

Defence People Policy, SafetyMan

Hazardous Chemicals Management Policy And Guidance

Policy statement

1. Defence manages all hazardous chemicals that are used, handled or stored in the workplace to eliminate chemical hazards from the work environment, or to control these hazards so far as is reasonably practicable, to protect the health and safety of workers and other persons.

Scope

- This policy applies to all Defence workers, including ADF members, APS employees, ADF cadets, contractors and other persons who may be exposed to chemical hazards in a workplace.
- 3. The application of this policy to contractors and sub-contractors is dependent on the degree of control and influence that Defence has over the undertaking and will be defined within the relevant contractual arrangements.
- 4. This policy applies to all Defence workplaces where:
 - 4.1. hazardous chemicals are used, handled or stored;
 - 4.2. generation of hazardous chemicals occurs in the workplace; and/or
 - 4.3. a pipeline is used to convey a hazardous chemical.
- 5. The following are not covered under this policy:
 - 5.1. asbestos;
 - 5.2. lead;
 - 5.3. major hazard facilities;
 - 5.4. explosives (Dangerous Goods Class 1);
 - 5.5. infectious substances (Dangerous Goods Division 6.2);
 - 5.6. radioactive materials (Dangerous Goods Class 7); and
 - 5.7. miscellaneous dangerous substances and articles (Dangerous Goods Class 9).

Policy – core elements

- 6. Authorisation must be obtained before the supply and/or use of prohibited and restricted carcinogens and restricted hazardous chemicals as specified in the *Work Health and Safety Regulations 2011, Schedule 10 Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals* (Annex A).
- 7. Health monitoring must be provided where there is significant risk to workers' health and safety from exposure to a hazardous chemical, or where health monitoring is required under the *Work Health and Safety Regulations 2011, Schedule 14 Requirements for health monitoring* (Annex B).



- 8. Risk assessment must be undertaken when working or planning activities involving the use, handling and/or storage of hazardous chemicals.
- 9. External/environmental and personal risk factors are to be considered in the assessment of hazardous chemical risk.

Roles and responsibilities

- 10. Group Heads and Service Chiefs as officers of the Person Conducting a Business or Undertaking are responsible for allocating sufficient resources to effectively manage hazardous chemical-related risks. They have a responsibility to:
 - 10.1. communicate and consult with duty holders in relation to the safe management of hazardous chemicals;
 - 10.2. provide information, training, instruction and supervision of workers;
 - 10.3. ensure safety data sheets are readily available and accessible for all hazardous chemicals used, handled or stored in the workplace;
 - 10.4. ensure labelling of containers and pipe-work occurs, including the use of warning placards, outer warning placards and displaying safety signs as required;
 - 10.5. ensure a register of hazardous chemicals used, handled or stored in the workplace is prepared and kept up to date; and
 - 10.6. ensure the regulator is notified of:
 - Work Health and Safety Regulations 2011, Schedule 11 Placard and manifest quantities (Annex C) hazardous chemicals that exceed the manifest quantity;
 - 10.6.2. abandoned tanks; and
 - 10.6.3. pipelines that transfer Schedule 11 hazardous chemicals.
- 11. Commanders/managers and supervisors must take all practicable steps to protect the health and safety of workers. They have a responsibility to:
 - 11.1. understand how hazardous chemicals affect their workers and the work being performed;
 - 11.2. consult with workers to identify, assess and control chemical hazards and risks;
 - 11.3. ensure the appropriate risk management is conducted for all activities;
 - 11.4. identify any risk of physical or chemical reaction of hazardous chemicals and ensure the stability of hazardous chemicals;
 - 11.5. provide all workers with appropriate information, education, training, instruction and supervision;
 - 11.6. provide adequate fire protection, fire-fighting equipment and emergency and safety equipment;
 - 11.7. implement improvements to reduce hazardous chemical-related risks so far as is reasonably practicable to acceptable levels;
 - 11.8. provide a spill containment system for hazardous chemicals if necessary;
 - 11.9. control ignition sources and accumulation of flammable and combustible substances;
 - 11.10. ensure emergency plans are prepared where manifest quantities of hazardous chemicals occur;

- 11.11. ensure the decommissioning of underground storage and handling systems;
- 11.12. notify the regulator as soon as practicable of abandoned tanks in certain circumstances as required; and
- 11.13. analyse event reports where exposure to this hazard was the cause, or a contributing factor.
- 12. All workers have a responsibility to:
 - 12.1. take all reasonably practical steps to safeguard their health and safety and the safety of others in the workplace;
 - 12.2. understand and follow established safe work practices and procedures, participate in appropriate training and hazard identification, and control risks arising from hazardous chemicals in accordance with guidance;
 - 12.3. advise supervisors of any perceived risk that could increase exposure to injury or illness;
 - 12.4. monitor themselves and their fellow workers, and take action when they observe elevated risks to themselves or others; and
 - 12.5. report events that caused, or could have caused, injury or illness.
- 13. In addition to the roles and responsibilities contained in this policy, the way in which Groups and Services apply the policy principles and meet related obligations and duties will vary in accordance with the Defence business model. Groups and Services must manage their hazardous chemical lifecycle obligations as a component of the overall environment, safety and risk management effort.

References and related documents

- 14. Work Health and Safety Act 2011
- 15. Work Health and Safety Regulations 2011
- 16. Code of Practice: Preparation of Safety Data Sheets for Hazardous Chemicals
- 17. Code of Practice: Labelling of Workplace Hazardous Chemicals
- 18. Code of Practice: Managing Risks of Hazardous Chemicals in the Workplace
- 19. Australian Code for the Transport of Dangerous Goods by Road and Rail Code, 7th Edition
- 20. Safe Work Australia:
 - 20.1. Guidance on the Classification of Hazardous Chemicals under the WHS Regulations: Implementation of the Globally Harmonized System of Classification and Labelling of Chemicals
 - 20.2. Health Monitoring for Exposure to Hazardous Chemicals Guide for Persons Conducting a Business or Undertaking
 - 20.3. Health Monitoring for Exposure to Hazardous Chemicals Guide for Workers
 - 20.4. Health Monitoring for Exposure to Hazardous Chemicals Guide for Medical Practitioners
 - 20.5. Hazardous Chemicals Requiring Health Monitoring
 - 20.6. Guide for handling Isocyanates
 - 20.7. Major Hazard Facilities

21. *Australian Standards* (refer to relevant links contained in the references and related materials in the Hazardous Chemicals Management Procedures).

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Annexes

- A. Work Health and Safety Regulations 2011, Schedule 10 Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals
- B. Work Health and Safety Regulations 2011, Schedule 14 Requirements for health monitoring
- C. Work Health and Safety Regulations 2011, Schedule 11 Placard and manifest quantities

Work Health and Safety Regulations 2011

Schedule 10 – Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals

Note : The prohibition of the use of carcinogens listed in table 10.1, column 2 and the restriction of the use of carcinogens listed in table 10.2, column 2 apply to the pure substance and where the substance is present in a mixture at a concentration greater than 0.1%, unless otherwise specified.

Column 1	Column 2
Item	Prohibited carcinogen [CAS number]
1	2-Acetylaminofluorene [53-96-3]
2	Aflatoxins
3	4-Aminodiphenyl [92-67-1]
4	Benzidine [92-87-5] and its salts (including benzidine dihydrochloride [531-85-1])
5	bis(Chloromethyl) ether [542-88-1]
6	Chloromethyl methyl ether [107-30-2] (technical grade which contains bis(chloromethyl) ether)
7	4-Dimethylaminoazobenzene [60-11-7] (Dimethyl Yellow)
8	2-Naphthylamine [91-59-8] and its salts
9	4-Nitrodiphenyl [92-93-3]

Table 10.1 Prohibited carcinogens

Table 10.2 Restricted carcinogens

Column 1	Column 2	Column 3
Item	Restricted carcinogen [CAS Number]	Restricted use
1	Acrylonitrile [107-13-1]	All
2	Benzene [71-43-2]	All uses involving benzene as a feedstock containing more than 50% of benzene by volume

		Genuine research or analysis	
3	Cyclophosphamide [50-18-0]	When used in preparation for therapeutic use in hospitals and oncological treatment facilities, and in manufacturing operations Genuine research or analysis	
4	3,3'-Dichlorobenzidine [91-94-1] and its salts (including 3,3'- Dichlorobenzidine dihydrochloride [612-83-9])	All	
5	Diethyl sulfate [64-67-5]	All	
6	Dimethyl sulfate [77-78-1]	All	
7	Ethylene dibromide [106-93-4]	When used as a fumigant Genuine research or analysis	
8	4,4'-Methylene bis(2-chloroaniline) [101-14-4] MOCA	All	
9	3-Propiolactone [57-57-8] (Beta- propiolactone)	All	
10	o-Toluidine [95-53-4] and o-Toluidine hydrochloride [636-21-5]	All	
11	Vinyl chloride monomer [75-01-4]	All	

Table 10.3 Restricted hazardous chemicals

Column 1	Column 2	Column 3
Item	Restricted hazardous chemical	Restricted use
1	Antimony and its compounds	For abrasive blasting at a concentration of greater than 0.1% as antimony
2	Arsenic and its compounds	For abrasive blasting at a concentration of greater than 0.1% as arsenic

3	Benzene (benzol), if the substance contains more than 1% by volume	For spray painting
4	Beryllium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as beryllium
5	Cadmium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cadmium
6	Carbon disulphide (carbon bisulphide)	For spray painting
7	Chromate	For wet abrasive blasting
8	Chromium and its compounds	For abrasive blasting at a concentration of greater than 0.5% (except as specified for wet blasting) as chromium
9	Cobalt and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cobalt
10	Free silica (crystalline silicon dioxide)	For abrasive blasting at a concentration of greater than 1%
11	Lead and compounds	For abrasive blasting at a concentration of greater than 0.1% as lead or which would expose the operator to levels in excess of those set in the regulations covering lead
12	Lead carbonate	For spray painting
13	Methanol (methyl alcohol), if the substance contains more than 1% by volume	For spray painting
14	Nickel and its compounds	For abrasive blasting at a concentration of greater than 0.1% as nickel
15	Nitrates	For wet abrasive blasting
16	Nitrites	For wet abrasive blasting
17	Radioactive substance of any kind where the level of	For abrasive blasting, so far as is reasonably

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	radiation exceeds 1 Bq/g	practicable
18	Tetrachloroethane	For spray painting
19	Tetrachloromethane (carbon tetrachloride)	For spray painting
20	Tin and its compounds	For abrasive blasting at a concentration of greater than 0.1% as tin
21	Tributyltin	For spray painting

Note : Clause 382 deals with polychlorinated biphenyls (PCBs).

Work Health and Safety Regulations 2011

Schedule 14 – Requirements for health monitoring

Table 14.1 Hazardous chemicals (other than lead) requiring health monitoring

Column 1	Column 2	Column 3
Item	Hazardous chemical	Type of health monitoring
1	Acrylonitrile	Demographic, medical and occupational history Records of personal exposure Physical examination
2	Arsenic (inorganic)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the peripheral nervous system and skin Urinary inorganic arsenic
3	Benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile
4	Cadmium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system Standard respiratory questionnaire to be completed Standardised respiratory function tests including for example, FEV 1, FVC and FEV 1 /FVC Urinary cadmium and β 2 -microglobulin Health advice, including counselling on the effect of smoking on cadmium exposure
5	Chromium (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Weekly skin inspection of hands and forearms by a competent person
6	Creosote	Demographic, medical and occupational history Health advice, including recognition of photosensitivity and skin changes Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and

		evidence of skin sensitisation Records of personal exposure, including photosensitivity
7	Crystalline silica	Demographic, medical and occupational history Records of personal exposure Standardised respiratory questionnaire to be completed Standardised respiratory function test, for example, FEV 1, FVC and FEV 1 /FVC Chest X-ray full size PA view
8	Isocyanates	Demographic, medical and occupational history Completion of a standardised respiratory questionnaire Physical examination of the respiratory system and skin Standardised respiratory function tests, for example, FEV 1, FVC and FEV 1 /FVC
9	Mercury (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems Urinary inorganic mercury
10	4,4'-Methylene bis (2- chloroaniline) (MOCA)	Demographic, medical and occupational history Physical examination Urinary total MOCA Dipstick analysis of urine for haematuria Urine cytology
11	Organophosphate pesticides	Demographic, medical and occupational history including pattern of use Physical examination Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used
12	Pentachlorophenol (PCP)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy Urinary total pentachlorophenol Dipstick urinalysis for haematuria and proteinuria
13	Polycyclic aromatic hydrocarbons (PAH)	Demographic, medical and occupational history Physical examination Records of personal exposure, including photosensitivity Health advice, including recognition of photosensitivity

		and skin changes
14	Thallium	Demographic, medical and occupational history Physical examination Urinary thallium
15	Vinyl chloride	Demographic, medical and occupational history Physical examination Records of personal exposure

Table 14.2 Lead requiring health monitoring

Column 1	Column 2	Column 3
Item	Lead	Type of health monitoring
1	Lead (inorganic)	Demographic, medical and occupational history Physical examination Biological monitoring

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Schedule 11 – Placard and manifest quantities Table 11.1

Column 1	Column 2	Column 3	Column 4	Column 5
Item	Description of hazardous chemical	Placard quantity	Manifest quantity	
1	Flammable gases	Category 1	200L	5000L
2	Gases under pressure	With acute toxicity, categories 1, 2, 3 or 4	50L	500L
3	With skin corrosion categories 1A, 1B or 1C	50L	500L	
4	Aerosols	5000L	10,000L	
5	Not specified elsewhere in this Table	1000L	10,000L	
6	Flammable liquids	Category 1	50L	500L
7	Category 2	250L	2500L	
8	Category 3	1000L	10,000L	
9	Any combination of chemicals from Items 6 to 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000L	10,000L	
10	Category 4	10,000L	100,000L	
11	Self-reactive substances	Туре А	5kg or 5L	50kg or 50L
12	Туре В	50kg or 50L	500kg or 500L	

13	Type C to F	250kg or 250L	2500kg or 2500L	
14	Flammable solids	Category 1	250kg	2500kg
15	Category 2	1000kg	10,000kg	
16	Any combination of chemicals from Items 12 to 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10,000kg or 10 000L	
17	Pyrophoric liquids and pyrophoric solids	Category 1	50kg or 50L	500kg or 500L
18	Self-heating substances and mixtures	Category 1	250kg or 250L	2500kg or 2500L
19	Category 2	1000kg or 1000L	10,000kg or 10 000L	
20	Any combination of chemicals from Items 17 to 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10,000kg or 10 000L	
21	Substances which in contact with water emit flammable gas	Category 1	50kg or 50L	500kg or 500L
22	Category 2	250kg or 250L	2500kg or 2500L	
23	Category 3	1000kg or 1000L	10,000kg or 10 000L	
24	Any combination of chemicals from Items 21 to 23 where none of the items exceeds the quantities in columns 4 or	1000kg or 1000L	10,000kg or 10 000L	

	5 on their own			
25	Oxidising liquids and oxidising solids	Category 1	50kg or 50L	500kg or 500L
26	Category 2	250kg or 250L	2500kg or 2500L	
27	Category 3	1000kg or 1000L	10,000kg or 10 000L	
28	Any combination of chemicals from Items 25 to 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10,000kg or 10 000L	
29	Organic peroxides	Туре А	5kg or 5L	50kg or 50L
30	Туре В	50kg or 50L	500kg or 500L	
31	Type C to F	250kg or 250L	2500kg or 2500L	
32	Any combination of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250kg or 250L	2 500kg or 2 500L	
33	Acute toxicity	Category 1	50kg or 50L	500kg or 500L
34	Category 2	250kg or 250L	2500kg or 2500L	
35	Category 3	1000kg or 1000L	10,000kg or 10 000L	
36	Any combination of chemicals from Items 33 to 35 where none of the	1000kg or 1000L	10,000kg or 10 000L	

	items exceeds the quantities in columns 4 or 5 on their own			
37	Skin corrosion	Category 1A	50kg or 50L	500kg or 500L
38	Category 1B	250kg or 250L	2500kg or 2500L	
39	Category 1C	1000kg or 1000L	10,000kg or 10 000L	
40	Corrosive to metals	Category 1	1000kg or 1000L	10,000kg or 10 000L
41	Any combination of chemicals from Items 37 to 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10,000kg or 10 000L	
42	Unstable explosives		5kg or 5L	50kg or 50L
43	Unstable chemicals	Any combination of chemicals from items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5kg or 5L	50kg or 50L

Notes:

- 1. In item 2, Gases under pressure with acute toxicity, category 4 only applies up to a LC50 of 5000 ppmV. This is equivalent to dangerous goods of Division 2.3.
- 2. Item 4 includes flammable aerosols.

1 Determination of classification of flammable liquids

For the purposes of this table, if a flammable liquid category 4 is used, handled or stored in the same spill compound as one or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquids categories 1, 2 or 3 must be determined as if the flammable liquid category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point.



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Hazardous Chemicals Management Procedure 01 – Glossary of Terms for Hazardous Chemicals

- 1. The glossary of terms set out below provides definitions of terms used in the hazardous chemicals suite of procedures.
- 2. For further information refer to the SafetyMan Hazardous Chemicals Management Policy and Guidance and Hazardous Chemicals Management Procedures.

Glossary of terms

Australian Dangerous Goods Code	The Australian Code for the Transport of Dangerous Goods by Road and Rail Edition 7.5
Administrative controls	Work methods or procedures designed to minimise exposure to a hazard - for instance, procedures on how to operate machinery safely or signs to warn people of a hazard.
Aerosols	Non-refillable receptacles usually made of metal or plastic containing gas that is compressed, liquefied or dissolved under pressure. They are fitted with a valve that, on depression, allows the contents to be ejected.
Airborne contaminant	A contaminant, including microorganisms, in the form of a fume, mist, gas, vapour or dust.
Air monitoring	A means of evaluating an individual's level of exposure to a hazardous chemical or airborne contaminant by collecting and analysing a sample of air from the individual's breathing zone (also known as atmospheric monitoring).
Article	A manufactured item, other than a fluid or particle, that:
	 is formed into a particular shape or design during manufacture; and
	 has hazardous properties and a function that are wholly or partly dependent on the shape or design.
Australian Standard	A standard published by Standards Australia. Note that standards can be obtained from the Defence Protected Network intranet site.
Australian/ New Zealand Standard	A standard jointly published by Standards Australia and Standards New Zealand. Note that standards can be obtained from the Defence Protected Network intranet site.
Audit	A systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent of management system conformance, legislative compliance and achievement of Defence policy and objectives.



Biological monitoring	The measurement and evaluation of a substance, or its metabolites, in the body tissue, fluids or exhaled air of a person exposed to that substance.
Boiling point	The temperature at which the vapour pressure of a chemical equals the atmospheric or other designated pressure.
Bulk	Any quantity of a hazardous chemical that is:
	 in a container with a capacity exceeding 500 litres or net mass of more than 500 kilograms; or
	 if the hazardous chemical is a solid — an undivided quantity exceeding 500 kilograms.
Bund	An impervious embankment of earth, wall of brick, stone or concrete, or other suitable material, which may form part, or all, of the perimeter of a compound.
Bunded/ spill containment pallet or spill deck	A purpose-built storage unit, often the size of a pallet, with in-built spill containment.
Cage	A storage cage suitable for storage of aerosols or disposable gas containers.
Capacity	The internal volume of the container (expressed in litres) at a temperature of 15°C.
Carcinogen	An agent which is responsible for the formation of cancer.
CAS numbers (Chemical Abstracts Service numbers)	Chemical Abstracts Service, a division of the American Chemical Society, assigns unique numbers to individual chemicals. It is a unique identification number given to each ingredient of a chemical mixture or blended product. Therefore, no two ingredients or chemical products will have the same number.
ChemAlert	The mandated system in Defence to register hazardous chemical stock holdings.
Class of dangerous	Substances that are assigned to one of nine classes.
goods	Some dangerous good classes are further divided into divisions, each of which has its own diamond-shaped label. Each label indicates a hazard (flammable, corrosive, etc) by colour and symbol, and the class of goods by numeral.
Classification	A process used to determine if a chemical meets the criteria for a particular classification system for harm to human health and safety (eg globally harmonised system or <i>Australian Dangerous Goods Code</i> . (Refer to definitions of globally harmonised system and <i>Australian Dangerous Goods Code</i>). It involves the identification and evaluation of the physical properties of a chemical, along with its health effects. It is the classification of a hazardous chemical that determines what information is communicated on the label and the safety data sheet.

