	Pyrophoric Solids Category 1	H250 – Catches fire spontaneously if exposed to air	
<b>Xn</b> – Harmful; <b>R20</b> – Harmful by inhalation	Gas	Acute Toxicity Category 4	H332 – Harmful if inhaled	(1) (2)
<b>Xn</b> – Harmful; <b>R20</b> – Harmful by inhalation	Vapour	Acute Toxicity Category 4	H332 – Harmful if inhaled	

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>Xn</b> – Harmful; <b>R20</b> – Harmful by inhalation	Dust/ mist	Acute Toxicity Category 4	H332– Harmful if inhaled	(1)
<b>Xn</b> – Harmful; <b>R21</b> – Harmful in contact with skin		Acute Toxicity Category 4	H312 – Harmful in contact with skin	(1)
<b>Xn</b> – Harmful; <b>R22</b> – Harmful if swallowed		Acute Toxicity Category 4	H302 – Harmful if swallowed	(1)
<b>T</b> – Toxic; <b>R23</b> – Toxic by inhalation	Gas	Acute Toxicity Category 3	H331 – Toxic if inhaled	(1) (2)
<b>T</b> – Toxic; <b>R23</b> – Toxic by inhalation	Vapour	Acute Toxicity Category 2	H330 – Fatal if inhaled	
<b>T</b> – Toxic; <b>R23</b> – Toxic by inhalation	Dust/ mist	Acute Toxicity Category 3	H331 – Toxic if inhaled	(1)
<b>T</b> – Toxic; <b>R24</b> – Toxic in contact with skin		Acute Toxicity Category 3	H311 – Toxic in contact with skin	(1)
<b>T</b> – Toxic; <b>R25</b> – Toxic if swallowed		Acute Toxicity Category 3	H301 – Toxic if swallowed	(1)
<b>T+</b> – Very Toxic; <b>R26</b> – Very toxic by inhalation	Gas	Acute Toxicity Category 2	H330 – Fatal if inhaled	(1) (2)
<b>T+</b> – Very Toxic; <b>R26</b> – Very toxic by inhalation	Vapour	Acute Toxicity Category 1	H330 – Fatal if inhaled	
<b>T+</b> – Very Toxic; <b>R26</b> – Very toxic by inhalation	Dust/ mist	Acute Toxicity Category 2	H330 – Fatal if inhaled	(1)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>T+</b> – Very Toxic; <b>R27</b> – Very toxic in contact with skin		Acute Toxicity Category 1	H310 – Fatal in contact with skin	
<b>T+</b> – Very Toxic; <b>R28</b> – Very Toxic if swallowed		Acute Toxicity Category 2	H300 – Fatal if swallowed	(1)
<b>R33</b> – Danger of cumulative effects		Translation as per <b>R48</b> – Danger of serious damage to health by prolonged exposure (by inhalation, contact with skin or swallowed ( <b>R20/21/22</b> )) see below.		
<b>C</b> – Corrosive; <b>R34</b> – Causes burns		Skin Corrosion Sub-category 1B	H314 – Causes severe skin burns and eye damage	(3)
<b>C</b> – Corrosive; <b>R35</b> – Causes severe burns		Skin Corrosion Sub-category 1A	H314 – Causes severe skin burns and eye damage	
<b>Xi</b> – Irritant; <b>R41</b> – Risk of serious damage to eyes		Eye Damage Category 1	H318 – Causes serious eye damage	
<b>Xi</b> – Irritant; <b>R36</b> – Irritating to eyes		Eye Irritation Category 2A	H319 – Causes serious eye irritation	
<b>Xi</b> – Irritant; <b>R37</b> – Irritating to respiratory system		Specific Target Organ Toxicity Category 3	H335 – May cause respiratory irritation	
<b>Xi</b> – Irritant; <b>R38</b> – Irritating to skin		Skin irritation Category 2	H315 – Causes skin irritation	
<b>T</b> – Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R23</b> – Toxic by inhalation		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)



## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>T</b> – Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R24</b> – Toxic in contact with skin		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)
<b>T</b> – Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R25</b> – Toxic if swallowed		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)
<b>T+</b> – Very Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R26</b> – Very toxic by inhalation		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)
<b>T+</b> – Very Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R27</b> – Very toxic in contact with skin		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)
<b>T+</b> – Very Toxic; <b>R39</b> – Danger of very serious irreversible effects <b>R28</b> – Very toxic if swallowed		Specific Target Organ Toxicity – Single Exposure Category 1	H370 – Causes damage to organs	(4)
<b>Xn</b> – Harmful; <b>R68</b> – Possible risk of irreversible effects <b>R20</b> – Harmful by inhalation		Specific Target Organ Toxicity – Single Exposure Category 2	H371 – May cause damage to organs	(1) (4)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>Xn</b> – Harmful; <b>R68</b> – Possible risk of irreversible effects <b>R21</b> – Harmful in contact with skin		Specific Target Organ Toxicity – Single Exposure Category 2	H371 – May cause damage to organs	(1) (4)
<b>Xn</b> – Harmful; <b>R68</b> – Possible risk of irreversible effects <b>R22</b> – Harmful if swallowed		Specific Target Organ Toxicity – Single Exposure Category 1	H371 – May cause damage to organs	(1) (4)
<b>R42</b> – May cause sensitisation by inhalation		Respiratory Sensitisation Category 1	H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled	
<b>R43</b> – May cause sensitisation by skin contact		Skin Sensitisation Category 1	H317 – May cause an allergic skin reaction	
<b>Xn</b> – Harmful; <b>R48</b> – Danger of serious damage to health by prolonged exposure <b>R20</b> – Harmful by inhalation		Specific Target Organ Toxicity – Repeated Exposure Category 2	H373 – May cause damage to organs	(1) (4)
<b>Xn</b> – Harmful; <b>R48</b> – Danger of serious damage to health by prolonged exposure <b>R21</b> – Harmful in contact with skin		Specific Target Organ Toxicity – Repeated Exposure Category 2	H373 – May cause damage to organs	(1) (4)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>Xn</b> – Harmful;  <b>R48</b> – Danger of serious damage to health by prolonged exposure  <b>R22</b> – Harmful if swallowed		Specific Target Organ Toxicity – Repeated Exposure Category 2	H373 – May cause damage to organs	(1) (4)
<b>T</b> – Toxic;  <b>R48</b> – Danger of serious damage to health by prolonged exposure  <b>R23</b> – Toxic by inhalation		Specific Target Organ Toxicity – Repeated Exposure Category 1	H372 – Causes damage to organs	(4)
<b>T</b> – Toxic;  <b>R48</b> – Danger of serious damage to health by prolonged exposure  <b>R24</b> – Toxic in contact with skin		Specific Target Organ Toxicity – Repeated Exposure Category 1	H372 – Causes damage to organs	(4)
<b>T</b> – Toxic;  <b>R48</b> – Danger of serious damage to health by prolonged exposure  <b>R25</b> – Toxic if swallowed		Specific Target Organ Toxicity – Repeated Exposure Category 1	H372 – Causes damage to organs	(4)
<b>R64</b> – May cause harm to breastfed babies		Effects on or via lactation	H362 – May cause harm to breast-fed children	
<b>Xn</b> – Harmful;  <b>R65</b> – Harmful: May cause lung damage if swallowed		Aspiration hazard Category 1	H304 – May be fatal if swallowed and enters airways	

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>R67</b> – Vapours may cause drowsiness and dizziness		Specific Target Organ Toxicity – Repeated Exposure Category 3	H336 – May cause drowsiness and dizziness	
Carcinogen Category 1 <b>T</b> – Toxic; <b>R45</b> – May cause cancer		Carcinogenicity Category 1A	H350 – May cause cancer	(5)
Carcinogen Category 2 <b>T</b> – Toxic; <b>R45</b> – May cause cancer		Carcinogenicity Category 1B	H350 – May cause cancer	(5)
Carcinogen Category 1 <b>T</b> – Toxic; <b>R49</b> – May cause cancer by inhalation		Carcinogenicity Category 1A	H350 – May cause cancer	(5)
Carcinogen Category 2 <b>T</b> – Toxic; <b>R49</b> – may cause cancer by inhalation		Carcinogenicity Category 1B	H350 – May cause cancer	(5)
Carcinogen Category 3 <b>Xn</b> – Harmful; <b>R40</b> – Limited evidence of carcinogenic effect		Carcinogenicity Category 2	H351 – Suspected of causing cancer	
Mutagen Category 1 <b>T</b> – Toxic; <b>R46</b> – May cause heritable genetic damage		Mutagenicity Category 1A	H340 – May cause genetic defects	