Class label	The label illustrating the dangerous good class allocated under the <i>Australian Dangerous Goods Code</i> .	
Combustible substance	A substance that is combustible (capable of burning) and includes dust, fibres, fumes, mists or vapours produced by a substance.	
Comcare	Comcare is responsible for the regulatory functions of the Work Health and Safety Act 2011 as well as the Safety, Rehabilitation and Compensation Act 1988.	
Competent person	A person who has acquired through training, qualification or experience the knowledge and skills to carry out the task.	
Confined space	An enclosed or partially enclosed space that:	
	 is not designed or intended primarily to be occupied by a person; and 	
	 is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space. 	
	 is or is likely to involve a risk to health and safety from: 	
	 an atmosphere that does not have a safe oxygen level; 	
	 contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion; 	
	 harmful concentrations of any airborne contaminants; and 	
	 engulfment, but does not include a mine shaft or the workings of a mine. 	
	Defence confined spaces include, but are not limited to:	
	 storage and water tanks, bulk fuel tanks, aircraft fuel tanks, boilers, pressure vessels and other tank-like compartments; 	
	 open-topped spaces such as pits or degreasers, pipes, sewers, shafts, ducts, utility tunnels and similar structures; 	
	 any shipboard space entered through hatchways or access points, (eg cellular double bottom tanks, ballast and oil tanks and void spaces); 	
	 small electrical vaults; and 	
	 any other similarly enclosed or partially enclosed structure where the space meets the definition of a confined space. 	
Consumer products	Products that are packed or repacked primarily for use by a household consumer or for use in an office.	
Container	Anything in or by which hazardous chemicals are or have been wholly or partly cased, covered, enclosed, contained or packed, whether such a container is empty, or partially or completely full. Tanks and bulk storage containers, as defined by the <i>Australian</i> <i>Dangerous Goods Code</i> , are not included in the definition of 'container'.	

Contractor/ subcontractor	A company, firm, organisation or any individual, other than a Defence employee, contracted to provide goods and services to Defence. These persons may also be workers as defined in the <i>Work Health and Safety Act 2011</i> .	
Corrosive	A chemical which causes destruction of, or damage to, materials or living tissue on contact.	
Dangerous goods	Substances, mixtures or articles that, because of their physical, chemical (physicochemical) or acute toxicity properties, present an immediate hazard to people, property or the environment. Types of substances classified as dangerous goods include explosives, flammable liquids and gases, corrosives, chemically reactive or highly toxic substances. The criteria used to determine whether substances are classified as dangerous goods are contained in the <i>Australian Dangerous Goods</i> <i>Code</i> . The <i>Australian Dangerous Goods Code</i> contains a list of substances classified as dangerous goods.	
	 An incident iff a workplace that exposes a worker of any other person to a serious risk to their health or safety. A dangerous incident could arise from an event such as: an uncontrolled escape, spillage or leaking of a substance; an uncontrolled implosion, explosion or fire; an uncontrolled escape of gas or steam; an uncontrolled escape of a pressurised substance; an electric shock; the fall or release from a height of any plant, substance or thing; the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the <i>Work Health and Safety Regulations 2011</i>; the collapse or partial collapse of a structure; the collapse or failure of an evacuation or of any shoring supporting an evacuation; the interruption of the main system of ventilation in an underground excavation or tunnel; and any other event prescribed by the <i>Work Health and Safety Regulations 2011</i>. 	
	This does not include an incident of a prescribed kind. It is further described as an incident arising from an undertaking conducted by Defence that did not result in death, serious personal injury or incapacity, but which could have resulted in any one or more of these.	

Decanting	Decanting is the repackaging of a hazardous chemical from a suppliers original primary container into another container for use, storage or handling purposes. Decanting includes siphoning, pumping, tapping or pouring.
Dedicated store	Means a building, an enclosure, or an outdoor area that is used solely for storage. Dedicated stores are not areas where people normally work – personnel enter the store only to retrieve goods and conduct other tasks related to management of the dedicated store (eg stocktake). Dedicated stores may include petrol, oil and lubricants stores, fenced enclosures, cleaners' cupboards, etc.
Dermal	Relating to the skin.
Disposable gas containers	Are sold as retail items and include non-refillable lighters, butane lighters and barbecue gas in disposable containers.
Drum	Usually refers to a cylindrical container (and is therefore a 'package') of approximately 200L (44 gallon) capacity, although smaller and different shaped containers may also be referred to as drums. Drums may be constructed of steel (or other metals), plastic or fibreboard (for powders).
Due diligence	Due diligence in relation to health and safety means taking reasonable steps to:
	 acquire and update knowledge on health and safety matters:
	 understand the nature of operations and associated risks;
	 use appropriate resources and processes to eliminate or minimise the risks to health and safety;
	 respond promptly to information regarding incidents, hazards and risks; and
	 have processes to ensure legislative compliance.
	Under the <i>Work Health and Safety Act 2011,</i> officers of the Person Conducting a Business or Undertaking have an additional duty to verify all the above are in place.
Duty of care	The Work Health and Safety Act 2011, places a duty of care on the Person Conducting a Business or Undertaking to ensure, so far as is reasonably practicable, the health and safety of workers at work.
Embedded	To fix fast into something; used in Defence to describe articles that are, or contain, hazardous chemicals that are fixed into the fabric, structure or component parts of plant
Essential services	The supply of:
	 gas, water, sewerage, telecommunications, electricity and similar services; or
	chemicals, fuel and refrigerant in pipes or lines.
Event	An unusual happening, whether accidental or deliberate, which resulted, or could have resulted, in death or injury to personnel and/or loss or damage to property and equipment.

Exchange cylinder	A commercial liquid petroleum gas cylinder exchange program, such as 'Swap & Go', where the empty liquid petroleum gas cylinder is replaced with a full cylinder in return for the empty cylinder.
Exposure	Where a person is exposed to a hazard.
Exposure standard	 Airborne concentrations of a particular chemical or substance in the workers' breathing zone that should not cause adverse health effects or cause undue discomfort to nearly all workers. Exposure standards are legal concentration limits that must be adhered to. The exposure standard represents the airborne concentration of a particular substance or mixture that must not be exceeded. The exposure standard can be of three forms: the eight-hour time-weighted average; peak limitation; and/or short term exposure limit.
Fire resistance level	The grading applied to building materials, components and
(FRL)	structures, expressed in minutes for three criteria:
	 structural adequacy; integrity; and
	 insulation.
	The gradings are determined in accordance with AS 1530.4 - Methods for Fire Tests on Building Materials, Components and Structures – Fire Resistance Test of Elements of Construction, and are always expressed in the form (for example) 60/60/30 (ie minutes for structural adequacy/integrity/insulation). Where a fire resistance level is required, reference should be made
	to the Building Code of Australia for guidance.
Firewall	A wall or other barrier with a specified fire resistance level constructed and placed for the purpose of preventing the spread of fire.
First aid	The initial care of the injured or ill. First aid begins when a first-aid officer arrives on the scene of an incident, and continues until the casualty recovers, or medical aid arrives.
Flammable liquid	A liquid which is capable of being ignited and burning in air and which meets the criteria of the globally harmonized system for classifying and labelling chemicals.
Flashpoint	The lowest temperature in degrees Celsius at which a flammable liquid will produce enough vapour to ignite. The lower the flashpoint, the higher the risk of fire.
Frequency	A measure of the number of occurrences per unit (of) time.
Gas cylinders	Portable pressure vessels for the storage and handling of pressurised gases including Class 2 dangerous goods. Commonly gas cylinders can contain oxygen, acetylene and other welding gases (eg Argoshield), liquid petroleum gas for cooking or heating or nitrogen for purging and pressure testing. Gas cylinders are

	generally connected via piping or hoses to other equipment and the gas can be turned on and off by rotating a valve.	
General workplace	A location where the normal work tasks require the use of hazardous chemicals. The only persons present in a general workplace are those conducting work tasks, or authorised visitors or contractors. General workplaces include maintenance workshops, battery filling areas, kitchens, vehicle compounds, etc.	
Generic name	The name applied to describe a category or group of chemicals.	
Genuine research	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.	
Globally Harmonized System of Classification and Labelling of	The Globally Harmonized System of Classification and Labelling of Chemicals, 3rd revised edition, published by the United Nations as modified under the <i>Work Health and Safety Regulations 2011, Schedule 6 – Classification of mixtures.</i>	
Chemicals	Note: Work Health and Safety Regulations 2011, Schedule 6 – Classification of mixtures tables replace some tables in the Globally Harmonised System.	
Harm	Death, injury, illness (including psychological) or disease that may be suffered by a person because of a hazard or risk.	
Hazard	In relation to chemicals, a set of inherent properties of the substance, mixture, article or process that may cause adverse effects to people or the environment.	
Hazard category	A division of criteria within a hazard class in the Globally Harmonised System (eg 'Flammable Gases Category 1').	
Hazardous area	An area where an explosive atmosphere may occur continuously or intermittently, presenting a risk to safety. Hazardous areas may be present in storage and handling areas for dangerous goods with Class or Subsidiary Risk of 2.1, 3, 4 or 5 and dangerous goods that may generate combustible dusts.	
Hazardous chemical	A substance, mixture or article that satisfies the criteria for a hazard class in the Globally Harmonized System of Classification and Labelling of Chemicals (including a classification referred to in <i>Work Health and Safety Regulations 2011, Schedule 6 – Classification of mixtures</i>), but does not include a substance, mixture or article that satisfies the criteria solely for the following hazard classes:	
	 acute toxicity - oral, dermal and 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 - categories 1, 2 and 3; 	

	 chronic hazard to the aquatic environment - categories 1, 2, 3 and 4: and
	 hazardous to the ozone laver.
	Note: The Work Health and Safety Regulations 2011, Schedule 6 – Classification of mixtures tables replaces some tables in the globally harmonised system.
Hazardous chemicals store	A distinct area or portion of a building, room and enclosure; or an outdoor area, where hazardous chemicals are stored. A hazardous chemicals store may be a dedicated store, or located in a dedicated store (also used for storage of other goods). A minor hazardous chemicals store (refer to definition of minor hazardous chemicals store) may also be located in a general workplace or protected place. A hazardous chemicals store may contain one or more purpose-built chemical storage cabinets, cages, spill trays, bunded pallets and/or open storage.
Hazard class	The nature of a physical, health or environmental hazard under the globally harmonized system (eg 'Explosives', 'Flammable Gases', 'Flammable Aerosols' and 'Oxidising Gases').
Hazard classification	Provides an indication of the intrinsic hazardous properties of substances and mixtures. It involves:
	 identification of relevant data regarding the hazards of a substance or mixture;
	 subsequent review of that data to ascertain the hazards associated with the substance or mixture; and
	 a decision on whether the substance or mixture will be classified as a hazardous chemical or dangerous goods and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.
Hazard pictograms	Are specified in the Globally Harmonized System. There are nine hazard pictograms relating to physical, health and environmental hazards; they also have a related code.
Hazard statement	Describes the nature of a hazard under the Globally Harmonized System, including the degree of hazard. A unique hazard statement is assigned to each hazard class and category. The hazard statement also has a related code, eg:
	 H334 may cause allergy or asthma symptoms or breathing difficulties if inhaled; and
	H290 may be corrosive to metals.
	are used in Australia.
Health hazard	These are properties of a chemical that have the potential to cause adverse health effects.
Health monitoring	Monitoring a person to identify changes in the person's health status because of exposure to certain substances. Health monitoring involves collecting data to evaluate the effects of

	exposure and may be used to assess whether the dose is within safe levels.	
Hierarchy of controls	 A range of measures used to control hazards in the workplace, including, in order from most to least preferred: elimination; substitution; isolation; engineering; administrative; and personal protective equipment. 	
Hot work	Welding, thermal or oxygen cutting, heating and other fire-producing or spark-producing activity that may increase the risk of fire or explosion.	
Head of resident unit	The head of resident unit is responsible for input into base management activities at a unit and whole-of-establishment level.	
Ignition source	A source of energy sufficient to ignite a flammable atmosphere, and includes naked flames, smoking, exposed incandescent material, electrical welding arcs and electrical or mechanical equipment not suitable for use in the hazardous areas.	
Inflammation	A condition of a part of the human body which involves heat, swelling, redness and usually pain.	
Ingredient	Any component of a substance (including impurities) in a mixture or combination.	
In-situ filling	A cylinder-filling procedure where an installed cylinder is filled on a customer's premises by a tanker.	
In use	 Hazardous chemicals that remain in the workplace after each use, typically on workbenches or shelves, or in tool kits. In use hazardous chemicals may be present because: the hazardous chemical is used frequently and is kept on or near work areas to provide ready access (eg lubricants kept on workbenches); the location of the hazardous chemical store is remote from the workplace where the hazardous chemicals are used, and returning the hazardous chemicals to the store after each use is considered impractical; the size of the package (eg a 200L drum; full-size gas cylinder) means that it is not a simple task of returning the package to a hazardous chemical store after each use; and the hazardous chemical is connected to a system in the workplace (eg nitrogen cylinder connected to test equipment). 	
Intermediate bulk container (IBC)	Packaging of up to three cubic metres capacity that usually comprises a single receptacle. Intermediate bulk containers are	

	designed for mechanical handling and are resistant to stresses produced in handling and transport. Detailed requirements for the design and construction of Intermediate bulk containers including performance tests are included in the <i>Australian Dangerous Goods</i> <i>Code</i> . While their capacity is greater than a package, Intermediate bulk			
	containers can be stored in the same way as packages.			
Irritant	A substance with the ability to produce local irritation or inflammation on contact with tissues and membranes such as skin or eyes, or local irritation or inflammation of nasal or lung tissue.			
Label	Printed or graphical hazardous chemical information that is affixed to, or printed on, a container, pipeline or pipework conveying hazardous chemicals. The purpose of labels is to identify the chemical in the container, pipeline or pipework and inform persons of any significant hazards.			
Liquefied petroleum gas	A hydrocarbon fluid composed predominantly of any of the following hydrocarbons or mixtures of all or any of them: propane (C3H8), propylene (C3H6), butane (C4H10) or butylene (C4H8). Unless specifically stated otherwise, any reference to 'propane', 'butane', etc means the commercial grade of that product.			
Lower explosive level	In relation to a flammable gas, vapour or mist, the lower explosive level is the concentration in air below which the propagation of a flame does not occur on contact with an ignition source.			
Major spill	The unintentional release of a hazardous chemical that poses serious immediate risk to people, property and/or the environment.			
Major systems	Major systems are core components of capability, and often comprise systems of principal items in their own right, or equipment, which regularly require more detailed reporting and management			
Manifest	A manifest is a written summary of specific types of hazardous chemicals with physicochemical hazards and acute toxicity that are used, handled or stored at a workplace.			
Manifest quantity	Means the manifest quantity referred to in Schedule 11 – Placard and manifest quantities of the Work Health and Safety Regulations 2011 for the hazardous chemical.			
Maximum filling level	Means the highest liquid surface level permitted in a tank.			
Minor hazardous chemicals store	A hazardous chemical store holds a quantity of hazardous chemicals in a cupboard or building, plus the quantity of hazardous chemicals within 10 metres of the hazardous chemical store (measured from the outermost package in the hazardous chemical store). The quantity stored does not exceed the minor quantity thresholds specified in the Hazardous Chemicals Procedure 18 - Storage of Minor Quantities of Hazardous Chemicals. This distance is to be measured through dividing walls and fences, unless the dividing wall or fence is constructed of concrete or masonry to ceiling height or 3 metres above the top of the highest package in the minor hazardous chemical store (whichever is less), and 3			

	metres to either side of the minor hazardous chemical store. To be treated as separate minor hazardous chemical stores, two minor hazardous chemical stores must be separated by at least 20 metres (measured from the outermost package in each store)			
Minor spill	Defined as the unintentional release of a hazardous chemical that can be contained and cleaned up safely and immediately without posing an immediate risk to health and safety or the environment.			
Minor quantities	Quantities of hazardous chemicals that do not exceed specified thresholds. Minor quantities of hazardous chemicals are small or scattered and separated, so they present little real risk. In an emergency, minor quantities will not unduly hinder the activities of emergency personnel nor contaminate the surrounding areas.			
Mixture	A combination of, or a solution composed of, two or more substances that do not react with each other.			
Monitor	To check, supervise, observe critically or measure the progress of an activity, action or system on a regular basis in order to identify change from the performance level required or expected.			
Mutation	A change in the genetic material of cells.			
Non-return valve (check valve)	A valve which permits flow in one direction.			
Ocular	Of or affecting the eye.			
Officer	Officers of the Person Conducting a Business or Undertaking are individuals deemed to have a level of influence that allows them to make decisions about resources and processes that affect the whole or a substantial part of the business or undertaking.			
	In Defence, members of the Defence Committee are deemed to be the officers of the Person Conducting a Business or Undertaking. Defence officers are identified in the Defence Person Conducting a Business or Undertaking Officer Framework under the <i>Work Health</i> <i>and Safety Act 2011</i> .			
Orders, instructions and publications	Orders, instructions and publications – any work instruction that describes to the worker how the task is to be safely conducted. Orders, instructions and publications include hazard and control information.			
Open storage	Hazardous chemicals held in areas that are not purpose built to contain hazardous chemicals. This includes shelves, benches, compactus, cupboards, or directly on the floor or in spill trays. It does not include purpose-built chemical storage cabinets or cages. Open storage locations must still be listed as child sites in ChemAlert.			
Oral	Ingested or administered via the mouth.			
Oxidising material	Any substance which may readily liberate oxygen or be the cause of oxidation processes and, as a result, may start a fire in other			

	materials or stimulate the combustion of other materials, and therefore increase the violence of a fire		
Packages	Hazardous chemical containers are often referred to as packages when they store less than a bulk container (ie 500 litres or less; or net mass of 500 kilograms or less).		
Packing group	Number—I, II or III—applied to dangerous goods in accordance with the <i>Australian Dangerous Goods Code</i> —eg: PG I = high danger; PG II = medium danger; PG III = low danger.		
Person Conducting a Business or Undertaking	A Person Conducting a Business or Undertaking (Section 5 of the Work Health and Safety Act 2011) can be an individual, a body corporate, a government agency, a partnership or an unincorporated association. Under Section 20 of the Work Health and Safety Act 2011, a person with management or control of a workplace is a Person Conducting a Business or Undertaking to the extent that the business or undertaking involves the management or control of the workplace.		
Personal protective equipment	Personal protective equipment for hazardous chemicals is clothing or equipment designed to provide a barrier between a worker and the chemical hazard to prevent harmful exposure.		
Physicochemical-cal (safety) hazards	Physical or chemical properties of a substance, mixture or article that pose risk to workers through inappropriate handling or use and can result in injury to people and/or damage to property as a result of the intrinsic physical hazard, (eg includes flammable, corrosive, explosive, chemically reactive and oxidising chemicals). The risk does not occur as a consequence of the biological interaction of the chemical with people.		
Pipeline	A pipe work that crosses a boundary of a workplace, beginning or ending at the nearest fluid or slurry control point (along the axis of the pipeline) to the boundary.		
Pipework	A pipe or assembly of pipes, pipe fittings, valves and pipe accessories used to convey a hazardous chemical.		
Placard	A sign or notice that:		
	 is displayed or intended for display in a prominent place, or next to a container or storage area for hazardous chemicals at a workplace; and 		
	• contains information about the hazardous chemical stored in the container or storage area.		
Placard quantity	The quantity of hazardous chemical referred to in Schedule 11 – Placard and manifest quantities of the Work Health and Safety Regulations 2011.		
Plant	Any machinery, equipment (including scaffolding), appliance, implement or tool, and any relevant component, fitting or accessory.		

Poisons schedule	The listing of substances requiring specific labelling and precautions in use. <i>The Standard for the Uniform Scheduling of Medicines and Poisons</i> is the basis for state and territory poisons legislation.	
Pressure piping	An assembly of pipes, pipe fittings, valves and pipe accessories subject to internal or external pressure, used to contain or convey liquid or to transmit liquid pressure and:	
	 includes distribution headers, bolting, gaskets, pipe supports and pressure containing accessories; but does not include a boiler or pressure vessel. 	
Precautionary statements	Under the Globally Harmonised System, 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. A unique code is assigned to each precautionary statement.	
Proper shipping name	If classified as dangerous goods by the <i>Australian Dangerous Good</i> <i>Code</i> an article or substance must be allocated a proper shipping name. Where an article or substance is specifically listed by name in chapter 3.2 of the <i>Australian Dangerous Good Code</i> , it must be identified in transport by the proper shipping name in the <i>Dangerous</i> <i>Goods List</i> . For dangerous goods not specifically listed by name, 'generic' or 'not otherwise specified' entries are provided to identify the article or substance in transport.	
Protected place / protected workplace	Locations such as offices, training and educational facilities, medical facilities, places of worship, dining areas, theatres, sporting facilities, accommodation facilities and any building or open area in which people are accustomed to assemble in large numbers. Unlike general workplaces, normal work tasks conducted in these locations do not normally require the use of hazardous chemicals (eg office work) and/or persons will be present in the protected place who are not involved in their normal work activities (eg participant in training course, patient at medical facility, user of sports facilities).	
Public place	Any place, other than private property, open to the public and including a street or road. Parking areas for commercial and public buildings are not treated as public places.	
Purpose-built chemical storage	A cabinet or cage that is designed and purpose-built to store specific classes of chemicals and meets the requirements of the relevant <i>Australian Standards</i> .	
Purpose-built chemical storage units	These are commercially available structures that have been designed and purpose-built to store hazardous chemicals that have a capacity greater than storage cabinets or cages. The suppliers of these storage units should provide certification of compliance with the relevant <i>Australian Standard</i> . In most cases, these units are intended for the storage of flammable and/or combustible liquids.	
Pyrophoric solid/liquid	A liquid or solid which, even in small quantities, is likely to ignite within five minutes after coming in contact with air.	

Quantity	For a hazardous chemical in a container or storage or handling system, the quantity is:			
	 the mass of the chemical in kilograms—for chemicals other than liquids and gases; 			
	 the net capacity in litres—for a liquid; 			
	 for a gas or gas under pressure, the water capacity of the container/storage/handling system in litres; 			
	 for a hazardous chemical that is not a liquid and is in bulk and not in a container, the undivided mass in kilograms; and 			
	 for a hazardous chemical that is a thing (and not a gas), the net capacity of the part of the thing that comprises a hazardous chemical. 			
Reactivity	The ability to readily undergo chemical change.			
Reasonably practicable	In relation to a duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including:			
	 the likelihood of the hazard or the risk concerned occurring; 			
	 the degree of harm that might result from the hazard or the risk; 			
	 what the person concerned knows, or ought to reasonably know about the hazard or risk; 			
	 ways of eliminating or minimising the risk; 			
	 the availability and suitability of ways to eliminate or minimise the risk; and 			
	 after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk. 			
Regulator	A device which automatically regulates the outlet pressure of gas passing through it to a predetermined limit.			
Remote or isolated work	Work that is isolated from other workers because of the location, time or nature of the work. For the purposes of the hazardous chemical suite of procedures, remote or isolated work includes work undertaken in confined spaces.			
Risk	The possibility that injury, illness or death might occur when a worker is exposed to a hazard. Risk is an expression of the likelihood and consequence of an event with potential to influence the achievement of Defence objectives.			
Risk control	The process of managing the elimination or minimisation of a risk. This may be an object, work process or system of work.			

Risk assessment	The overall process of risk analysis and risk evaluation. It is the process of evaluating the likelihood and consequences of injury or illness arising from exposure to an identified hazard or hazards.			
Risk management	The culture, processes and structures that are directed towards promoting health and safety by the management of hazards and risks within an organisation.			
Safe work practice	The method for performing a task safely to ensure the minimum risk to people, equipment, materials, environment and processes.			
Safe work procedures	Document the correct step-by-step methods for performing activities associated with use, storage and handling of hazardous chemicals. In Defence, safe work procedures are documented in Orders, instructions and publications.			
Safety data sheet	A document prepared by the manufacturer or importer that describes the chemical and physical properties of a chemical and provides advice on its safe use, handling and storage. The safety data sheets are the primary source of information for a particular hazardous chemical.			
Safety sign	A board, plaque or other designated space on which a combination of text, and/or symbols is used to convey a message. If a safety sign is required under the Work Health and Safety Regulations 2011 to control an identified risk in relation to hazardous chemicals at a workplace, a safety sign must be displayed at the workplace to warn of a particular hazard associated with the hazardous chemicals and/or to state the responsibilities of a particular person in relation to the hazardous chemicals.			
Scheduled poison	A substance classified under the Standard for the Uniform Scheduling of Medicine and Poisons.			
Schedule 11 hazardous chemicals	Those identified in Schedule 11 – Placard and manifest quantities of the Work Health and Safety Regulations 2011.			
Segregation	The term used to describe the isolation of one type of hazardous chemical from other hazardous chemicals, substances or items that are incompatible. The intention of segregation is to prevent the mixing of incompatibles. This can be achieved by the use of an impervious barrier or by a distance sufficient to prevent contamination.			
Sensitisation	To become sensitive/allergic to the effects of a substance.			
Separation	The term used to describe the isolation of hazardous chemical stores from people or property (including beyond the boundaries of the premises) and other hazardous chemicals stores, in order to control risks. Separation fulfils a number of purposes:			
	 protecting occupancies from hazardous chemicals; and 			
	protecting hazardous chemicals from other occupancies;			
	The aim is to minimise the quantity of hazardous chemicals that might be involved in an incident such as a fire.			

	The use of distance, effective barriers (such as fire-rated walls or vapour barriers) or a combination of both may achieve the required separation.				
Signal words	Used to indicate the relative level of severity of a hazard. The Globally Harmonised System uses DANGER and WARNING as signal words. DANGER is used for the more severe or significant hazards and WARNING is used for the less severe hazards. Only one signal word should be present. Signal words should be bold and uppercase.				
Significant risk	Means that people in the workplace are likely to be exposed at a level that could adversely affect their health, eg there may be a 'significant risk' if the exposure is high, the substance used is highly toxic, or it is reasonably foreseeable that leaks or spills of a hazardous chemical might occur.				
Spill containment system	Anything that contains a spill of hazardous chemicals. Spill containment can be provided by a bund, a purpose-built chemical storage cabinet, a spill tray or a bunded pallet.				
Spill/ containment tray	An impervious tray or secondary container of a size suitable for the package or container being stored.				
Standard filling level	 The highest liquid surface level permitted in a container for a liquefied petroleum gas of specified density, assuming a liquid temperature of 5°C. It provides the location for the sensing point of the liquid level gauge. The standard filling level represents a safe but conservative filling level for a container for any liquefied petroleum gas whose density 				
	Is equal to or higher than that for which the level was set, and whose temperature at the time of filling is 5°C or higher, the object being to ensure that the tank does not become subject to hydrostatic pressure under design condition.				
Subsidiary risk	Assigned to dangerous goods when a substance has the hazards of more than one class or division of dangerous goods. Such substances are assigned to a class or division according to their predominant hazard and the other hazard(s) are called subsidiary risks.				
Substance	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.				
Supplier	A person conducting a business or undertaking that supplies:				
	 plant that is to be used, or could reasonably be expected to be used as, or at, a workplace; and/or 				
	 a substance that is to be used, or could reasonably be expected to be used, at a workplace; and/or 				

	 a structure that is to be used, or could reasonably be 				
	expected to be used as, or at, a workplace.				
Supply	The meaning of supply:				
	• A supply of a thing includes a supply and a resupply of the thing by way of sale, exchange, lease, hire or hire-purchase, whether as principal or agent.				
	• A supply of a thing occurs on the passing of possession of the thing to the person or an agent of the person to be supplied.				
	A supply of a thing does not include:				
	• The return of possession of a thing to the owner of the thing at the end of a lease or other agreement; or				
	A prescribed supply				
Standard for the Uniform Scheduling of Medicines and Poisons	The Australian <i>Standard for the Uniform Scheduling of Medicines and Poisons</i> , eg 'Poison S6'.				
System safety	The application of engineering and management principles, criteria and techniques to optimise all aspects of safety within the constraints of operational effectiveness, time and cost throughout all phases of the system lifecycle. Refer to United States of America, Department of Defense, <i>Standard Practice – System Safety (MIL-</i> <i>STD-882)</i> .				
Teratogenic	Able to cause birth defects.				
Therapeutic goods	Drugs, medicines and pharmaceuticals which, when applied internally or externally to humans or animals: prevent, diagnose, cure, alleviate or aid recovery from illness or injury; provide relief from pain or discomfort; prevent or reduce the likelihood of disease; test the susceptibility of persons or animals to a disease or ailment; and influence, control, test for or prevent conception.				
Toxic effect	The property of an agent producing damage to an organism. This usually refers to functional (systemic) damage but may be developmental in respect of tissue and skeleton in the case of the embryo. The damage may be permanent or temporary.				
United Nations Number	United Nations Number is a four-digit number, which is specified in the <i>Australian Dangerous Goods Code</i> . If classified as dangerous goods by the <i>Australian Dangerous Goods Code</i> , an article or substance must be allocated a united nations number.				
Volatile	Describes a chemical that evaporates or vaporises rapidly at room temperature (eg a chemical with a low boiling point).				
Worker	A worker is a person who carries out work in any capacity for a person conducting a business or undertaking, including work as:				
	an employee;				
	 a contractor or subcontractor; 				

	•	an employee of a contractor or subcontractor;		
	•	an employee of a labour hire company who has been assigned to work in the business or undertaking;		
	•	an outworker;		
	•	an apprentice or trainee;		
	•	a student gaining work experience;		
	•	a volunteer; and		
	•	a person of a prescribed class.		
	For th	 For this procedure, a member of the Australian Defence Force is: a worker; at work throughout the time when the person is lawfully performing the functions of a member of the Defence Force, but not otherwise; 		
	•			
	•			
	•	carrying out work for a business or undertaking conducted by the Commonwealth when the person is lawfully performing those functions, but not otherwise; and		
	•	an employee of the Commonwealth.		
Workplace	Any place where work is carried out for Defence and includes any place where a worker goes, or is likely to be, while at work. Workplace includes a vehicle, vessel, aircraft or other mobile structure; and any waters and any installation on land, on the bed of any waters or floating on any waters.			
	In Defence they include, but are not restricted to, any of the following areas:			
	• offices;			
	•	laboratories;		
	•	stores and storage facilities;		
	•	workshops and workshop areas;		
	•	training grounds/training exercises;		
	 military and non-military operations; 			
	•	road transport;		
	•	naval vessels;		
	•	aircraft;		
	•	 overseas missions; 		
	•	 training establishments; 		
	•	 a workplace does not include any part of such premises that are primarily used as a private dwelling; and 		
	•	any other location where Defence workers are tasked to conduct an activity or undertake any type of work, either indoors or outdoors.		

References and related documents

- <u>Work Health and Safety Act 2011</u> Schedule 6 Classification of mixtures, Schedule 11 -Placard and manifest quantities, Section 5 – Meaning of person conducting a business or undertaking, Section 20 – Duty of persons conducting business or undertakings involving management or control of workplaces
- 4. Work Health and Safety Regulations 2011
- 5. Safety, Rehabilitation and Compensation Act 1988
- 6. <u>Australian Code for the Transport of Dangerous Goods by Road and Rail Edition 7.5</u>
- 7. Australian Dangerous Goods Code
- 8. <u>Australian Standards</u> 1530.4 Methods for Fire Tests on Building Materials, Components and Structures Fire Resistance Test of Elements of Construction
- 9. <u>The Globally Harmonized System of Classification and Labelling of Chemicals</u>, 3rd revised edition
- 10. Building Code of Australia
- 11. The Standard for the Uniform Scheduling of Medicines and Poisons
- 12. <u>United States of America, Department of Defense, Standard Practice System Safety</u> (MIL-STD-882)

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Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 02 - Hazardous **Chemicals Classification**

- 1. This procedure provides information about how the hazardous chemicals classification system is used in the effective management of hazardous chemicals.
- 2. For further information refer to SafetyMan, Hazardous Chemicals Management Policy and Guidance.

Classifying hazardous chemicals under the Work Health and Safety Regulations 2011

- 3. The Work Health and Safety Regulations 2011 require chemical classification and hazard communication on labels and safety data sheets to be based on the United Nations Globally Harmonized System of Classification and Labelling of Chemicals, Revision 7 (GHS 7).
- GHS 7 was developed by the United Nations to create a single, global methodology for 4. chemical classification and hazard communication using labelling and safety data sheets. It gives users practical, consistent and easy to understand information on chemical hazards and helps them take the appropriate preventive and protective measures for their health and safety.
- 5. In GHS 7, hazards are communicated to users through a combination of symbols and words in the form of signal words, hazard statements and precautionary statements.

How to classify hazardous chemicals under the Globally Harmonized System

- Under the Regulations chemicals must be classified as hazardous using GHS 7. 6.
- Safe Work Australia has also published documents which provide guidance on the 7. classification of hazardous chemicals.

Other classification systems

- In Australia, chemical use is covered by four major Commonwealth schemes of registration 8. and assessment, including:
 - 8.1. Australian Pesticides and Veterinary Medicine Authority - for agricultural or veterinary chemicals;
 - 8.2. Therapeutic Goods Administration – for medicines and medicinal products;
 - 8.3. Standard for the Uniform Scheduling of Medicines and Poisons; and
 - Food Standards Australia New Zealand (FSANZ) for food additives and 8.4. contaminants.
- 9. In addition, there is the Australian Industrial Chemicals Introduction Scheme (AICIS), which replaced the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) for industrial chemicals.

Agricultural and veterinary products

10. Under the Work Health and Safety Regulations 2011, a hazardous chemical that is an agricultural or veterinary chemical is correctly labelled if it is labelled in accordance with the requirements of the Australian Pesticides and Veterinary Medicines Authority. In addition,



the Work Health and Safety Regulations 2011 do not apply to veterinary chemical products within the meaning of the Agricultural and Veterinary Chemicals Code 1994 at the point of intentional administration to animals.

Therapeutic goods and the standard for the uniform scheduling of medicines and poisons

- 11. The *Therapeutic Goods Act 1989* sets out the legal requirements for the import, export, manufacture and supply of medicines in Australia.
- 12. The Standard for the Uniform Scheduling of Medicines and Poisons sets out a uniform national approach to medicine availability, labelling and packaging.
- 13. For therapeutic goods (within the meaning of the Therapeutic Goods Act) that are also hazardous chemicals, the Work Health and Safety Regulations 2011 apply when they are handled as part of work activity up until the point of intentional intake by, or administration to humans.
- 14. When not in a form intended for human intake or for therapeutic purposes, work health and safety workplace labelling must be used. For example, when a pharmacist uses a one-kilogram container of a chemical to make a product, the container must be labelled according to workplace labelling requirements under the work health and safety legislation. In contrast, when a pharmacist repacks a one-kilogram container of tablets of the same chemical into smaller containers for dispensing to patients, the one-kilogram container must comply with Therapeutic Goods Administration labelling requirements.

Food and beverages

- 15. The Work Health and Safety Regulations 2011 relating to hazardous chemicals do not apply to food and beverages within the meaning of the FSANZ, Food Standards Code that are in a package and form intended for human consumption.
- 16. However, large or bulk quantities must be labelled to meet workplace requirements. For example, a 1000-litre container of flammable alcoholic spirits must be labelled to meet the requirements of the Work Health and Safety Regulations 2011, while a 750 millilitre bottle of the same spirits does not.

Australian Industrial Chemicals Introduction Scheme

- 17. The Industrial Chemicals Act 2019 (IC Act) replaced the Industrial Chemicals (Notification and Assessment) Act 1989.
- 18. Industrial chemicals include dyes, solvents, adhesives, plastics, laboratory chemicals, paints and chemicals used in cleaning products and cosmetics.
- 19. Under the AICIS, all new industrial chemicals must be notified and assessed for their potential effects on human health and safety and the environment before their importation into, or manufacture in, Australia. Generally, this will only apply to chemicals imported by Defence Science and Technology Group. Capability Acquisition and Sustainment Group should be contacted for further information about the scheme.

Nanomaterials and nano-containing products

- 20. The hazards and risks associated with materials and products that contain nano sized particles (less than 100 nm) is required under the hazardous chemicals legislation. Where they exist, nanomaterials should be identified in the safety data sheet.
- 21. Defence has developed a guide for the classification of risk of nanomaterials and methods for their safe handling: Safe Handling of Nanomaterials in Defence Workplaces. This guide is applicable to research and industrial application of nanomaterials with Defence.
Dangerous goods

 Many hazardous chemical containers are dangerous goods under the Australian Dangerous Goods Code. Dangerous goods are covered in Hazardous Chemicals Management Procedure 27 - Transport of Hazardous Chemicals and Dangerous Goods.

References and related documents

- 23. Industrial Chemicals Act 2019
- 24. Therapeutic Goods Act 1989
- 25. Work Health and Safety Act 2011
- 26. Work Health and Safety Regulations 2011
- 27. <u>Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]</u>, 3rd edition, Oct 2004
- 28. <u>Australian Code for the Transport of Dangerous Goods by Road & Rail</u> (ADG Code), Edition 7.7, 2020
- 29. Chemicals of Security Concern
- 30. Codes of Practice, via Comcare:
 - 30.1. Labelling of Workplace Hazardous Chemicals Code of Practice
 - 30.2. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice
- 31. Food Standards Code, Food Standards Australia New Zealand (FSANZ)
- 32. <u>Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision</u> <u>7</u> (GHS 7). Purchase from the United Nations Bookshop. Although there is also a GHS 8, Australia adopted GHS 7 from 1 Jan 2021.
- 33. <u>Guidance on the Classification of Hazardous Chemicals Under the WHS Regulations (April 2012)</u>, Safe Work Australia
- 34. Hazardous Chemical Information System (HCIS), Safe Work Australia
- 35. Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP), the <u>Poisons</u> <u>Standard</u>

SafetyMan

36. Hazardous Chemicals Management Policy and Guidance

Other resources

37. Safe Handling of Nanomaterials in Defence Workplaces Guide

Document reference	SafetyMan, Hazardous Chemicals Management Procedure 02 - Hazardous Chemicals Classification			
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Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 03 - Prohibited Carcinogens, Restricted Carcinogens and Restricted Hazardous Chemicals

- This procedure provides information on prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals and relates to SafetyMan, Hazardous Chemicals Management Policy and Guidance. This procedure covers the process for seeking Comcare authorisation to use chemicals outlined in the Work Health and Safety Regulations 2011, Schedule 10 – Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
- 2. The aim of this part of the legislation is to limit access to and use of carcinogens.
- 3. Focus on elimination or safer substitution of carcinogens.
- 4. Health surveillance is required where carcinogens are used, handled or stored.
- 5. Workers are to be informed about the Defence Asbestos and Hazardous Chemicals Exposure Scheme (DAHCES).

Work Health and Safety Regulations 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals

- 6. Schedule 10, Table 10.1 of the Regulations sets out substances that are classified as prohibited carcinogens, and Table 10.2 sets out restricted carcinogens.
- 7. Schedule 10, Table 10.3 of the Regulations lists restricted hazardous chemicals and sets out restrictions on their use.
- 8. **Prohibited carcinogens**. Authorisation from Comcare is required prior to procuring, using, handling or storing prohibited carcinogens. The use of prohibited carcinogens must be for genuine research or analysis.
- 9. **Restricted carcinogens**. Authorisation from Comcare is required prior to procuring or using restricted carcinogens. The use of restricted carcinogens must be for genuine research or analysis.
- 10. Groups and Services must not direct or allow workers to use, handle or store prohibited carcinogens unless Comcare has authorised the use, handling and storage of the restricted carcinogen.

Applying for authorisation

- 11. All applications for use, handling and storage of restricted carcinogens are to be referred to the Defence Work Health and Safety Branch, where applications will be vetted prior to lodgement with Comcare.
- 12. Risk management procedures must be attached to the application; which include:
 - 12.1. detailed risk assessments undertaken by the PCBU for the carcinogen;
 - 12.2. safe work method statements for all activities the carcinogen is used for;
 - 12.3. safety data sheets for the carcinogen;
 - 12.4. any additional internal policies and/or procedures that are referenced as part of the application; and

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- 12.5. any monitoring results that confirm the controls related to exposure are effective.
- 13. To apply for authorisation:
 - 13.1. complete the Comcare form Application for Authorisation to Use, Handle or Store Prohibited and Restricted Carcinogens; and
 - 13.2. email the completed form and supporting documentation to whs.hazchem@defence.gov.au, who will forward the completed form and documentation to Comcare.
- 14. In the event that information given in the application for authorisation changes, Comcare must be advised in writing as soon as is reasonably practicable after becoming aware of the change.
- 15. Comcare will authorise the use, handling or storage of a prohibited carcinogen only for genuine research or analysis.
- 16. Comcare will authorise the use, handling or storage of a restricted carcinogen for the purposes described in Schedule 10, Table 10.2, Column 3 of the Regulations for the item.
- 17. A decision by Comcare to refuse to grant an authorisation is a reviewable decision.
- 18. Comcare may cancel an authorisation to use, handle or store a prohibited or restricted carcinogen if satisfied that:
 - 18.1. Defence has not complied with a condition on the authorisation; or
 - 18.2. the risk to health and safety of a worker has changed since the authorisation was given.
- 19. A decision by Comcare to cancel an authorisation is a reviewable decision.