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
Mutagen Category 2 <b>T</b> – Toxic; <b>R46</b> – May cause heritable genetic damage		Mutagenicity Category 1B	H340 – May cause genetic defects	
Mutagen Category 3 <b>Xn</b> – Harmful; <b>R68</b> – Possible risk of irreversible effects		Mutagenicity Category 2	H341 – Suspected of causing genetic defects	
Reproductive Toxin Category 1 <b>T</b> – Toxic; <b>R60</b> – May impair fertility <b>R61</b> – May cause harm to the unborn child		Toxic to Reproduction Category 1A	H360 – May damage fertility or the unborn child	(6)
Reproductive Toxin Category 2 <b>T</b> – Toxic; <b>R60</b> – May impair fertility <b>R61</b> – May cause harm to the unborn child		Toxic to Reproduction Category 1B	H360 – May damage fertility or the unborn child	(6)
Reproductive Toxin Category 3 <b>Xn</b> – Harmful; <b>R62</b> – Possible risk of impaired fertility <b>R63</b> – Possible risk of harm to the unborn child		Toxic to Reproduction Category 2	H361 – Suspected of damaging fertility or the unborn child	(6)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

Classification under the Approved Criteria [NOHSC: 1008 (2004)]	Physical state	Classification and hazard statements assigned under GHS Classification Criteria		Note
		Classification	Hazard Statement	
<b>N</b> – Dangerous for the Environment; <b>R50</b> – Very toxic to aquatic organisms		Acute Aquatic Toxicity Category 1	H400 – Very toxic to aquatic life	(10)
<b>N</b> – Dangerous for the Environment; <b>R50</b> – Very toxic to aquatic organisms <b>R53</b> – May cause long term adverse effects in the aquatic environment		Acute Aquatic Toxicity Category 1	H400 – Very toxic to aquatic life	(7) (9) (10)
		Chronic Aquatic Toxicity Category 1	H410 – Very toxic to aquatic life with long lasting effects	(7) (9) (10)
<b>N</b> – Dangerous for the Environment; <b>R51</b> – Toxic to aquatic organisms <b>R53</b> – May cause long term adverse effects in the aquatic environment		Acute Aquatic Toxicity Category 2	H401 – Toxic to aquatic life	(7) (9) (10)
		Chronic Aquatic Toxicity Category 2	H411 – Toxic to aquatic life with long lasting effects	(7) (9) (10)
<b>R52</b> – Harmful to aquatic organisms		Acute Aquatic Toxicity Category 3	H402 – Harmful to aquatic life	(10)
<b>R52</b> – Harmful to aquatic organisms <b>R53</b> – May cause long term adverse effects in the aquatic environment		Acute Aquatic Toxicity Category 3	H402 – Harmful to aquatic life	(7) (9) (10)
		Chronic Aquatic Toxicity Category 3	H412 – Harmful to aquatic life with long lasting effects	(7) (9) (10)
<b>R53</b> – May cause long term adverse effects in the aquatic environment		Chronic Aquatic Toxicity Category 4	H413 – May cause long lasting harmful effects to aquatic life	(10)

## APPENDIX D. COMPARISON OF APPROVED CRITERIA AND GHS CLASSIFICATIONS

**Note 1:** For these hazard categories, GHS translation may result in a hazard class that is excluded from legislation. It is possible to use the minimum classification recommended by the GHS and being implemented in Australia, unless data or other information is available.

**Note 2:** For these hazard categories, the Approved Criteria and the GHS Classification Criteria report LC50 (50% lethal concentration) values in different units for gases (mg/L and ppmV respectively). Conversion from mg/L to ppmV is chemical specific and requires the molecular weight. Consequently, depending on the molecular weight, some gases classified in Approved Criteria hazard categories may result in a more or less severe classification under the GHS Classification Criteria than that indicated

**Note 3:** It is recommended to classify as skin corrosion sub-category 1B, even if it also be possible that skin corrosion sub-category 1C could be applicable. Going back to original data may not result in a possibility to distinguish between sub-categories 1B or 1C, as the exposure period has normally been up to 4 hours according to test guidelines such as OECD TG 404.