Recordkeeping requirements

- 20. The following records must be kept for 30 years after the authorisation ends:
 - 20.1. a copy of each authorisation given to Defence including any conditions imposed; and
 - 20.2. the full name, date of birth and address of each worker likely to be, or to have been, exposed to the prohibited carcinogen or restricted carcinogen during the period of the authorisation.
- 21. Further details on recordkeeping are provided in SafetyMan, Hazardous Chemicals Management Procedure 14 Recordkeeping for Hazardous Chemicals.

References and related documents

- 22. Work Health and Safety Act 2011
- 23. Work Health and Safety Regulations 2011, Chapter 7
- 24. Codes of Practice, via Comcare:
 - 24.1. Labelling of Workplace Hazardous Chemicals
 - 24.2. Managing Risks of Hazardous Chemicals in the Workplace
- 25. <u>Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision</u> <u>7</u> (GHS 7). Purchase from the United Nations Bookshop. Although there is also a GHS 8, Australia is adopting GHS 7 from 1 Jan 2021.
- 26. Applications for an Authority to Use, Handle or Store Carcinogens, Comcare
- 27. Guide on Authorisations to Use, Handle or Store Carcinogens, Comcare

28. <u>Application for Authorisation to Use, Handle or Store Prohibited and Restricted</u> <u>Carcinogens</u>, Comcare

SafetyMan

29. <u>Hazardous Chemicals Management Procedure 14 – Recordkeeping for Hazardous</u> <u>Chemicals</u>

Other resources

- 30. Defence Asbestos and Hazardous Chemicals Exposure Scheme (DAHCES)
- 31. <u>Guidance on the Interpretation of Workplace Exposure Standards for Airborne</u> <u>Contaminants</u>, Safe Work Australia

Document reference	SafetyMan, Hazardous Chemicals Management Procedure 03 - Prohibited Carcinogens, Restricted Carcinogens and Restricted Hazardous Chemicals			
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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 04 - Exempt and Consumer Products

 This procedure provides work health and safety information for implementing the SafetyMan - Hazardous Chemicals Management Policy and Guidance, and for managing those hazardous chemicals that are considered consumer products and are exempt from the requirements in the Work Health and Safety Regulations 2011, Chapter 7, Part 7.1— Hazardous chemicals. See References and related documents below.

Exemptions

- 2. Regulation 328, Application of Part 7.1 lists the exemptions from the requirements in Chapter 7, Hazardous Chemicals.
- 3. Where the items listed are used in a manner not described in regulation 328, or are used, handled or stored as part of a work practice, they must be managed as a hazardous chemical according to the Regulations overall.
- 4. For exempt chemicals there is still an obligation under the *Work Health and Safety Act* 2011 to minimise risk to worker health and safety, so far as is reasonably practicable.

Consumer products

- 5. A consumer product is a hazardous chemical that has been packed or repacked primarily for use by a household consumer; in a manner and quantity consistent with normal household use; and its use in the workplace is incidental to the nature of the work ordinarily performed by the worker using the hazardous chemical.
- 6. The following examples show how to distinguish a consumer product:
 - 6.1. **Surface cleaner**. Surface cleaner containing bleach is sold in 750ml containers to household consumers and in 20-litre containers to commercial cleaning businesses. The surface cleaner in a 750ml bottle is purchased for use in the workplace. The product is appropriately labelled and is used occasionally by office workers in accordance with the manufacturer's instructions to clean desk tops. The product is classified as a hazardous chemical and on checking the safety data sheet (SDS) you conclude that there is an insignificant risk to health and safety. You may conclude that the chemical is a consumer product. In contrast, the same surface cleaner is supplied in 20-litre containers and decanted into 750ml bottles by the workplace cleaner to use in the course of their duties. In this circumstance the product is used in a work process and must be treated as a workplace hazardous chemical.
 - 6.2. **Laundry detergent**. A laundry detergent is packaged in a 1kg container and used once a week by individual workers to wash work clothes. You may conclude that the product is a consumer product. A 30kg container of the same detergent is used in a commercial laundering business. It is not considered to be a consumer product and must be treated as a workplace hazardous chemical.
- 7. Hazardous chemicals used in an office, eg printer toner and whiteboard cleaners, can also be classified as consumer products.
- 8. To ensure Defence meets minimum legislative requirements in relation to use of hazardous chemicals, the following actions with regard to consumer products must be adhered to:
 - 8.1. product labels must be legible;

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- 8.2. products must be packed in a way and in a quantity in which it is intended to be used for consumer or office use; and
- 8.3. products must be stored and used in accordance with instructions on the label.
- 9. A SDS is not required for a consumer product. Additionally, there is no requirement to register a consumer product in ChemAlert.
- 10. **Illegible label**. If the label on a consumer product becomes illegible, then email a GHS 7–compliant SDS to whs.hazchem@defence.gov.au, and explain the situation. The label will then be made available to print.

Packaging requirements for consumer products that are scheduled poisons

- 11. There are numerous hazardous chemicals commonly used on Defence sites that are classified as consumer products which also fall under the packaging and labelling requirements of the Standard for Uniform Scheduling of Drugs and Poisons. These may include products such as:
 - 11.1. dishwashing machine tablets, powders and liquids; and
 - 11.2. designated solvents, eg methylated spirits, white spirits and kerosene.
- 12. These common chemicals, packaged in amounts of certain quantities—see the linked Poisons Standard below for specific quantities—require child-resistant closures and specialised markings to be embossed on the container. For example:
 - 12.1. Schedule S5 CAUTION;
 - 12.2. Schedule S6 POISON; and
 - 12.3. Schedule S7 DANGEROUS POISON.
- 13. In some instances, an indelible label or an adhesive label is satisfactory.
- 14. The schedule number for a therapeutic good or scheduled poison can typically be found on its SDS or on the container label. It is generally written as an uppercase 'S' followed by the corresponding numeral, eg the schedule number for domestic poison is written as S5. Contact your Unit Hazardous Chemicals Safety Advisor if you are unsure.

References and related documents

- 15. Agricultural and Veterinary Chemicals Code Act 1994
- 16. <u>Therapeutic Goods Act 1989</u>
- 17. Work Health and Safety Act 2011
- 18. Work Health and Safety Regulations 2011
- 19. Codes of Practice, via Comcare:
 - 19.1. Labelling of Workplace Hazardous Chemicals Code of Practice
 - 19.2. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice
- 20. Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP), the <u>Poisons</u> <u>Standard</u>
- 21. <u>Australian Code for the Transport of Dangerous Goods by Road & Rail</u> (ADG Code), Edition 7.7, 2020
- <u>Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision</u> <u>7</u> (GHS 7). Purchase from the United Nations Bookshop. Although there is also a GHS 8, Australia is adopting GHS 7 from 1 Jan 2021.

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 05 - Therapeutic Goods And Scheduled Poisons

1. This procedure provides work health and safety information relating to the *SafetyMan* - *Hazardous Chemicals Management Policy and Guidance*. The procedure applies to therapeutic goods and scheduled poisons used, handled or stored in the workplace as part of a work activity up until the point of intentional intake by, or administration to, humans. It does not apply to therapeutic goods for personal use or items supplied in first aid kits.

Therapeutic goods and hazardous chemicals

- 2. For therapeutic goods within the meaning of the *Therapeutic Goods Act 1989* (defines the requirements for inclusion of therapeutic goods in the Australian Register of Therapeutic Goods, including labelling, advertising, product appearance and appeal guidelines) that are also hazardous chemicals, the *Work Health and Safety Regulations 2011* will apply when those goods are handled as part of work activity up until the point of intentional intake by, or administration to, humans.
- 3. Where therapeutic goods are also hazardous chemicals and are used as part of a work process, they are subject to the requirements outlined in the *Work Health and Safety Regulations 2011* and therefore the following guidelines must be followed:
 - 3.1. ensure that all policies and procedures for the elimination and control of risks from hazardous chemicals are also applied to the therapeutic goods (where appropriate);
 - 3.2. ensure each therapeutic good has compliant labelling, signage, packaging and safety data sheet;
 - 3.3. identify the hazardous classification (and relevant requirements for storage, handling and use) of each therapeutic good from the safety data sheet, label and from the relevant *Standard for the Uniform Scheduling of Medicines and Poisons* schedule;
 - 3.4. ensure appropriate storage facilities have been established prior to acquisition;
 - 3.5. ensure appropriate access procedures have been established and are enforced;
 - 3.6. ensure personnel handling hazardous chemicals receive relevant training, instruction and supervision;
 - 3.7. obtain a poisons permit and establish a poisons control plan (where relevant);
 - 3.8. establish and maintain a register of all therapeutic goods (and additional registers where indicated by the *Standard for the Uniform Scheduling of Medicines and Poisons* schedule; and
 - 3.9. ensure all hazardous chemical stockholdings are registered in ChemAlert.

Reference and related documents

- 4. Work Health and Safety Act 2011
- 5. Work Health and Safety Regulations 2011

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- 6. Therapeutic Goods Act 1989
- 7. Poisons Standard 2017 including the Standard for the Uniform Scheduling of Medicines and Poisons
- 8. Best practice guideline on prescription medicine labelling, Therapeutic Goods Administration, November 2008

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management

- 1. This procedure provides guidance on how to manage health and safety risks associated with hazardous chemicals which are stored, handled or generated in Defence workplaces.
- 2. For further information refer to SafetyMan Hazardous Chemicals Management Policy and Guidance.

Responsibilities

3. The following table briefly summarises the key Defence responsibilities in relation to hazardous chemicals risk management.

Key responsibilities					
Sponsors	The Defence unit that specifies the use of a hazardous chemical is the sponsor. The sponsor may be internal or external to the workplace that uses the hazardous chemical.				
	Whether the sponsor is internal or external to the workplace, the sponsor is responsible for ensuring the risk management process is conducted and hazards and controls are communicated in orders, instructions and publications as well as the required training courses.				
	Contracted specified products				
	When contractors develop orders, instructions and publications on behalf of Defence (ie the Systems Program Office is fully contracted), the Defence contract manager is responsible for ensuring orders, instructions and publications are appropriately risk assessed and information about hazards and controls is included in the orders, instructions and publications.				
Workplace	The workplace retains a responsibility to review the hazardous chemicals risk assessment and implement the specified controls. Where controls are inadequate, the workplace should contact the sponsor organisation to request a review of the hazardous chemical risk assessment and liaise with the sponsor organisation to mitigate any risks where identified.				

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Step 1- Identify chemical hazards

4. Identifying chemical hazards is an important step in the risk management process; an unidentified hazard cannot be controlled. A manufacturer or importer must determine the hazards of a chemical. The hazard information is provided to the user through labels and safety data sheets although all information sources, including product specification, codes of practice and other guidance documents should also be considered.

Step 2 - Assess risks

- 5. A useful tool to assess the risk of the chemical is located in the SafetyMan Work Health and Safety Risk Management Procedure 04 Work Health and Safety Risk Matrix. The information gathered during the identification phase can be analysed to identify the consequences and likelihood of exposure to the hazardous chemical. This will help to determine:
 - 5.1. the hazard severity;
 - 5.2. whether existing control measures are effective;
 - 5.3. what action is needed to further control the risk; and
 - 5.4. the urgency of the action to be taken.
- 6. This procedure should be used in conjunction with SafetyMan Hazardous Chemicals Management Procedure 07 - Hazardous Chemicals Risk Assessment.
- 7. The Defence harmonised work health and safety risk matrix is to be used if a risk matrix is required.

Step 3 – Control risks

- 8. Control measures are used to eliminate or minimise risks from hazardous chemicals, so far as is reasonably practicable. Controls should include both measures to prevent harmful occurrences and measures for recovery should a harmful event occur.
- 9. Any risks to health and safety from hazardous chemicals must be controlled by implementing measures using the hierarchy of controls.

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- 10. The primary aim is to eliminate a hazard. If this is not reasonably practicable, the associated risk must be minimised by using one or more of the following strategies; substitution, isolation and engineering controls.
- 11. After these strategies have been implemented (so far as is reasonably practicable), the residual risk may be reduced by administrative controls and, as the final strategy, personal protective equipment may be used. Both administrative control measures and personal protective equipment rely on human behaviour and supervision and when used on their own, tend to be the least effective ways of minimising risks.
- 12. A combination of controls should be used where a single control is not sufficient to minimise risk to health and safety.
- 13. Control measures should also be separated into preventative controls to reduce the likelihood of harm occurring, and recovery controls that are used to minimise the impact.
- 14. When using the hierarchy of controls it is important to understand the effects of the control measures—control measures should not introduce new health and safety issues.
- 15. The *Work Health and Safety Regulations 2011* require the implemented control measures to remain effective. This includes checking that the control measures are fit for purpose, suitable for the nature and duration of the work and are installed and used correctly.

Step 4 - Review control measures

- 16. Hazardous chemical risk assessments and control measures must be reviewed and revised in consultation with workers in the following circumstances:
 - 16.1. a control measure does not control the risk it was implemented to control;
 - 16.2. before any change to processes/procedures/chemicals/materials is implemented at the workplace which could create new or different risks that extant control measures cannot effectively control;
 - 16.3. a new hazard or risk is identified;
 - 16.4. consultation indicates that a review is necessary;
 - 16.5. a safety data sheet or the register of hazardous chemicals is changed;
 - 16.6. a health monitoring report for a worker indicates exposure;
 - 16.7. atmospheric monitoring indicates that the airborne concentration of a hazardous chemical at the workplace exceeds the exposure standard;
 - 16.8. before five years have elapsed since the previous review;
 - 16.9. a notifiable incident occurs; and
 - 16.10. a health and safety representative requests a review.

Preventive and ongoing risk management

17. Risk management should be a preventive process. The risk management process should be undertaken during task design or as early as possible in the acquisition process. Risk management must be completed prior to a hazardous chemical being approved for use and prior to conducting a work process that would produce a hazardous chemical as a by-product.

- 18. Managing hazardous chemical risks is an ongoing process that is triggered by changes or planned changes to work activities. This includes, for example, when:
 - 18.1. there is change in work practices, procedures or the working environment;
 - 18.2. designing or planning processes, plant, equipment, platforms, substances, structures, places;
 - 18.3. new or different plant, equipment, chemicals or materials are introduced;
 - 18.4. new information becomes available about risks in the workplace;
 - 18.5. an incident occurs (including near miss incidents);
 - 18.6. a concern is raised by a worker or a health and safety representative in relation to a risk; or
 - 18.7. changes are required by the *Work Health and Safety Regulations 2011* for specific hazards.

Safer Substitution

- 19. Safer substitution is the process of reducing the risk of exposure by eliminating the use of a hazardous chemical or substituting it with a lower risk hazardous chemical or alternative non-hazardous product.
- 20. A risk assessment should be conducted on each new hazardous chemical to determine whether the chemical can be eliminated or substituted with a safer chemical to reduce the risk.
- 21. If a hazardous chemical can be eliminated or substituted for another chemical, fitness for purpose and evidence of a lower hazard type needs to be demonstrated, before substitution occurs. In the selection of safer chemicals, the following factors should be taken into account:
 - 21.1. technical specifications for the task for which the product is used;
 - 21.2. toxicity (including the effect of concentration of constituents on overall toxicity of a product);
 - 21.3. other physicochemical properties of the product, including those properties required for the product to meet technical specifications;
 - 21.4. other legislative requirements;
 - 21.5. disposal;
 - 21.6. availability;
 - 21.7. handling and storage requirements;
 - 21.8. exposure potential;
 - 21.9. compliance with Work Health and Safety Regulations 2011; and
 - 21.10. other factors including injury, dangerous incidents and exposure rates, where known.
- 22. The substituted chemical products and/or processes need to be compared together with the original product and/ or processes to determine which chemical presents the least toxic

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hazard. This process will involve a comparative risk assessment process together with an examination of comparative technical performance.

Consultation, cooperation and coordination

- 23. The *Work Health and Safety Act 2011* requires a person conducting a business or undertaking to consult, so far as is reasonably practicable, with workers who are, or are likely to be, directly affected by a work health and safety matter. This requires consultation when:
 - 23.1. identifying hazards and assessing risks to health and safety;
 - 23.2. making decisions about ways to eliminate or minimise risks and to monitor the health of workers and the conditions of the workplace.
- 24. When conducting the risk management process, sponsor organisations must consult with the workplace that uses the hazardous chemicals. This is to ensure all hazards are identified and the recommended controls are suitable to the workplace environment.

References and related documents

- 25. Work Health and Safety Act 2011
- 26. Work Health and Safety Regulations 2011
- 27. Globally Harmonised System of Classification and Labelling of Chemicals
- 28. Australian Dangerous Goods Code, 7th Edition, National Road Transport Commission, 2007
- 29. Safe Work Australia Code of Practice How to Manage Work Health and Safety Risks
- 30. Code of Practice Work Health and Safety Consultation, Co-operation and Co-ordination
- 31. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 32. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- **33.** Guidance on the Classification of Hazardous Chemicals Under the Work Health and Safety Regulations: Implementation of the Globally Harmonised System (2012)
- 34. Hazardous Chemical Information System
- 35. Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants
- 36. Standard for the Uniform Scheduling of Medicines and Poisons
- 37. Work Health and Safety Risk Management Procedure 04 Work Health and Safety Risk Matrix
- 38. Hazardous Chemicals Management Procedure 07 Hazardous Chemicals Risk Assessment
- 39. Work Health and Safety Branch Hazardous Chemicals ChemAlert webpage
- 40. Defence Hazardous Chemicals Management Program 2018 -2020

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 07 – Hazardous Chemicals Risk Assessment

- 1. Risk assessment is an important part of the risk management process relating to the SafetyMan – Hazardous Chemicals Management Policy and Guidance. This risk assessment procedure is to be used in conjunction with SafetyMan – Hazardous Chemicals Management Procedure 06 – Hazardous Chemicals Risk Management.
- 2. The risk assessment process involves gathering and documenting information about the risks associated with hazardous chemicals in the workplace.
- 3. Only Defence workers with the appropriate training, skills and qualifications are to conduct risk assessments.

Table 1: Level of risk assessments			
Risk assessment level	When conducted		
Defence-level	Conducted when a specific hazardous chemical is used in the same way, in a similar work environment, by multiple units throughout Defence.		
	Can be conducted by any Defence worker or Defence contractor working at a Defence workplace provided they are using the same chemical for the same task in the same environment as described in the risk assessment.		
Platform-level	Conducted when the hazardous chemical is used in a specialised way for a specific platform, and the task is conducted on the platform in multiple locations.		
	Can be conducted by any Defence worker or Defence contractor working at a Defence workplace provided they are using the product on the same platform for the same task in the same environment as described in the risk assessment.		
Local-level	Conducted when the hazardous chemical has been sourced by the Defence business unit for a specific task and there is no relevant Defence-level or platform-level risk assessment available.		
	Can also be conducted as an interim measure if a platform-level risk assessment is not available.		
	Can be conducted by anyone in the workplace.		

Levels of risk assessments

4. Risk assessments may be conducted at the Defence, platform and local level. Table 1 outlines when Defence level and lower level risk assessments should be conducted.

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- 5. For all risk levels, one risk assessment may cover multiple products that have the same (or similar) hazards and are used in the same way at the workplace. Further, for all levels one product may have multiple risk assessments to cover different tasks.
- 6. When a higher-level risk assessment is available, there is no need to copy or replicate the risk assessment at lower levels. The Defence-level or platform-level risk assessment can be referenced by the business unit, and the controls implemented.

Criteria for each level of hazardous chemical risk assessment

7. Table 2 outlines the criteria applicable to each level of risk assessment—when and who may conduct and approve the risk assessment, and storage and control of the resultant records.

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Criteria	Defence-level	Platform-level	Local-level
When to conduct the assessment	Before ordering or first use in the workplace.	Before specifying for use.	Before ordering or first use in the workplace.
Person/s conducting or responsible for conducting the assessment	Sponsor	Sponsor	A team comprising two or more persons including at least one person who has completed the Hazardous Chemicals Safety Adviser course and one person who will use the substance. The team may also include the persons such as the supervisor and/or safety adviser.
Person/s who may approve the assessment	Sponsor (the approver must not be the person who conducted the risk assessment).	Sponsor	Commander/manager of the Defence business unit, or their delegated manager/supervisor of the workplace. (The approver must not be the person who conducted the risk assessment).
Storage and control of records	Centrally stored and controlled in the Defence Record Management System (Objective) and ChemAlert by sponsor.	Centrally stored and controlled in the Defence Record Management System and ChemAlert by sponsor.	Centrally stored and controlled in the Defence Record Management System and ChemAlert by the Defence business unit or their delegated manager/supervisor of the workplace.

Table 2: Criteria applicable to each level of risk assessment

Screening and risk assessment process flowchart

8. The following flowchart outlines the process for determining whether a risk assessment needs to be completed and the steps required.



Types of hazardous chemical risk assessments

9. There are three types of risk assessment—basic, detailed and complex. Table 3 explains the difference between the three types.

Table 3: Types of risk assessment				
Basic	Detailed	Complex		
 Basic risk assessment is adequate when the task using the hazardous chemical has one or more of the following characteristics: simple and straight forward method of use; risk can be, or is already, controlled in accordance with manufacturer's intent (eg as specified on the label, safety data sheet or technical data sheet); or risk can be controlled using simple and straight forward controls. 	 A detailed risk assessment may be required if the task using the hazardous chemical has one or more of the following characteristics: there is uncertainty about the degree of risk and more detailed information is required; method of use presents higher risk of exposure of workers or hazardous conditions (eg flammable atmosphere); there are significant consequences and/or greater likelihood of an incident if the risk is not adequately controlled; or specialised equipment may be required to control the risk. 	 A complex risk assessment may be required if: the task is complex, involving many steps, multiple hazardous chemicals or specialised equipment; previous incidents have occurred when using this product; air monitoring is necessary to determine whether there is a risk to health, or if uncertain whether exposure standards are exceeded; health monitoring is required as there is a significant risk to workers' health because of exposure to a hazardous chemical; or the risk assessment and specification of required controls cannot be easily documented in the template available for detailed risk assessment. 		

10. Table 4 describes the personnel and documentation required for each type of risk assessment.

Table 4: Expertise and documentation requirements for each type of risk assessment				
	Basic	Detailed	Complex	
Personnel required	 Specifier of product with input from product user, with review by Hazardous Chemical Safety Adviser and/or Capability Acquisition and Sustainment Group hazardous chemicals technical risk assessment adviser. Hazardous Chemical Safety Adviser and/or Capability Acquisition and Sustainment Group hazardous chemicals technical risk assessment adviser may seek advice from hazardous chemical subject matter expert on specific matters (eg confirmation of type of gloves required). 	 Specifier, Hazardous Chemical Safety Adviser and/or Capability Acquisition and Sustainment Group hazardous chemicals technical risk assessment adviser, with input from product user. Review by hazardous chemical subject matter expert; or completed jointly by a Hazardous Chemical Safety Adviser and/or Capability Acquisition and Sustainment Group hazardous chemicals technical risk assessment adviser, with hazardous chemical subject matter expert. 	 Typically a team involving: specifier of product; product users; Hazardous Chemical Safety Adviser and/or Capability Acquisition and Sustainment Group hazardous chemicals technical risk assessment adviser; hazardous chemical subject matter expert; expertise in relation to specialised equipment; and expertise in relation to air monitoring and/or health monitoring, as required. 	
Document- ation	Complete nominated sections of the ChemAlert risk assessment template, and the sections specified in the ChemAlert basic risk assessment information sheet.	Complete ChemAlert template.	Reference or hyperlink to complex risk assessment in ChemAlert.	

Qualifications/experience required to perform a hazardous chemical risk assessment

11. Hazardous chemical risk assessments must be carried out by individuals or groups who have:

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- 11.1 a practical understanding of the relevant hazardous chemicals sections of the *Work Health and Safety Regulations 2011*, codes of practice and guidance materials and the ability to interpret the information in the label and safety data sheets;
- 11.2 an understanding of the work processes involved at the workplace;
- 11.3 the ability to draw all the information together in a systematic way to form valid conclusions about exposures and risks;
- 11.4 the ability to report accurately the findings to all affected parties; and
- 11.5 at least one person within the risk assessment team who has completed the Hazardous Chemical Safety Adviser course.
- 12. Groups and Services are to develop internal procedures to ensure that their personnel with roles and responsibilities for undertaking hazardous chemical risk assessments have been identified and provided with the appropriate training.
- 13. Detailed risk assessments must also involve personnel who have been trained or certified in the work they are performing and have a thorough knowledge of the workplace, systems of work and the work practices.
- 14. For complex risk assessments and where Work Health and Safety Regulations 2011 Schedule 10 – Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals (Annex A) and Schedule 14 – Requirements for health monitoring (Annex B) substances are used, specialist advice cannot be applied unless the experts providing the advice have the appropriate qualifications, training and experience in the respective field.

Expert/specialist advice

- 15. For some risk assessments, advice may be required from experts/specialists such as occupational hygienists, toxicologists, medical practitioners, material/mechanical/chemical engineers, chemists and/or technologists. Experts or specialists may be required to:
 - 15.1 undertake complex risk assessments;
 - 15.2 assist where there is uncertainty about risks;
 - 15.3 design occupational hygiene monitoring and/or health monitoring strategies;
 - 15.4 collect and analyse samples and interpret monitoring results; and/or
 - 15.5 design, install and maintain control measures such as ventilation systems.

Recording assessments

- 16. When a risk assessment is conducted, the ChemAlert risk assessment template is to be used and any other related reports are to be linked to the assessment (eg the complex risk assessment proforma/report).
- 17. In the event that users of ChemAlert wish to provide additional information with the risk assessment, users are to insert a URL link to the document containing the additional information. The *ChemAlert Quick Reference Guide How do I create a Uniform Resource Locator in a Risk Assessment* outlines the process.
- 18. A copy of the finalised risk assessment should be retained in the workplace hazardous chemical register and in the Defence Record Management System.

Naming risk assessments in ChemAlert

19. All risk assessments in ChemAlert are to be named in accordance with the naming conventions and examples provided in the Table 5.

Table 5: Nar	Table 5: Naming conventions and examples for risk assessments in ChemAlert			
Level	Include the level of risk assessment—specify 'Defence', 'platform' or 'local'.			
Platform and/or workplace	Include the platform and/or business unit to which the risk assessment applies. This is not required for Defence-level risk assessments.			
Task	Where one product may be used for multiple tasks at Defence/platform/local level, name the task. The product name is not to be included as part of the task name.			
Туре	Specify the type of risk assessment—basic, detailed or complex.			
Examples	Capability Acquisition and Sustainment Group/NASPO-Application of Paint BASIC - JHU DENTAL – PROCEDURES BASIC - JHU ALL - HAND HYGIENE			

Reference and related documents

- 20. Work Health and Safety Act 2011
- 21. Work Health and Safety Regulations 2011
- 22. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 23. ChemAlert Quick Reference Guides
- 24. SafetyMan Hazardous Chemicals Management Procedure 06 Hazardous Chemicals Risk Management.

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Annexes

- A. Work Health and Safety Regulations 2011, Schedule 10 Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals
- B. Work Health and Safety Regulations 2011, Schedule 14 Requirements for health monitoring

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Work Health and Safety Regulations 2011

Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals

Regulations 340, 380–384

Note

The prohibition of the use of carcinogens listed in table 10.1, column 2 and the restriction of the use of carcinogens listed in table 10.2, column 2 apply to the pure substance and where the substance is present in a mixture at a concentration greater than 0.1%, unless otherwise specified.

Column 1 Item	Column 2 Prohibited carcinogen [CAS number]
1	2-Acetylaminofluorene [53-96-3]
2	Aflatoxins
3	4-Aminodiphenyl [92-67-1]
4	Benzidine [92-87-5] and its salts (including benzidine dihydrochloride [531-85- 1])
5	bis(Chloromethyl) ether [542-88-1]
6	Chloromethyl methyl ether [107-30-2] (technical grade which contains bis(chloromethyl) ether)
7	4-Dimethylaminoazobenzene [60-11-7] (Dimethyl Yellow)
8	2-Naphthylamine [91-59-8] and its salts
9	4-Nitrodiphenyl [92-93-3]

Table 10.1 Prohibited carcinogens

Table 10.2 Restricted carcinogens

Column 1	Column 2	Column 3
ltem	Restricted carcinogen [CAS Number]	Restricted use
1	Acrylonitrile [107-13- 1]	All
2	Benzene [71-43-2]	All uses involving benzene as a feedstock containing more than 50% of benzene by volume
		Genuine research or analysis
3	Cyclophosphamide [50-18-0]	When used in preparation for therapeutic use in hospitals and oncological treatment facilities, and in manufacturing operations
		Genuine research or analysis

Annex A

Column 1	Column 2 Restricted	Column 3
Item	carcinogen [CAS Number]	Restricted use
4	3,3'- Dichlorobenzidine [91-94-1] and its salts (including 3,3'- Dichlorobenzidine dihydrochloride [612-83-9])	All
5	Diethyl sulfate [64- 67-5]	All
6	Dimethyl sulfate [77-78-1]	All
7	Ethylene dibromide [106-93-4]	When used as a fumigant
8	4,4'-Methylene bis(2-chloroaniline) [101-14-4] MOCA	All
9	3-Propiolactone [57- 57-8] (Beta- propiolactone)	All
10	o-Toluidine [95-53-4] and o-Toluidine hydrochloride [636- 21-5]	All
11	Vinyl chloride monomer [75-01-4]	All

Table 10.3 Restricted hazardous chemicals

Column 1 Item	Column 2 Restricted hazardous	Column 3 Restricted use
	chemical	
1	Antimony and its compounds	For abrasive blasting at a concentration of greater than 0.1% as antimony
2	Arsenic and its compounds	For abrasive blasting at a concentration of greater than 0.1% as arsenic
		For spray painting
3	Benzene (benzol), if the substance contains more than 1% by volume	For spray painting

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4	Beryllium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as beryllium	
5	Cadmium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cadmium	
6	Carbon disulphide (carbon bisulphide)	For spray painting	
7	Chromate	For wet abrasive blasting	
8	Chromium and its compounds	For abrasive blasting at a concentration of greater than 0.5% (except as specified for wet blasting) as chromium	
9	Cobalt and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cobalt	
10	Free silica (crystalline silicon dioxide)	For abrasive blasting at a concentration of greater than 1%	
11	Lead and compounds	For abrasive blasting at a concentration of greater than 0.1% as lead or which would expose the operator to levels in excess of those set in the regulations covering lead	
12	Lead carbonate	For spray painting	
13	Methanol (methyl alcohol), if the substance contains more than 1% by volume	For spray painting	
14	Nickel and its compounds	For abrasive blasting at a concentration of greater than 0.1% as nickel	
15	Nitrates	For wet abrasive blasting	
16	Nitrites	For wet abrasive blasting	
17	Radioactive substance of any kind where the level of radiation exceeds 1 Bq/g	For abrasive blasting, so far as is reasonably practicable	
18	Tetrachloroethane	For spray painting	
19	Tetrachloromethane (carbon tetrachloride)	For spray painting	
20	Tin and its compounds	For abrasive blasting at a concentration of greater than 0.1% as tin	
21	Tributyl tin	For spray painting	

Note

Regulation 382 deals with polychlorinated biphenyls (PCBs).

Work Health and Safety Regulations 2011

Schedule 14 - Requirements for health monitoring

Regulations 368, 370 and 406

Table 14.1 Hazardous chemicals (other than lead) requiring health monitoring

Column 1	Column 2	Column 3	
Item	Hazardous chemical	Type of health monitoring	
1	Acrylonitrile	Demographic, medical and occupational history Records of personal exposure Physical examination	
2	Arsenic (inorganic)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the peripheral nervous system and skin Urinary inorganic arsenic	
3	Benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile	
4	Cadmium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system Standard respiratory questionnaire to be completed Standardised respiratory function tests including for example, FEV ₁ , FVC and FEV ₁ /FVC	
		Urinary cadmium and β_2 -microglobulin Health advice, including counselling on the effect of smoking on cadmium exposure	
5	Chromium (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Weekly skin inspection of hands and forearms by a competent person	

Column 1	Column 2	Column 3	
Item	Hazardous chemical	Type of health monitoring	
6	Creosote	Demographic, medical and occupational history	
		Health advice, including recognition of photosensitivity and skin changes	
		Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and evidence of skin sensitisation	
		Records of personal exposure, including photosensitivity	
7	Crystalline silica	Demographic, medical and occupational history Records of personal exposure	
		Standardised respiratory questionnaire to be completed	
		Standardised respiratory function test, for example, FEV ₁ , FVC and FEV ₁ /FVC	
		Chest X-ray full size PA view	
8	Isocyanates	Demographic, medical and occupational history	
		Completion of a standardised respiratory questionnaire	
		Physical examination of the respiratory system and skin	
		FVC and FEV ₁ /FVC	
9	Mercury (inorganic)	Demographic, medical and occupational history	
		Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems	
		Urinary inorganic mercury	
10	4,4'-Methylene bis (2-chloroaniline) (MOCA)	Demographic, medical and occupational history	
		Physical examination	
		Dinstick analysis of urine for baematuria	
		Urine cytology	
11	Organophosphate pesticides	Demographic, medical and occupational history including pattern of use	
		Physical examination	
		Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method	
		Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used	

Column 1 Item	Column 2 Hazardous chemical	Column 3 Type of health monitoring	
12	Pentachlorophenol (PCP)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy Urinary total pentachlorophenol Dipstick urinalysis for haematuria and proteinuria	
13	Polycyclic aromatic hydrocarbons (PAH)	Demographic, medical and occupational history Physical examination Records of personal exposure, including photosensitivity Health advice, including recognition of photosensitivity and skin changes	
14	Thallium	Demographic, medical and occupational history Physical examination Urinary thallium	
15	Vinyl chloride	Demographic, medical and occupational history Physical examination Records of personal exposure	

Table 14.2	Lead req	uiring	health	monitoring
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Column 1	Column 2	Column 3
Item	Lead	Type of health monitoring
1	Lead (inorganic)	Demographic, medical and occupational history Physical examination Biological monitoring



Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 08 - Acquiring Local Supplies of Hazardous Chemicals

- 1. This procedure provides information on acquiring local supplies of hazardous chemicals and related to the *Hazardous Chemicals Management Policy and Guidance*.
- 2. This procedure applies to all Defence workplaces and explains the steps for local acquisition of hazardous chemicals. The local acquisition of hazardous chemicals is controlled and managed to ensure that only risk assessed and approved chemicals are introduced into the workplace.
- 3. Local acquisition of hazardous chemicals must only occur when products are not available through the Defence logistics supply chain in the timeframe required to meet operational requirements.
- 4. When acquiring local supplies of hazardous chemicals. The following steps should be followed:



Step 1	By referring to <i>ChemAlert</i> or the required chemical is a ha	the product label or safety data sheet, check whether azardous chemical.
	If the chemical	then
	is a hazardous chemical	 ensure a Globally Harmonised System compliant safety data sheet is available in ChemAlert or from the supplier;
		 if a holding of the chemical is not available in ChemAlert, then ChemAlert will need to be updated before the chemical is purchased; and
		continue to Step 2.
	is not a hazardous chemical	 check the safety data sheet or ChemAlert (if available) to verify any specific requirements for use or handling; and
		 purchase the chemical locally.
	Is an exempt or consumer product	 manage as per SafetyMan – Hazardous Chemicals Management Procedure 04 – Exempt and Consumer Products
	is not essential	 do not purchase the chemical.
	Is essential but a safer alternative is available	 ensure that a risk assessment is conducted for the alternative and control measures are implemented; and
		 for Capability Acquisition and Sustainment Group managed platforms/materiel, engage with the Sponsor/Technical Authority to discuss suitability of the alternative product.
	is essential and does not have a safer alternative	• finalise the risk assessment in accordance with SafetyMan - Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management, and
		 obtain expert advice from such places as Capability Acquisition and Sustainment Group or Work Health and Safety Branch.
	risk cannot be controlled within existing	 obtain expert advice on required procedures to control the risk; and
	procedures	 if the risk cannot be controlled, then do not purchase the chemical.

Step	Risk screening:			
2	Identify if a risk assessment for the hazardous chemical has been undertaken in accordance with SafetyMan - Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management.			
	If there	then		
	is no risk assessment for the hazardous chemical	 you must undertake a risk assessment in accordance with SafetyMan - Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management; If no risk assessment has been undertaken the chemical cannot be supplied or used; and continue to Step 3. 		
	a risk assessment has been conducted and is current	continue to Step 3.		

Step	Implementation of control measures:				
3	Ensure all control measures determined in the risk assessment and the safety data sheet can be in place prior to delivery, including:				
	•	appropriate storage availability;			
	• availability of safety signage, spill kits and other emergency equipment; a				
	 all safety requirements outlined in the safety data sheet can be adh including the availability and training to use the specified personal equipment. 				
		If all risks	then		
		are adequately controlled	continue to Step 4		
		are not adequately controlled	 do not proceed 		

Gain approvals to purchase the hazardous chemical:		
Have the following documentation approved by the appropriate commander or manager before purchase of the hazardous chemical:		
risk assessment;		
 local purchase (if required) of appropriate storage, spill kits and emergency equipment; and 		
 safety signage and any additional control measures, including personal protective equipment. 		

Step 5	Purchase the hazardous chemical.		
Step 6	Ensure correct use and storage of the hazardous chemical:		
	Store, handle and use the hazardous chemical as specified in the risk assessment and the Safety Data sheet, and ensure:		
	• the risk assessment and safe work procedures are available to personnel;		
	 all personnel have received relevant training and instruction in safe work procedures; 		
	 the safety data sheet is available to all personnel who will be using the hazardous chemical; 		
	 spill kits and other emergency equipment are placed so they are readily available in the event of an emergency; 		
	 personal protective equipment, as specified in the safety data sheet and risk control plan for the task, is issued to all personnel who may be at risk from exposure to the hazardous chemical; 		
	 safety signs (where required) are displayed in a prominent, visible location adjacent to where the hazardous chemical is used, handled or stored; 		
	 the effectiveness of the control measures are monitored, reviewed and altered as required; and 		
	 where a safer alternative has been identified, ensure safe work practices are updated. 		
L	1		

Step	Update hazardous chemical register in ChemAlert:
7	If the product is not an exempt consumer product as defined in SafetyMan - Hazardous Chemicals Management Procedure 04 - Exempt and Consumer Products, update the workplace hazardous chemical register and stockholdings in ChemAlert.

Step 8	Update stakeholders:		
	• implement procedures in the <i>Electronic Supply Chain Manual</i> to obtain future stocks of the required chemical through the supply chain.		
	• update other stakeholder groups as required such as Capability Acquisition and Sustainment Group, upstream agencies and users of the new hazardous chemical acquisition.		

References and related documents

- 5. Work Health and Safety Act 2011
- 6. Work Health and Safety Regulations 2011
- 7. Australian Dangerous Goods Code

- 8. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 9. Globally Harmonized System of Classification and Labelling of Chemicals
- 10. Classifying Hazardous Chemicals National Guide
- 11. Electronic Supply Chain Manual Roles and Responsibilities
- 12. <u>SafetyMan Hazardous Chemicals Management Procedure 04 Exempt and Consumer</u> <u>Products</u>
- 13. <u>SafetyMan Hazardous Chemicals Management Procedure 06 Hazardous Chemicals Risk</u> <u>Management</u>

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Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 09 - Receipt Of Hazardous Chemicals Into Units

- 1. To ensure compliance with the Work Health and Safety Regulations 2011, this procedure provides guidance on the activities to be undertaken at unit/workplace level for receiving hazardous chemicals.
- This procedure applies to all Defence workplaces receiving hazardous chemicals and relates 2. to SafetyMan - Hazardous Chemicals Management Policy and Guidance.

Pre-procurement actions

- Prior to procuring a hazardous chemical, the workplace must ensure the following actions 3. have been considered and implemented as required:
 - 3.1. whether there is a non-hazardous alternative:
 - 3.2. confirm the use, handling and storage of the hazardous chemical is required or mandated:
 - ensure an appropriate risk assessment is recorded in ChemAlert and implement 3.3. usage and handling risk control measures identified in the risk assessment, in accordance with SafetyMan - Hazardous Chemicals Management Procedure 06 -Hazardous Chemicals Risk Management,
 - 3.4. update the workplace hazardous chemicals storage plan and implement appropriate storage risk control measures in accordance with SafetyMan - Hazardous Chemicals Management Procedure 17 - Storage of Hazardous Chemicals;
 - 3.5. identify personnel who will require training in the safe usage, storage and emergency procedures associated with the hazardous chemical;
 - update ChemAlert stock holdings prior to receipt into the unit/workplace; and 3.6.
 - 3.7. update the unit/workplace hazardous chemical register.

Authority to approve exceptional receipt actions

- There are no circumstances in which Defence may accept any level of non-compliance in the 4 receipt of hazardous chemicals listed in Work Health and Safety Regulations 2011, Schedule 10 – Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals (Annex A) and Schedule 14 – Requirements for health monitoring (Annex B).
- 5. In exceptional circumstances, the local commander/manager may approve the receipt of other types of hazardous chemicals where they:
 - 5.1. have non-compliant safety data sheets; or
 - 5.2. have non-compliant labelling; or
 - 5.3. are in excess of those required and/or detailed in the ChemAlert stock holdings; or
 - do not comply with the initial or routine receipt processes. 5.4.
- 6. The received hazardous chemical must be used appropriately and not until the noncompliance has been rectified.