**Note 4:** The route of exposure can be added to the hazard statement in the future as indicated in the current classification, if it is conclusively proven that no other routes of exposure cause the hazard.

**Note 5:** The route of exposure can be added to the hazard statement as indicated in the current classification, if it is conclusively proven that no other routes of exposure cause the hazard. By indicating only the exposure route of concern, this would 'capture' classification with R49 ('May cause cancer by inhalation') as indicated in the Approved Criteria.

**Note 6:** Hazard statements H360 (May damage fertility or the unborn child) and H361 (Suspected of damaging fertility or the unborn child) indicate a general concern for both the reproductive properties related to fertility and developmental effects. According to the hazard statement, only the specific effect can be reported if known.

**Note 7:** The Approved Criteria combines acute with chronic toxicity for some hazard categories (i.e. R51 does not exist as an individual classification). However, the GHS Classification Criteria separates acute and chronic hazard classes.

**Note 8:** F+ - Danger: Highly Flammable; R12 - Extremely flammable (liquids) shall be translated as flammable liquid Category 1 unless it is also determined to be self-reactive under the GHS Classification Criteria, in which case, it translates into self-reactive substances and mixtures Type C to G.

**Note 9:** Additional chronic toxicity data based on NOEC (no observed effect concentration) or equivalent ECx (the effective concentration that incurs x% response) values shall be considered during re-classification.

**Note 10:** Non-mandatory classification categories, however, may be required under the ADG Code.

## APPENDIX E: TRANSLATION FOR NON-GHS SUPPLEMENTAL HAZARD STATEMENTS

Table 4 provides translation between the Approved Criteria Risk Phrase and additional (non-GHS) hazard statements being implemented in Australia. These additional hazard statements should be assigned in accordance with the classification criteria column of Table 4.

**Table 4: Translation between additional non-GHS hazard statements**

Approved Criteria Risk Phrase [NOHSC:1008(2004)]	Non-GHS Hazard Statement	Classification Criteria
<b>R1</b> – Explosive when dry	<b>AUH001</b> – 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 explosive properties.
<b>R6</b> – Explosive with or without contact with air	<b>AUH006</b> – Explosive with or without contact with air	For substances and mixtures which are unstable at ambient temperatures, such as acetylene.
<b>R14</b> – Reacts violently with water	<b>AUH014</b> – Reacts violently with water	For substances and mixtures which react violently with water, such as acetyl chloride, alkali metals, titanium tetrachloride.
<b>R18</b> – In use, may form flammable/explosive vapour/air mixture	<b>AUH018</b> – 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.
<b>R19</b> – May form explosive peroxides	<b>AUH019</b> – May form explosive peroxides	For substances and mixtures which may form explosive peroxides during storage, such as diethyl ether, 1,4-dioxan.
<b>R29</b> – Contact with water liberates toxic gas	<b>AUH029</b> – Contact with water liberates toxic gas	For substances and mixtures which in contact with water or damp air, evolve gases classified for acute toxicity in category 1, 2 or 3 in potentially dangerous amounts, such as aluminium phosphide, phosphorus pentasulphide.
<b>R31</b> – Contact with acid liberates toxic gas	<b>AUH031</b> – Contact with acid liberates toxic gas	For substances and mixtures which react with acids to evolve gases classified for acute toxicity in category 3 in dangerous amounts, such as sodium hypochlorite, barium polysulphide.
<b>R32</b> – Contact with acid liberates very toxic gas	<b>AUH032</b> – Contact with acid liberates very toxic gas	For substances and mixtures which react with acids to evolve gases classified for acute toxicity in category 1 or 2 in dangerous amounts; such as salts of hydrogen cyanide, sodium azide.



## APPENDIX E. TRANSLATION FOR NON-GHS SUPPLEMENTAL HAZARD STATEMENTS

Approved Criteria Risk Phrase [NOHSC:1008(2004)]	Non-GHS Hazard Statement	Classification Criteria
<b>R44</b> – Risk of explosion if heated under confinement	<b>AUH044</b> – Risk of explosion if heated under confinement	For substances and mixtures not classified as, but which may nevertheless display explosive properties in practice if heated under sufficient confinement, in particular substances which decompose explosively if heated in a steel drum do not show this effect if heated in less-strong containers.
<b>R66</b> – Repeated exposure may cause skin dryness and cracking	<b>AUH066</b> – Repeated exposure may cause skin dryness and 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, based on either practical observations or relevant evidence concerning their predicted effects on the skin.