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Non-compliant safety data sheets and/or labelling receipt approval process

- 7. In exceptional circumstances, approval to receive and quarantine the hazardous chemical may be granted subject to the following actions being taken and recorded:
 - 7.1. correct Australian supplier and emergency contact details are identified and confirmed;
 - 7.2. safety information identified during the authority process is written in English and made available to supervisors and workers;
 - 7.3. in accordance with Work Health and Safety Regulations 2011, Regulation 361 -Emergency plans (Annex C) where an emergency plan is to be prepared if the quantity of hazardous chemicals used, handled or stored at a workplace exceeds the manifest quantity as set out in Work Health and Safety Regulations 2011, Schedule 11 – Placard and manifest quantities (Annex D) for that hazardous chemical;
 - 7.4. the unit/workplace reports the non-compliance to the hazardous chemical provider/supplier and requests a compliant safety data sheets and/or label; and
 - 7.5. a risk assessment has been conducted.

Excess quantities receipt approval process

- 8. In exceptional circumstances, approval may be granted to receive quantities in excess of those required and/or detailed in the ChemAlert stock holdings, subject to the following actions being taken and recorded:
 - 8.1. where the quantity of hazardous chemicals exceeds unit/workplace requirements, the commander/manager must inform their chain of command/line management and their logistics lines of communication;
 - 8.2. where the quantities exceed ChemAlert (maximum) stock holdings, the quantities must be updated, including second order effects (eg placard reports) as soon as reasonably practicable; and
 - 8.3. where quantities exceed the unit/workplace hazardous chemicals storage plan, the unit/workplace must conduct and document an assessment to confirm that the control measures specified in orders, instructions and publications are appropriate and, where required, update the unit/workplace storage plan as soon as reasonably practicable.

References and related documents

- 9. Work Health and Safety Act 2011
- 10. Work Health and Safety Regulations 2011
- 11. Electronic Supply Chain Manual Roles and Responsibilities
- 12. ChemAlert Campus training modules
- 13. SafetyMan Hazardous Chemicals Management
 - 13.1. Procedure 06 Hazardous Chemicals Risk Management
 - 13.2. Procedure 17 Storage of Hazardous Chemicals

Annexes

- A. Work Health and Safety Regulations 2011, Schedule 10 Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals
- B. Work Health and Safety Regulations 2011, Schedule 14 Requirements for heath monitoring
- C. Work Health and Safety Regulations 2011, Regulation 361 Emergency Plans

D. Work Health and Safety Regulations 2011, Schedule 11 – Placard and manifest quantities

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Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals - Regulations 340 and 380–384

Note

The prohibition of the use of carcinogens listed in table 10.1, column 2 and the restriction of the use of carcinogens listed in table 10.2, column 2 apply to the pure substance and where the substance is present in a mixture at a concentration greater than 0.1%, unless otherwise specified.

Table TU.T	Prohibited carcinogens
Column 1	Column 2
Item	Prohibited carcinogen [CAS number]
1	2-Acetylaminofluorene [53-96-3]
2	Aflatoxins
3	4-Aminodiphenyl [92-67-1]
4	Benzidine [92-87-5] and its salts (including benzidine dihydrochloride [531-85- 1])
5	bis(Chloromethyl) ether [542-88-1]
6	Chloromethyl methyl ether [107-30-2] (technical grade which contains bis(chloromethyl) ether)
7	4-Dimethylaminoazobenzene [60-11-7] (Dimethyl Yellow)
8	2-Naphthylamine [91-59-8] and its salts
9	4-Nitrodiphenyl [92-93-3]

Table 10.2 Restricted carcinogens

Column 1	Column 2	Column 3
ltem	Restricted carcinogen [CAS Number]	Restricted use
1	Acrylonitrile [107-13- 1]	All
2	Benzene [71-43-2]	All uses involving benzene as a feedstock containing more than 50% of benzene by volume
		Genuine research or analysis
3	Cyclophosphamide [50-18-0]	When used in preparation for therapeutic use in hospitals and oncological treatment facilities, and in manufacturing operations
		Genuine research or analysis

Column 1	Column 2	Column 3
Item	Restricted carcinogen [CAS Number]	Restricted use
4	3,3'- Dichlorobenzidine [91-94-1] and its salts (including 3,3'- Dichlorobenzidine dihydrochloride [612-83-9])	All
5	Diethyl sulfate [64- 67-5]	All
6	Dimethyl sulfate [77-78-1]	All
7	Ethylene dibromide [106-93-4]	When used as a fumigant Genuine research or analysis
8	4,4'-Methylene bis(2-chloroaniline) [101-14-4] MOCA	All
9	3-Propiolactone [57- 57-8] (Beta- propiolactone)	All
10	o-Toluidine [95-53-4] and o-Toluidine hydrochloride [636- 21-5]	All
11	Vinyl chloride monomer [75-01-4]	All

Table 10.3 Restricted hazardous chemicals

Column 1	Column 2	Column 3
ltem	Restricted hazardous chemical	Restricted use
1	Antimony and its compounds	For abrasive blasting at a concentration of greater than 0.1% as antimony
2	Arsenic and its compounds	For abrasive blasting at a concentration of greater than 0.1% as arsenic For spray painting
3	Benzene (benzol), if the substance contains more than 1% by volume	For spray painting

4	Beryllium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as beryllium		
5	Cadmium and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cadmium		
6	Carbon disulphide (carbon bisulphide)	For spray painting		
7	Chromate	For wet abrasive blasting		
8	Chromium and its compounds	For abrasive blasting at a concentration of greater than 0.5% (except as specified for wet blasting) as chromium		
9	Cobalt and its compounds	For abrasive blasting at a concentration of greater than 0.1% as cobalt		
10	Free silica (crystalline silicon dioxide)	For abrasive blasting at a concentration of greater than 1%		
11	Lead and compounds	For abrasive blasting at a concentration of greater than 0.1% as lead or which would expose the operator to levels in excess of those set in the regulations covering lead		
12	Lead carbonate	For spray painting		
13	Methanol (methyl alcohol), if the substance contains more than 1% by volume	For spray painting		
14	Nickel and its compounds	For abrasive blasting at a concentration of greater than 0.1% as nickel		
15	Nitrates	For wet abrasive blasting		
16	Nitrites	For wet abrasive blasting		
17	Radioactive substance of any kind where the level of radiation exceeds 1 Bq/g	For abrasive blasting, so far as is reasonably practicable		
18	Tetrachloroethane	For spray painting		
19	Tetrachloromethane (carbon tetrachloride)	For spray painting		
20	Tin and its compounds	For abrasive blasting at a concentration of greater than 0.1% as tin		
21	Tributyl tin	For spray painting		

Note

Regulation 382 deals with polychlorinated biphenyls (PCBs).

Schedule 14 - Requirements for health monitoring

Regulations 368, 370 and 406

Table 14.1	Hazardous chemicals	(other than lead) requiring	g health monitoring

Column 1	Column 2	Column 3		
ltem	Hazardous chemical	Type of health monitoring		
1	Acrylonitrile	Demographic, medical and occupational history Records of personal exposure Physical examination		
2	Arsenic (inorganic)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the peripheral nervous system and skin Urinary inorganic arsenic		
3	Benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile		
4	Cadmium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system Standard respiratory questionnaire to be completed Standardised respiratory function tests including for example, FEV ₁ , FVC and FEV ₁ /FVC		
		Urinary cadmium and β_2 -microglobulin Health advice, including counselling on the effect of smoking on cadmium exposure		
5	Chromium (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Weekly skin inspection of hands and forearms by a competent person		

Column 1	Column 2	Column 3		
ltem	Hazardous chemical	Type of health monitoring		
6	Creosote	Demographic, medical and occupational history		
		Health advice, including recognition of photosensitivity and skin changes		
		Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and evidence of skin sensitisation		
		Records of personal exposure, including photosensitivity		
7	Crystalline silica	Demographic, medical and occupational history Records of personal exposure		
		Standardised respiratory questionnaire to be completed		
		Standardised respiratory function test, for example, FEV ₁ , FVC and FEV ₁ /FVC		
		Chest X-ray full size PA view		
8	Isocyanates	Demographic, medical and occupational history		
		Completion of a standardised respiratory questionnaire		
		Physical examination of the respiratory system and skin		
		Standardised respiratory function tests, for example, FEV ₁ , FVC and FEV ₁ /FVC		
9 Mercury (inorganic) Demographi		Demographic, medical and occupational history		
		Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems		
		Urinary inorganic mercury		
10	4,4'-Methylene bis	Demographic, medical and occupational history		
	(2-chloroaniline) (MOCA)	Physical examination		
		Urinary total MOCA		
		Dipstick analysis of urine for haematuria		
		Urine cytology		
11	Organophosphate pesticides	Demographic, medical and occupational history including pattern of use		
		Physical examination		
		Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method		
		Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used		

Column 1 Item	Column 2 Hazardous chemical	Column 3 Type of health monitoring	
12	Pentachlorophenol (PCP)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy Urinary total pentachlorophenol Dipstick urinalysis for haematuria and proteinuria	
13	Polycyclic aromatic hydrocarbons (PAH)	Demographic, medical and occupational history Physical examination Records of personal exposure, including photosensitivity Health advice, including recognition of photosensitivity and skin changes	
14	Thallium	Demographic, medical and occupational history Physical examination Urinary thallium	
15	Vinyl chloride	Demographic, medical and occupational history Physical examination Records of personal exposure	

Table 14.2	Lead red	uiring l	health	monitoring
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Column 1	Column 2	Column 3	
ltem	Lead	Type of health monitoring	
1	Lead (inorganic)	Demographic, medical and occupational history	
		Physical examination	
		Biological monitoring	

Regulation 361 – Emergency Plans

(1) This regulation applies if the quantity of a Schedule 11 hazardous chemical used, handled, generated or stored at a workplace exceeds the manifest quantity for that hazardous chemical.

(2) A person conducting a business or undertaking at the workplace must give a copy of the emergency plan prepared under Division 4 of Part 3.2 for the workplace to the primary emergency service organisation.

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

(3) If the primary emergency service organisation gives the person a written recommendation about the content or effectiveness of the emergency plan, the person must revise the plan in accordance with the recommendation.

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

Schedule 11 - Placard and manifest quantities - Regulations 347–350, 361, 390 and 391

Table 11.1

Column 1	Column 2 Column 3		Column 4	Column 5
Item	Description of hazardous chemical		Placard quantity	Manifest quantity
1	Flammable gases	Category 1	200L	5000L
2	Gases under	With acute toxicity, categories 1, 2, 3 or 4	50L	500L
3	pressure	With skin corrosion categories 1A, 1B or 1C	50L	500L
4		Aerosols	5000L	10 000L
5		Not specified elsewhere in this Table	1000L	10 000L
6	Flammable	Category 1	50L	500L
7	liquids	Category 2	250L	2500L
8		Category 3	1000L	10 000L
9		Any combination of chemicals from Items 6 to 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000L	10 000L
10		Category 4	10 000L	100 000L
11	Self-	Туре А	5kg or 5L	50kg or 50L
12	reactive	Туре В	50kg or 50L	500kg or 500L
13		Type C to F	250kg or 250L	2500kg or 2500L
14	Flammable	Category 1	250kg	2500kg
15	solids	Category 2	1000kg	10 000kg

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description of hazardous chemical		Placard quantity	Manifest quantity
16		Any combination of chemicals from Items 12 to 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
17	Pyrophoric liquids and pyrophoric solids	Category 1	50kg or 50L	500kg or 500L
18	Self-heating substances	Category 1	250kg or 250L	2500kg or 2500L
19	and mixtures	Category 2	1000kg or 1000L	10 000kg or 10 000L
20		Any combination of chemicals from Items 17 to 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
21	Substances	Category 1	50kg or 50L	500kg or 500L
22	which in contact with water emit flammable gas	Category 2	250kg or 250L	2500kg or 2500L
23		Category 3	1000kg or 1000L	10 000kg or 10 000L
24		Any combination of chemicals from Items 21 to 23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
25	Oxidising liquids and oxidising solids	Category 1	50kg or 50L	500kg or 500L
26		Category 2	250kg or 250L	2500kg or 2500L
27		Category 3	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description of hazardous chemical		Placard quantity	Manifest quantity
28		Any combination of chemicals from Items 25 to 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
29	Organic	Туре А	5kg or 5L	50kg or 50L
30	peroxides	Туре В	50kg or 50L	500kg or 500L
31		Type C to F	250kg or 250L	2500kg or 2500L
32		Any combination of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250kg or 250L	2500kg or 2500L
33	Acute	Category 1	50kg or 50L	500kg or 500L
34	toxicity	Category 2	250kg or 250L	2500kg or 2500L
35		Category 3	1000kg or 1000L	10 000kg or 10 000L
36		Any combination of chemicals from Items 33 to 35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
37	Skin	Category 1A	50kg or 50L	500kg or 500L
38	corrosion	Category 1B	250kg or 250L	2500kg or 2500L
39		Category 1C	1000kg or 1000L	10 000kg or 10 000L
40	Corrosive to metals	Category 1	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
Item	Description chemical	of hazardous	Placard quantity	Manifest quantity
41		Any combination of chemicals from Items 37 to 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
42	Unstable explosives		5kg or 5L	50kg or 50L
43	Unstable chemicals	Any combination of chemicals from items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5kg or 5L	50kg or 50L

Notes

- 1 In item 2, Gases under pressure with acute toxicity, category 4 only applies up to a LC50 of 5000 ppmV. This is equivalent to dangerous goods of Division 2.3.
- 2 Item 4 includes flammable aerosols.

1 Determination of classification of flammable liquids

For the purposes of this table, if a flammable liquid category 4 is used, handled or stored in the same spill compound as one or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquids categories 1, 2 or 3 must be determined as if the flammable liquid category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point.

Example

For placarding and manifest purposes, a spill compound containing 1000L of flammable liquid category 1 and 1000L of flammable liquid category 4 is considered to contain 2000L of flammable liquid category 1



Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 10 - Registers For Hazardous Chemicals

- 1. This procedure provides work health and safety information for establishing and maintaining a register of hazardous chemicals in the workplace, and relates to SafetyMan Hazardous Chemicals Management Policy and Guidance.
- 2. The register provides an up-to-date listing of all hazardous chemicals used, handled or stored at the workplace and includes the current safety data sheet for each chemical.
- 3. Hazardous Chemicals Registers must be readily accessible to a worker involved in using, handling or storing a hazardous chemical as well as anyone else who is likely to be affected by a hazardous chemical at the workplace.

Hazardous chemicals register

- 4. As a minimum, the hazardous chemicals register is to include a list of all hazardous chemicals and their safety data sheet. The register may also include copies of risk assessments, supplementary reports, details of the location of chemicals in the workplace and monitoring results. The register should be used as a source of information and as a tool to manage hazardous chemicals in the workplace. It is the responsibility of each workplace to establish a register they determine is readily accessible under the meaning of the Work Health and Safety Regulations.
- 5. There are instances where more than one organisation has a responsibility for maintaining a register of hazardous chemicals in Defence workplaces, for example:
 - 5.1. an office workplace where contract workers who clean the workplace also store the hazardous chemicals that are used on site; and
 - 5.2. a workplace shared by Defence personnel and contractors, where hazardous chemicals are used for the work undertaken.
- 6. Contractors are also required to provide a copy of their register to be included in the site/workplace register.
- 7. ChemAlert is used as the electronic hazardous chemical register for Defence. However, to ensure that the register is readily accessible to any worker involved in using, handling or storing a hazardous chemical and anyone else who is likely to be affected by a hazardous chemical at the workplace, it is recommended that a hard-copy register is also kept at each workplace and this must contain, as a minimum:
 - 7.1. a list of hazardous chemicals used, handled or stored; and
 - 7.2. the current safety data sheet for each hazardous chemical listed.
- 8. Registers may also need to be accessed by the following:
 - 8.1. emergency service personnel in the case of an emergency;
 - 8.2. Comcare investigators acting in the course of their duties; and
 - 8.3. personnel undertaking hazardous chemical audits or workplace inspections.



Defence ChemAlert database

- 9. It is mandatory for Defence workplaces to use the Defence ChemAlert database for registering hazardous chemicals.
- 10. ChemAlert allows users to print out hazardous chemical stock holding reports and the relevant safety data sheet for inclusion in the hardcopy workplace hazardous chemicals register.
- 11. ChemAlert also provides a risk assessment template, which should be used to complete and record hazardous chemical risk assessments.
- 12. Access to ChemAlert is available through the Defence protected network. To obtain a logon to ChemAlert or to find out more information, contact the Defence ChemAlert Administration Team by emailing *whs.hazchem@defence.gov.au*
- 13. In some circumstances Defence workplaces may be required to hold chemicals that are classified and for security reasons cannot be maintained on the ChemAlert database. In these circumstances, the Groups and Services are responsible for establishing processes to maintain a separate register for those chemicals, in accordance with the *Work Health and Safety Regulations 2011*.

Establishing a register

14. The steps required to establish a hazardous chemicals register are outlined in the following table.

Procedure 10 – Registers for Hazardous Chemicals

Establishing a register

Procedure 10 – Registers for Hazardous Chemicals

Step	Action

1	Identify personnel responsible for preparing and maintaining the hazardous chemicals register and for undertaking Steps 2 to 7.

2	Ensure a compliant safety data sheet is available for every hazardous chemical used, handled or stored at the workplace, from either:
	ChemAlert; or
	the supplier or manufacturer if not available from ChemAlert.
	If the safety data sheet is not available from ChemAlert you must send a PDF copy to the ChemAlert Administration Team by emailing <i>whs.hazchem@defence.gov.au</i> .
3	 Register hazardous chemical stock holdings against the relevant unit using the ChemAlert STOCK HOLDING function;
	 Print the current STOCK HOLDING report and place on the hardcopy register, together with the compliant SDS for each chemical; and
	• You must also store a copy of the STOCK HOLDING report in Objective.
4	• Conduct a screening process to identify risk assessment requirements for each hazardous chemical. If a risk assessment is required, place the risk assessment report and results for each risk assessment on the register.
	 A copy of the risk assessment and any related reports must be stored in Objective.
	 Refer to SafetyMan - Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management for more information.

5	The following information may also be added to the register:
	 specific locations of hazardous chemicals in the workplace;
	 technical reports or bulletins about chemicals;
	the results of atmospheric monitoring; and
	requirements for health monitoring.
	Health monitoring reports containing personal information must be kept as confidential records and must not be disclosed to anyone without written consent from the person who is the subject of the report.
6	 Keep the register in a location close to the work area where the hazardous chemical is used, handled or stored.
	 Ensure registers are readily accessible in the workplace and made available to all personnel who could be affected by the hazardous chemical.
	• Personnel must also be made aware of the location of the register. Use signage etc to identify the location of the register.
7	Routinely check the register to ensure that it is being correctly maintained and kept up to date, for example whenever the workplace inspection is undertaken and at least annually.
	Maintain the register by updating information when:
	 new hazardous chemicals are introduced or delivered to the workplace;
	 a safety data sheet is revised or out-of-date; and
	 existing hazardous chemicals are discontinued.

Exceptions

- 15. There are two situations in which hazardous chemicals at a workplace do not need to be listed in the hazardous chemicals register. These are hazardous chemicals which are:
 - 15.1. **In-transit**. Hazardous chemicals are in-transit if they are not used in the workplace and are not kept at the workplace for more than five consecutive days.
 - 15.2. **Consumer products**. Products that are packed primarily for use by a household consumer and are used in a manner consistent with normal household use. Consumer products also include hazardous chemicals used in an office, for example printer toner and whiteboard cleaners. Refer to *SafetyMan Hazardous Chemicals Management Procedure 04 Exempt and Consumer Products* for more information.

Reference and related documents

- 16. Work Health and Safety Act 2011
- 17. Work Health and Safety Regulations 2011
- 18. SafetyMan Hazardous Chemicals Management
 - 18.1. Procedure 04 Exempt and Consumer Products

18.2. Procedure 06 - Hazardous Chemicals Risk Management

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Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 11 – Safety Data Sheets

1. This procedure relates to the SafetyMan - Hazardous Chemicals Management Policy and Guidance and provides guidance on the use and application of safety data sheets and the appropriate management of non-compliant safety data sheet and obsolete products.

Workplace responsibilities for safety data sheets

2. Defence workplaces have specific responsibilities in relation to safety data sheets. The following table summarises responsibilities:

	Workplace responsibilities relating to safety data sheets
Step	Action
1	• Ensure a Globally Harmonised System compliant safety data sheet is obtained for a hazardous chemical from the manufacturer, importer or supplier: no later than the time the hazardous chemical is first supplied for use at the workplace; or
	 as soon as practicable after the hazardous chemical is first supplied to the workplace, and before the hazardous chemical is used.
2	Ensure the current safety data sheet is readily accessible to:
	 a worker who is involved in using, handling or storing the hazardous chemical at the workplace;
	 a person at the workplace who is likely to be affected by the hazardous chemical and asks for the safety data sheet; and
	 an emergency service worker or anyone else who is likely to be exposed to the hazardous chemical at the workplace.
3	If the safety data sheet is amended by the importer or manufacturer, ensure the amended safety data sheet is supplied to the workplace:
	 no later than the time the hazardous chemical is first supplied for use at the workplace after the safety data sheet is amended; or
	 as soon as practicable after it is amended, and before the chemical is used at the workplace.
4	Ensure that the safety data sheet is only changed if:
	 it is changed by the importer or manufacturer of the hazardous chemical and the changes are consistent with the duties of an importer or manufacturer; or
	• the change is a translation of the safety data sheet (which is to be attached to the safety data sheet) and which clearly states that the translation is not part of the original safety data sheet.



Defence as a manufacturer of hazardous chemicals

3. Groups or Services who, via their work processes, manufacture hazardous chemicals have specific responsibilities under the Work Health and Safety Act, 2011, Section 23 in relation to safety data sheets, including the responsibilities set out in the following table.

Manufacturer responsibilities		
Step	Action	
1	A manufacturer of a hazardous chemical must prepare a safety data sheet for the hazardous chemical in accordance with <i>Work Health and Safety Regulations 2011, Schedule 7 – Safety data sheets</i> and <i>Schedule 8 – Disclosure of ingredients in safety data sheet</i> and the <i>Code of Practice - Preparation of Safety Data Sheets for Hazardous Chemicals</i> .:	
	 before first manufacturing the hazardous chemical; or 	
	• as soon as practicable after first manufacturing the hazardous chemical.	
2	Review and update the safety data sheet every five years and whenever necessary to ensure it contains correct and current information.	
3	Provide the current safety data sheet to any person who is likely to be affected by the hazardous chemical and any person who asks for the safety data sheet.	
4	Ensure a copy of the safety data sheet is available in ChemAlert. If not, email a PDF copy of the safety data sheet to the Defence ChemAlert Administration Team via <u>whs.hazchem@defence.gov.au</u> to have the safety data sheet added to the ChemAlert database.	

Defence as a supplier and importer of hazardous chemicals

4. Groups or Services who supply (including importing) hazardous chemicals have specific responsibilities under the Work Health and Safety Act, 2011, Section 24 and 25, in relation to safety data sheets, including those set out in the table below.

Supplier and importer responsibilities			
Step	Action		
1	• Obtain a complaint safety data sheet from the manufacturer for the hazardous chemical before first importing and supplying the hazardous chemical or, if that is not practicable, as soon as practicable after first importing or supplying the hazardous chemical; and		
	 safety data sheet must be prepared in accordance with Work Health and Safety Regulations 2011, Schedule 7 – Safety data sheets and Schedule 8 – Disclosure of ingredients in safety data sheet and the Code of Practice - Preparation of Safety Data Sheets for Hazardous Chemicals. 		
	The hazardous chemical is taken to be first supplied to a workplace if it is the first supply to the workplace for five years.		

Supplier and importer responsibilities		
Step	Action	
2	If only a foreign safety data sheet is available, arrange for the safety data sheet to be reviewed for Australian compliance and, if necessary, converted to meet Australian requirements before first importing and supplying the hazardous chemical. However if that is not practicable, conversion is to occur as soon as practicable after first importing and supplying the hazardous chemical and before first use of the product.	
3	As a minimum, review and update the safety data sheet every five years or more frequently as required to ensure it contains correct, current information.	
4	Provide the current safety data sheet to any person who is likely to be affected by the hazardous chemical, and any person who asks for the safety data sheet.	
5	Ensure a copy of the safety data sheet is available in ChemAlert. If not, email a PDF copy of the safety data sheet to the Defence ChemAlert Administration Team via <u>whs.hazchem@defence.gov.au</u> to have the safety data sheet added to the ChemAlert database.	

Safety data sheet requirements

- In accordance with the Work Health and Safety Regulations 2011, safety data sheets must be compliant with the requirements outlined in Work Health and Safety Regulations 2011, Schedule 7 – Safety data sheets and must follow the guidelines outlined in the Code of Practice - Preparation of Safety Data Sheets for Hazardous Chemicals.
- 6. The safety data sheet provides important information on how to manage hazardous chemicals in the workplace. The following table outlines when and how to use safety data sheet to manage hazardous chemicals effectively at all stages of the hazardous chemical life cycle.

Before a chemical arrives in the workplace		
Step	Action	
1	Ensure that the correct copy of the safety data sheet is available from the ChemAlert database. Check the safety data sheet to ensure that it is compliant – the supplier is required by law to provide a compliant safety data sheet.	
2	If a compliant safety data sheet is not available from ChemAlert, obtain a copy from the supplier and email a PDF copy to <u>whs.hazchem@defence.gov.au</u> so that it can be added to the ChemAlert database.	
3	Identify and review the health and safety information in the safety data sheet. Ensure information is consistent with requirements identified during risk assessment. If required, update the risk assessment with relevant information.	
4	Check whether the recommended measures to eliminate or minimise any risks to health and safety have been implemented prior to the hazardous chemical arriving in the workplace.	
5	Ensure a copy of the safety data sheet and the risk assessment are available in:	

Before a chemical arrives in the workplace			
Step	Action		
	ChemAlert;		
	 workplace hazardous chemicals register; and 		
	Objective.		
	Refer to SafetyMan - Hazardous Chemicals Management Procedure 10 - Registers for Hazardous Chemicals for more information.		
6	Ensure that specific safe work procedures for using the hazardous chemical are developed and based on the risk assessment and information contained in the safety data sheet.		
7	Make sure workers who use, handle or store hazardous chemicals are trained and familiar with the contents of the safety data sheet and specific safe work procedures prior to the chemical being used, handled or stored in the workplace.		

Safety data sheet requirements when receiving hazardous chemicals in the workplace

7. When a hazardous chemical arrives in the workplace the steps set out in the following table must be implemented.

	Receiving hazardous chemicals in the workplace
Step	Action
1	Ensure that the correct copy of the safety data sheet is available from the ChemAlert database.
2	If the current safety data sheet is not available from ChemAlert, obtain a copy from the supplier and email a PDF copy to <u>whs.hazchem@defence.gov.au</u> to add to the ChemAlert database.
3	Check the safety data sheet details against the label on the container of the hazardous chemical to make sure the correct chemical has been obtained.
4	Check the label on the container to ensure that it is compliant.
5	If a hazardous chemical is received without a compliant safety data sheet follow the procedure outlined in SafetyMan - Hazardous Chemicals Management Procedure 09 - Receipt of Hazardous Chemicals into Units.
6	Ensure the hazardous chemical stock holdings are registered in ChemAlert.
7	Ensure a copy of the safety data sheet and the risk assessment are available in:
	ChemAlert,
	workplace Hazardous Chemicals register, and
	Objective.
	Refer to SafetyMan - Hazardous Chemicals Management Procedure 10 - Registers for Hazardous Chemicals for more information.

Receiving hazardous chemicals in the workplace		
Step	Action	
8	Ensure that any specific safe work procedures have been developed and workers who use, handle or store hazardous chemicals are trained and familiar with the contents of the safety data sheet and specific safe work procedures prior to the chemical being used in the workplace.	

Process for managing a non-compliant safety data sheets

- 8. Where an Australian manufacturer or supplier refuses to provide an Australian-compliant safety data sheet or advises they will charge a fee for the conversion of a non-compliant safety data sheet, then a response setting out the applicable regulatory obligations shall be sent to the manufacturer or supplier by the responsible Group or Service or the Defence ChemAlert Administration Team.
- 9. The Group or Service is to consult with the Defence ChemAlert Administration Team to determine which organisation shall liaise with the manufacturer or supplier.
- 10. If this request does not result in the provision of a compliant safety data sheet, the responsible Group or Service or Defence ChemAlert Administration Team will refer the matter to Comcare.
- 11. The following table identifies references for further information about Group/Service and ChemAlert procedures.

Responsible Group or Service	Procedure	
Hazardous chemicals supplied by Capability Acquisition and Sustainment Group or used in maintenance for a managed item and/or platform that are specified for use by a systems program office.	Refer to Capability Acquisition and Sustainment Group Procedure - <i>DMSP (ENG)</i> 12-8-002 Supply, Maintenance and Conversion of safety data sheets.	
Hazardous chemical procured by Defence Science and Technology Group for experimental or specialised activities.	Refer to Defence Science and Technology Group Procedure - <i>Review, Preparation and</i> <i>Publishing - ChemAlert database an Australian</i> <i>Compliant safety data sheet.</i>	
All other hazardous chemicals procured by Groups and Services.	Contact the Defence ChemAlert Team via whs.hazchem@defence.gov.au	
Defense will not become responsible for the proparation of compliant seferty data shoets where		

Defence will not become responsible for the preparation of compliant safety data sheets where the chemical is available from an Australian manufacturer or supplier.

Safety data sheets for obsolete products

12. For Defence, the term 'obsolete product' means a product for which the safety data sheet has expired—ie five or more years have elapsed since the date of issue or the most recent review—and the product is no longer manufactured or supplied. The safety data sheet for an obsolete product is the most recent one issued by the manufacturer or supplier of that product.

- 13. The first indication that a product may be obsolete is the expiry of the safety data sheet —ie five years have elapsed since the date of issue or the most recent review of the safety data sheet. When the safety data sheet has expired, the manufacturer or supplier must be contacted to obtain a current safety data sheet. If a new safety data sheet is available, a copy of the current safety data sheets should be sent to <u>whs.hazchem@defence.gov.au</u> for updating in ChemAlert.
- 14. Although the safety data sheet has expired—and noting the manufacturer/supplier is not required to update or review an safety data sheet for a product that they have not manufactured/supplied within the last five years—the product may still be used if certain conditions are met.
- 15. For a product that has not been manufactured/supplied within the last five years, the reason(s) why it is no longer manufacturer/supplied must be established and an assessment conducted to determine whether continued use of the product is required. Use of the product can continue if Defence has stocks and it has been determined that there is no health, environmental or shelf-life concerns with the continued use of the product. However, if health, environmental or shelf-life concerns have been identified, use of the chemical must cease and specialist advice must be obtained.
- 16. If continued use of the product is required and:
 - details of the product (full name and manufacturer), including why the product is no longer manufactured, should be forwarded to <u>whs.hazchem@defence.gov.au</u> for updating in ChemAlert;
 - 16.2. the safety data sheet and relevant risk assessment must clearly note 'Product obsolete' and ChemAlert stock holding status must be amended to 'Obsolete'; and
 - 16.3. this information is recorded in Objective.
- 17. If a manufacturer recommences production of a product, a comparison must be made between the obsolete safety data sheet and the new safety data sheet to determine if there are any differences that require further investigation, risk assessment or specialist advice.
- 18. The new safety data sheets should be sent to <u>whs.hazchem@defence.gov.au</u> and ChemAlert is to be updated and the 'Product obsolete' indicator and 'Obsolete' stock holding status removed.

References and related documents

- 19. Work Health and Safety Act 2011, Section 23 25
- Work Health and Safety Regulations 2011, Schedule 7- Safety data sheets, Schedule 8 Disclosure of ingredients in safety data sheets
- 21. National Measurement Act 1960
- 22. Australian Dangerous Goods Code
- 23. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 24. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
- 25. Workplace Exposure Standards for Airborne Contaminants 2011
- 26. Guidelines for Health Surveillance: NOHSC:7039
- 27. Standard for the Uniform Scheduling of Medicines and Poisons
- 28. DMSP (ENG) 12-8-002 Supply, Maintenance and Conversion of safety data sheets

- 29. <u>SafetyMan Hazardous Chemicals Management Procedure 09 Receipt of Hazardous Chemicals into Units</u>
- 30. <u>SafetyMan Hazardous Chemicals Management Procedure 10 Registers for Hazardous Chemicals</u>

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 12 - Health Monitoring For Hazardous Chemicals

- 1. This procedure provides work health and safety information on the requirements for health monitoring to identify and assess changes in workers' health status due to potential exposure to hazardous chemicals. It relates to the *SafetyMan Hazardous Chemicals Management Policy and Guidance*.
- 2. It does not include air monitoring or other measures used to assess or control exposure to hazardous chemicals in the workplace.
- This procedure is to be used in conjunction with the toolkit procedures SafetyMan Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management; SafetyMan Hazardous Chemicals Management Procedure 07 – Hazardous Chemicals Risk Assessment; and SafetyMan Work Health and Safety Risk Management Procedure 04 – Work Health and Safety Risk Matrix.
- 4. Where the requirement for health monitoring of workers is identified, personnel must be referred to a registered medical practitioner for health monitoring. The results must be recorded and actions taken in accordance with legislative requirements.

Legislative requirements

- 5. The Work Health and Safety Act 2011 and the Work Health and Safety Regulations 2011 place a duty on a Person Conducting a Business or Undertaking to ensure health monitoring of workers who use hazardous chemicals is undertaken to prevent illness or injury. This includes workers who are exposed to asbestos and lead (further information refer to SafetyMan Asbestos Management Policy and Guidance and SafetyMan Lead Exposure Management Policy and Guidance).
- 6. Workers must comply with any reasonable instruction given by the Person Conducting a Business or Undertaking to allow them to comply with their health monitoring duties.
- 7. Defence is liable for all expenses in relation to health monitoring:
 - 7.1. Group Heads and Service Chiefs have the final authority as officers of the Person Conducting a Business or Undertaking to direct health monitoring to occur, ie they may accept or reject Surgeon General Australian Defence Force or Senior Physician in Occupational and Environmental Medicine advice. In the event that Groups or Services decide to carry out health monitoring contrary to the respective Surgeon General Australian Defence Force or Senior Physician in Occupational and Environmental Medicine advice, Groups and Services will then be responsible for bearing the cost of that health monitoring.
 - 7.2. APS workers who require health monitoring must attend a contracted health services provider and all costs will be invoiced to Defence as per contract arrangements.
 - 7.3. Contractors and visiting personnel to Defence establishments under the *Work Health and Safety Act* 2011 Defence has a duty to take all reasonably practicable steps to protect the health and safety of contractors, their staff and other persons at or near Defence controlled workplaces. Health monitoring for contractors would not normally be provided by Defence and they should contact their employer for further information.



What is health monitoring?

- 8. Health monitoring is used to identify changes in the person's health status because of exposure to certain substances. It involves the collection of data in order to evaluate the effects of exposure and may be used to assess whether the dose is within safe levels. This allows decisions to be made about implementing strategies to eliminate or minimise the worker's risk of exposure (eg improving control measures or reassignment to other duties that involve less exposure). Although health monitoring is aimed primarily at identifying effects from workplace exposure to hazardous chemicals, it will measure all exposure including from outside of work.
- 9. The objective of health monitoring is to prevent, or to detect at an early or reversible stage, adverse health effects resulting from the use of hazardous chemicals in the workplace.
- Health monitoring is not an alternative to implementing control measures. If the results indicate that a worker is experiencing adverse health effects or signs of exposure to a hazardous chemical, the control measures must be reviewed and, if necessary, revised. Further in provided in Table 1 below which provides examples of techniques used in health monitoring.

	Table 1 – Health monitoring techniques
Interview questions	This involves asking the worker questions about previous occupational history, medical history, or lifestyle, eg dietary, smoking and drinking habits and about symptoms related to exposure. It may also involve simple questions about how workers undertake their work, their personal hygiene at work or where they eat in the workplace. All of these questions provide information to assess current or previous exposure to hazardous chemicals.
Medical examination	This involves the use of standard clinical and medical assessments, tests and techniques to assess the presence of early or long term health effects, often at set intervals by a registered medical practitioner. It can include an assessment of medical history, occupational and previous exposure history, and a clinical examination. This can also include tests such as spirometry (lung function) and radiography (X-ray).
Biological effect monitoring	This is the measurement and assessment of early biological effects before health impairment occurs in exposed workers, eg measurement of cholinesterase levels in workers exposed to organophosphate pesticides.
Biological exposure monitoring	This involves measurement and evaluation of the levels of a hazardous chemical or its metabolites (break-down products) in body tissues, body fluids, such as urine or blood eg blood, lead levels, urinary cadmium, or in exhaled breath of an exposed person.

Valid test methods for detecting biological or health effects

- 11. Valid test methods for scheduled chemicals are provided in:
 - 11.1. Work Health and Safety Regulations 2011, Schedule 14 Requirements for Health Monitoring (Table 2);
 - 11.2. Safe Work Australia Hazardous Chemicals Requiring Health Monitoring; and
 - 11.3. Health Monitoring for Exposure to Hazardous Chemicals Guide for Medical Practitioners.
- 12. Other test methods may be used for scheduled chemicals provided they can detect health effects or biological levels from exposure to hazardous chemicals used at the workplace and are equal to or better than the test methods listed in *Work Health and Safety Regulations 2011,* Schedule 14, Requirements for Health Monitoring. The decision to use other test methods than those prescribed in the *Work Health and Safety Regulations 2011* should be done in close consultation with the registered medical practitioner involved in the health monitoring and only with the approval of the Surgeon General Australian Defence Force or Senior Physician in Occupational and Environmental Medicine as appropriate.
- 13. If there is a significant risk to workers from exposure to hazardous chemicals that are not scheduled, the responsible commander or manager will discuss with the Surgeon General Australian Defence Force or Senior Physician in Occupational and Environmental Medicine as appropriate about whether valid test methods are available and if health monitoring should be provided for the worker. Any techniques and test methods used need to be practical, accurate and safe.

When is health monitoring required?

- 14. The Work Health and Safety Regulations 2011, Chapter 7, Part 7.1, Division 6 Health Monitoring requires an assessment of the health risks if personnel are exposed to hazardous chemicals during the activity conducted by the Person Conducting a Business or Undertaking. Defence must conduct health monitoring if the worker is:
 - 14.1. carrying out ongoing work using, handling, generating or storing hazardous chemicals and there is a significant risk to the worker's health because of exposure to a chemical referred to in *Work Health and Safety Regulations 2011,* Schedule 14, Table 14.1;
 - 14.2. using, handling, generating or storing hazardous chemicals and there is a significant risk that the worker will be exposed to hazardous chemicals (other than a hazardous chemical referred to in *Schedule 14*); and either:
 - 14.2.1. valid techniques are available to detect the effect on the worker's health; or
 - 14.2.2. a valid way of determining biological exposure to the hazardous chemical is available and it is uncertain, on reasonable grounds, whether the exposure to the hazardous chemical has resulted in the biological exposure standard being exceeded.
- 15. The need to provide health monitoring to workers is not restricted to those chemicals listed in Schedule 14 of the Work Health and Safety Regulations 2011 or asbestos. Additional chemicals to consider for health monitoring are set out in the Safe Work Australia - Health Monitoring for Exposure to Hazardous Chemicals - Guide for Persons Conducting a Business or Undertaking.
- 16. Groups and Services, in consultation with Surgeon General Australian Defence Force and Senior Physician in Occupational and Environmental Medicine should consider instigating a health monitoring program for chemicals with severe known health effects and for which

risk to workers is significant. This will include chemicals which are known, or are presumed to be, carcinogenic, mutagenic or toxic to human reproduction, respiratory or skin sensitisers or those with other known severe toxic effects.

17. Where a workplace risk assessment demonstrates a significant risk to the health of an ADF member, the Group or Service must refer the matter to Surgeon General Australian Defence Force in accordance with Defence Health Manual, Volume 2, Part 14, Chapter 07 – Determining the Requirement for Occupational Health Monitoring in the Australian Defence Force.

Frequency of health monitoring

- 18. Health monitoring should be provided:
 - 18.1. before commencing work with the hazardous chemical. This is known as baseline monitoring and it is done so any changes to the worker's health can be identified during periods of potential exposure;
 - 18.2. during periods of exposure to the hazardous chemical, particularly where excessive exposure occurs, eg following spills or loss of containment;
 - 18.3. where the worker has concerns that may relate to exposure to the hazardous chemical, (e.g. where relevant symptoms are identified); and
 - 18.4. at termination of work with the hazardous chemical.
- 19. Further details of frequency of testing during periods of potential exposure are provided in the guidelines for individual chemicals in the Safe Work Australia Hazardous Chemicals Requiring Health Monitoring.