## APPENDIX F: ADDITIONAL NON-GHS HAZARD STATEMENTS AND CLASSIFICATION CRITERIA

The Australian GHS Classification Criteria contains two new additional hazard statements that are not included in the Approved Criteria. Table 6 contains these additional hazard statements, which should be assigned in accordance with the criteria when the manufacturer or importer is aware of information that would warrant such.

**Table 5: New non-GHS hazard statements and classification criteria**

Non-GHS Hazard Statement	Classification Criteria
<b>AUH070</b> – 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 shall also be applied if there is evidence in humans for systemic toxicity after eye contact. The statement shall 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 %.
<b>AUH071</b> – Corrosive to the respiratory tract	For substances and mixtures in addition to classification for inhalation toxicity, if data are available that indicate the mechanism of toxicity was corrosivity For substances and mixtures in addition to classification for skin corrosivity, if no acute inhalation test data are available and which may be inhaled.

# APPENDIX G: SCHEDULE 6 OF THE WHS REGULATIONS – CLASSIFICATION OF MIXTURES

**Table 6: Classification of mixtures containing respiratory or skin sensitisers**

Ingredient Classification	Mixture Classification		
	Skin Sensitiser Category 1	Respiratory Sensitiser Category 1	
	All physical states	Solid/Liquid	Gas
Skin Sensitiser Category 1	≥ 1.0%		
Skin Sensitiser Sub-category 1A	≥ 0.1%		
Skin Sensitiser Sub-category 1B	≥ 1.0%		
Respiratory Sensitiser Category 1		≥ 1.0%	≥ 0.2%
Respiratory Sensitiser Sub-category 1A		≥ 0.1%	≥ 0.1%
Respiratory Sensitiser Sub-category 1B		≥ 1.0%	≥ 0.2%

**NOTE:** Table 6 replaces table 3.4.5 in the GHS, pg. 151.

**Table 7: Classification of mixtures containing carcinogens**

Ingredient Classification	Mixture Classification	
	Category 1 Carcinogen	Category 2 Carcinogen
Category 1 Carcinogen	≥ 0.1%	
Category 2 Carcinogen		≥ 1.0%

**NOTE 1:** The concentration limits in Table 7 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2:** Table 7 replaces table 3.6.1 in the GHS, pg. 166.

## APPENDIX G. SCHEDULE 6 OF THE WHS REGULATIONS – CLASSIFICATION OF MIXTURES

**Table 8: Classification of mixtures containing reproductive toxicants**

Ingredient Classification	Mixture Classification		
	Category 1	Category 2	Effects on or via
	Reproductive Toxic.	Reproductive Toxic.	lactation
Category 1 Reproductive Toxicant	≥ 0.3%		
Category 2 Reproductive Toxicant		≥ 3.0%	
Effects on or via lactation			≥ 0.3%

**NOTE 1:** The concentration limits in Table 8 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2:** Table 8 replaces table 3.7.1 in the GHS, pg. 180.

**Table 9: Classification of mixtures containing specific target organ toxicants (STOT) single exposure**

Ingredient Classification	Mixture Classification	
	Category 1	Category 2
Category 1 STOT Single Exposure	≥ 10%	≥1.0% – <10%
Category 2 STOT Single Exposure		≥ 10%

**NOTE 1:** The concentration limits in Table 9 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2:** Table 9 replaces table 3.8.2 on the GHS, pg. 192.

**Table 10: Classification of mixtures containing specific target organ toxicants (STOT) repeat exposure**

Ingredient Classification	Mixture Classification	
	Category 1	Category 2
Category 1 STOT Repeat Exposure	≥ 10%	≥1.0% – <10%
Category 2 STOT Repeat Exposure		≥ 10%

**NOTE 1:** The concentration limits in Table 10 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2:** Table 10 replaces table 3.9.3 on the GHS, pg. 203.