Determining health monitoring requirements

- 20. A significant risk means that people in the workplace are likely to be exposed at a level that could adversely affect their health, (eg there may be a significant risk if the exposure is high, the substance used is highly toxic, or it is reasonably foreseeable that leaks or spills of a hazardous chemical might occur).
- 21. In these circumstances, there are commonly three possibilities for describing the risk:
 - 21.1. the risks are significant, but already effectively controlled;
 - 21.2. the risks are significant, and not adequately controlled; and/or
 - 21.3. there is uncertainty about the risks, there is not enough information about the hazards or there is uncertainty about the degree of exposure.
- 22. Where there is any uncertainty about the risks, health monitoring is generally required for *Work Health and Safety Regulations 2011,* Schedule 14 substances. Air monitoring is also generally required in this situation to ensure control measures are working where serious health effects might result if control measures fail or the potential for exposure is high.
- 23. The risk can be regarded as 'not significant' if it is unlikely that the worker will be exposed at a level that would adversely affect their health.
- 24. If risks from hazardous chemicals are already controlled in accordance with known control measures, including those that may be mentioned on the safety data sheets, the risk is not significant and health monitoring typically not required, (eg where a process is completely enclosed or workers are isolated from exposure, risks would be considered low).
- 25. If the risks are significant and not adequately controlled, health monitoring is required. Existing control measures must also be reviewed and revised to eliminate or minimise the risks so far as is reasonably practicable.

- 26. It is important to note that the conditions under which a person is exposed to a chemical can impact the person's absorption rate and increase the risk, (eg people who are exposed during strenuous activity breathe more heavily and can absorb more of the chemical). The individual characteristics of the worker heart rate, respiration rate, diet, and whether they are a smoker can also be factors that increase the risks for workers. These factors need to be considered as part of a risk assessment.
- 27. If the Group or Service has determined there is significant risk, the information that has led to this decision needs to be provided to the Surgeon General Australian Defence Force (for ADF members) or the Senior Physician in Occupational and Environmental Medicine (for other than ADF members) as part of the process to determine whether health monitoring should be conducted.
- 28. Further Information is provided in the Safetyman Hazardous Chemical Management Procedure 06 - Hazardous Chemicals Risk Management.

Determining significant risk

- 29. It is the responsibility of Groups and Services to determine whether the risk to workers is significant as they have the best understanding of the work that is or will be undertaken at the workplace. The level of risk to workers from exposure to hazardous chemicals depends on the hazards as well as the frequency, duration and amount of exposure (the dose).
- 30. To estimate the level of risk it is necessary to draw together the information gathered about the hazardous chemical and the way that it is used in the workplace by undertaking a hazardous chemical risk assessment. In some instances Groups and Services may need to seek expert advice, eg from the Surgeon General Australian Defence Force, Senior Physician in Occupational and environmental medicine, or the Assistant Secretary Work Health and Safety Branch to assist in determining the level of risk.
- 31. In determining whether the risk is significant, Groups and Services must have regard to:
 - 31.1. the nature and severity of the hazard for each hazardous chemical. This information should be available from the label and the safety data sheets in most cases. However, in some instances the hazardous chemical that triggers health monitoring will be generated in the workplace, so a label and safety data sheets may not always be available;
 - 31.2. the degree of exposure of persons in the workplace. This needs to be determined for each workplace, taking account of:
 - actual processes and practices in the workplace where the chemicals are used;
 - 31.2.2. the quantities of chemicals being handled;
 - 31.2.3. work practices and procedures and the way that individual workers carry out their daily tasks;
 - 31.2.4. whether existing control measures adequately control exposure;
 - 31.2.5. air monitoring and further information can be found in SafetyMan -Hazardous Chemicals Management Procedure 13 - Monitoring for Airborne Contaminants;
 - 31.2.6. compliance by conducting a number of exposure measurements, often involving a number of workers. Compliance with an exposure standard can be demonstrated only when the exposure of individual workers or groups of workers is known, with an accepted degree of certainty, to be below the exposure standard;

- 31.2.7. workers reporting symptoms known to be associated with the hazardous chemical being used. This may also indicate that control measures are not working effectively and prompt remedial action will be required.
- 32. Further information is provided in SafetyMan Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management.

Hazardous chemicals requiring health monitoring

- 33. Table 2 below set outs the hazardous chemicals requiring health monitoring that are included in Schedule 14 tables 14.1 and 14.2. This table also includes information about the type of health monitoring that may be required for each chemical.
- 34. Work Health and Safety Regulations 2011, Schedule 14 table 14.1 includes hazardous chemicals and table 14.2 includes lead requiring health monitoring. There are also specific requirements for asbestos in *Work Health and Safety Regulations 2011*, Regulation 436 Duty to ensure that appropriate health monitoring is provided.

Table 2 – Hazardous chemicals requiring health monitoring (including lead)		
ltem	Hazardous chemical	Type of health monitoring
1	Acrylonitrile	Demographic, medical and occupational history Records of personal exposure Physical examination
2	Arsenic (inorganic)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the peripheral nervous system and skin Urinary inorganic arsenic
3	Benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile
4	Cadmium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system Standard respiratory questionnaire to be completed Standardised respiratory function tests including, (eg. FEV1, FVC and FEV1/FVC) Urinary cadmium and β 2 microglobulin Health advice, including counselling on the effect of smoking on cadmium exposure

Table	Table 2 – Hazardous chemicals requiring health monitoring (including lead)		
5	Chromium (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Weekly skin inspection of hands and forearms by a competent person	
6	Creosote	Demographic, medical and occupational history Health advice, including recognition of photosensitivity and skin changes Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and evidence of skin sensitisation Records of personal exposure, including photosensitivity	
7	Crystalline silica	Demographic, medical and occupational history Records of personal exposure Standardised respiratory questionnaire to be completed Standardised respiratory function test, (eg. FEV1, FVC and FEV1/FVC) Chest X-ray full size PA view	
8	Isocyanates	Demographic, medical and occupational history Completion of a standardised respiratory questionnaire Physical examination of the respiratory system and skin Standardised respiratory function tests, (eg. FEV1, FVC and FEV1/FVC)	
9	Mercury (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems Urinary inorganic mercury	
10	4, 4'-Methylene bis (2-chloroaniline) (MOCA)	Demographic, medical and occupational history Physical examination Urinary total MOCA Dipstick analysis of urine for haematuria Urine cytology	

Table 2 – Hazardous chemicals requiring health monitoring (including lead)		
11	Organophosphate pesticides	Demographic, medical and occupational history including pattern of use Physical examination Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used
12	Pentachlorophenol (PCP)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy Urinary total pentachlorophenol Dipstick urinalysis for haematuria and proteinuria
13	Polycyclic aromatic hydrocarbons (PAH)	Demographic, medical and occupational history Physical examination Records of personal exposure, including photosensitivity Health advice, including recognition of photosensitivity and skin changes
14	Thallium	Demographic, medical and occupational history Physical examination Urinary thallium
15	Vinyl chloride	Demographic, medical and occupational history Physical examination Records of personal exposure
16	Lead (inorganic	medical and occupational history Physical examination Biological monitoring

Additional chemicals to consider for health monitoring

35. Table 3 below sets out hazardous chemicals that are not listed in the *Work Health and Safety Regulations 2011* - Schedule 14, however, a health monitoring program should be considered where the risk to workers from exposure is significant.

Table 3 – Additional chemicals to consider for health monitoring		
Item	Hazardous chemical	Type of health monitoring
1	Antimony	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on skin Urinary antimony level
2	Beryllium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on respiratory and dermatological systems Urinary beryllium
3	Carbon Disulphide	Demographic, medical and occupational history Physical examination with emphasis on skin Urinary 2-thiothiazolidine-4-carboxylic acid level
4	Cobalt	Demographic, medical and occupational history Physical examination with emphasis on respiratory system Urinary cobalt level
5	Cyclophosphamide	Demographic, medical and occupational history Urinary cyclophosphamide
6	Ethyl benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary mandelic acid
7	Nickel	Demographic, medical and occupational history Physical examination with emphasis on dermatological and respiratory systems Urinary nickel

Table 3 – Additional chemicals to consider for health monitoring		
ltem	Hazardous chemical	Type of health monitoring
8	Styrene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary mandelic acid
9	Toluene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary hippuric acid or o-cresol or s-toluylmercapturic acid
10	Xylene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary toluric acid

Consultation with workers

- 36. Workers must be provided with any information about exposures prior to commencing work, including any requirements to participate in health monitoring. If the hazard is identified after a worker has commenced work, then information should be provided as soon as practicable after the requirement is identified.
- 37. Workers should be informed about:
 - 37.1. possible health effects from exposure;
 - 37.2. that health monitoring in some cases is a legal requirement;
 - 37.3. what a program of health monitoring will achieve and its benefits;
 - 37.4. what is involved in the health monitoring program, (eg. the frequency of testing and which tests may be needed, i.e. blood tests, respiratory tests);
 - 37.5. any requirement for them to see a doctor or specialist;
 - 37.6. how a registered medical practitioner is chosen and their qualifications;
 - 37.7. how to report symptoms;
 - 37.8. who pays for the health monitoring;
 - 37.9. if and how monitoring results may affect their work tasks, (eg explaining circumstances where the worker may need to move to other tasks);
 - 37.10. results and counselling options;
37.11. record keeping requirements; and

- 37.12. that health monitoring results are confidential and can only be disclosed to the regulator, the business or undertaking they work for, any other Person Conducting a Business or Undertaking who has a duty to provide health monitoring for the worker, or another registered medical practitioner involved in the health monitoring, unless their consent is otherwise given.
- 38. Workers must be consulted regarding the selection of the registered medical practitioner who will supervise or perform the health monitoring.
- 39. Workers must comply, so far as they are reasonably able, with any reasonable instruction given by the Person Conducting a Business or Undertaking to allow them to comply with their health monitoring duties.
- 40. Safe Work Australia Health Monitoring for Exposure to Hazardous Chemicals Guide for Workers provides general information about health monitoring for exposure to hazardous chemicals that is suitable for use by workers. It is recommended that this document be provided to any worker who may require health monitoring.

Who should perform health monitoring?

- 41. Health monitoring must be carried out by, or under the supervision of, a registered medical practitioner with experience in health monitoring. The registered medical practitioner should be adequately trained in the appropriate medical examinations and tests for the chemical in question.
- 42. The medical practitioner should prepare a program of health monitoring and either carry out the health monitoring program themselves or supervise the program undertaken by another suitably qualified person, such as an occupational health nurse.
- 43. The medical practitioner has the overall responsibility for health monitoring, however, they may need to seek advice from other professionals, in particular, an occupational physician, and may need to consult with other workplace health and safety professionals.

Information to be provided by the unit to the registered medical practitioner

- 44. Prior to commencing work with a scheduled chemical, units must provide the registered medical practitioner with the following information:
 - 44.1. About the business or undertaking and the worker:
 - 44.1.1. name and address of unit; and
 - 44.1.2. the name, date of birth, gender and current residential address of the worker.
 - 44.2. About the work:
 - 44.2.1. a list of the scheduled chemicals that the worker is or will be exposed to and the dates that the worker last used the chemicals;
 - 44.2.2. the work the worker is, or will be, carrying out that has triggered the requirement for health monitoring;
 - 44.2.3. if the worker has started work, how long the worker has been carrying out the work;
 - 44.2.4. the safety data sheets for the chemical(s); and
 - 44.2.5. any relevant risk assessment reports and details of workplace exposure standards and results of air monitoring undertaken at the workplace.

- 44.3. This information is critical for the practitioner to understand all of the situations where workplace exposure could occur.
- 45. The risk assessment reports should contain any information about likely exposures at the workplace, including control measures that are in place to reduce exposure, and investigations of any results where workplace exposure standards have been exceeded.

Chemicals requiring medical testing before commencing work

- 46. Baseline health monitoring is required for all workers that undergo health monitoring for exposure to scheduled hazardous chemicals before they commence work with the scheduled chemical.
- 47. Supervisors should make acceptable arrangements for workers to participate in the health monitoring program, eg providing time off work to attend medical appointments related to the health monitoring program.
- 48. An initial occupational health assessment must take place prior to any potential exposure to isocyanate-based paints. For spray painters, ongoing health surveillance is to be undertaken during continued painting activities. Although ongoing health surveillance is not required for members involved in brush and roller painting after the initial occupational health assessment, health professionals should be mindful of this exposure when assessing such members during all clinical presentations. Full details are provided in *Defence Health Manual Volume 3, Part 14 Occupational Medicine*.

Administrative procedures for accessing health monitoring – ADF

- 49. Request a determination for the requirement of health monitoring.
- 50. The Surgeon General Australian Defence Force requires a full written risk assessment from Group/Service commander or manager to determine the requirement for health monitoring.
- 51. On occurrence, a manager, supervisor or commander must submit the full written risk assessment, (conducted in accordance with *Safetyman Hazardous Chemicals Management Procedure 06 Hazardous Chemicals Risk Management*) that indicates a significant risk to health in the workplace from a physical hazard(s)/hazardous substance(s) to their senior health representative, responsible for health support:
 - 51.1. for ADF members on campaigns, operations, joint exercises, and other activities on behalf of the Chief of Defence Force, the workplace risk assessment will be submitted to Headquarters Joint Operations Command, J07 Director Health; and
 - 51.2. for ADF members operating in the National Support Area (eg garrison, exercises including those afloat), the workplace risk assessment will be submitted to their respective directors, Director Army Health, Director Navy Health, or Director Air Force Health.
- 52. The manager, supervisor or commander full written risk assessment must describe the risk to health as the likelihood of a physical hazard(s)/hazardous substance(s) to cause harm to health in the circumstance of its use, handling, storage, generation or particular conditions of work.
- 53. The Surgeon General Australian Defence Force has determined that a risk level greater than low is sufficient to initiate an assessment of requirement for health monitoring.

Assigning a registered medical practitioner

54. A registered medical practitioner with experience in health monitoring is an occupational physician who is privileged to determine the requirement for health monitoring. Occupational Physicians will be credentialed and privileged by Joint Health Command.

55. The Directorate of Army Health, Directorate of Navy Health and Directorate of Air Force Health are to refer the request for health monitoring determination to Director-General Policy and Research Coordination who will task an occupational physician. A list of occupational physicians will be maintained by Director-General Policy and Research Coordination.

Occupational physician actions

- 56. The occupational physician is to determine which of the following outcomes is required and is to notify Surgeon General Australian Defence Force and the referring authority of this determination:
 - 56.1. health monitoring is not required, provide in writing advice and recommendations to manage occupational health issues;
 - 56.2. health monitoring is required, the occupational physician is to lead policy development (under Director-General Policy and Research Coordination sponsorship) in accordance with extant procedures; and
 - 56.3. an existing health monitoring procedure requires modification, the occupational physician is to lead policy modification (under Director General Policy and Research Coordination sponsorship) in accordance with extant procedures.
- 57. Once the requirement for health monitoring has been identified, ADF members will normally receive health monitoring at, or as coordinated by, their local health clinic.
- 58. A recall system should be in place and operated in accordance with both Defence Health Manual Volume 2, Part 2, Chapter 08 – Management of Patient Recall in Australian Defence Force Healthcare Facilities and Defence Health Manual Volume 3, Part 2, Chapter 04 – Recall and Follow Up Processes.
- 59. Further information is provided in SafetyMan Hazardous Chemicals Management Procedure 06 - Hazardous Chemicals Risk Management.

Administrative procedures for accessing health monitoring APS, contractors, exmembers, visitors

- 60. A manager, supervisor or commander must submit a full written risk assessment that indicates a significant risk to health in the workplace from a hazardous chemical(s) to the Senior Physician in Occupational and Environmental Medicine.
- 61. If the Senior Physician in Occupational and Environmental Medicine determines that health monitoring is necessary, the member will then be required to contact 1800 DEFENCE (1800 333 362) and register for the Defence Asbestos and Hazardous Chemicals Scheme. Upon registration, they will be provided with information on how to access the appropriate contracted health care provider to have health monitoring undertaken for the identified hazardous chemicals.
- 62. It will not always be reasonably practicable (in accordance with the *Work Health and Safety Act 2011*) to conduct health monitoring in certain locations or at the times stipulated in guidelines, or if there is no registered medical practitioner available. When submitting a work health and safety event in Sentinel for exposure to a chemical listed in Schedule 14 or otherwise notifiable, the individual is to indicate whether or not health monitoring was provided.
- 63. Further information is provided in SafetyMan Hazardous Chemicals Management Procedure 03 - Prohibited Carcinogens, Restricted Carcinogens and Restricted Hazardous Chemicals.

ChemAlert health monitoring guides

- 64. A ChemAlert user who has a logon is able to generate a ChemAlert health monitoring guide to identify hazardous substances listed in Schedule 14 of the *Work Health and Safety Regulations 2011* based on the manifest of chemicals. The health monitoring guide generates a list of all products with ingredients which are listed as Schedule 14 hazardous chemicals. This guide can be used in conjunction with occupational hygiene monitoring (including airborne contaminant monitoring) as part of the risk assessment process, to determine whether health monitoring is required. Not every chemical listed in the guide will require monitoring and some substances present minimal risk of exposure.
- 65. The health monitoring guide can be generated by:
 - 65.1. in Stock, click on Reports. Under 'health and environment' click on health monitoring guide;
 - 65.2. click on a Site and select View/Print health monitoring guide. The health monitoring report is displayed in a pop-up as being available; and
 - 65.3. click on the pop-up box to download the health monitoring guide.
- 66. Please note that the additional (outside the requirements of Schedule 14) hazardous chemicals listed at Table 3 are not captured in the ChemAlert health monitoring guide. A separate report will need to be run in ChemAlert on each of the hazardous chemicals listed in Table 3.
- 67. A user with a logon is also able to generate a ChemAlert report to identify biological exposure indices for substances on the manifest of chemicals. The biological exposure indices are promulgated by the American Conference of Governmental Industrial Hygienists and have no legal status in Australia. As biological exposure indices should not be used by unqualified personnel, their use is strongly discouraged.
- 68. Biological monitoring values for hazardous chemicals requiring health monitoring are given in *Safe Work Australia - Hazardous Chemicals Requiring Health Monitoring*. This is intended for use by medical practitioners carrying out or supervising a health monitoring program for workers who may be exposed to the following hazardous chemicals and asbestos. It should be read in conjunction with the *Safe Work Australia - Health Monitoring for Exposure to Hazardous Chemicals - Guide for Medical Practitioners*.

Results of health monitoring

- 69. Unit commanders or their equivalent must take all reasonable steps to obtain a health monitoring report from the registered medical practitioner as soon as practicable after the completion of the monitoring program, or at regular intervals for longer term or ongoing health monitoring processes.
- 70. Unit commanders or their equivalent need to check that the report contains the following:
 - 70.1. the name and date of birth of the worker;
 - 70.2. the name, registration number and signature of the registered medical practitioner;
 - 70.3. name and address of the unit, activity or organisation;
 - 70.4. the date of health monitoring;
 - 70.5. any test results that indicate whether or not the worker has been exposed to a hazardous chemical;
 - 70.6. any advice that test results indicate that the worker may have contracted a disease, injury or illness as a result of carrying out the work that triggered the requirement for health monitoring;

- 70.7. any recommendation that remedial measures are taken, including whether the worker can continue to carry out the type of work that triggered the requirement for health monitoring; and
- 70.8. whether medical counselling is required for the worker in relation to the work that triggered the requirement for health monitoring.
- 71. Where the health monitoring report relates to lead, ensure the report includes any test results that indicate that a worker has reached or exceeded the relevant blood lead level under the *Work Health and Safety Regulations 2011,* Regulation 415 Removal of worker from lead risk work.
- 72. The health monitoring report should only contain information relating to the health monitoring program for the chemical(s) being used. Confidential information about a worker, which has no bearing or relevance to their work, must not be disclosed to any person without their written consent, including to the Person Conducting a Business or Undertaking officers of that unit commanders or their equivalent.
- 73. Where a worker has been employed in a workplace where carcinogenic chemicals exist, the *Work Health and Safety Regulations 2011* require that Defence give the worker, at the end of the worker's engagement by Defence, a written statement of the following:
 - 73.1. the name of the prohibited or restricted carcinogen to which the worker may have been exposed during the engagement;
 - 73.2. the time the worker may have been exposed;
 - 73.3. how and where the worker may obtain records of the possible exposure;
 - 73.4. whether the worker should undertake regular health assessments; and
 - 73.5. the relevant tests to undertake.
- 74. Further information is provided in SafetyMan Hazardous Chemicals Procedure 03 -Prohibited Carcinogens, Restricted Carcinogens and Restricted Hazardous Chemicals.

Health monitoring record keeping

- 75. Health monitoring reports and results must be kept as confidential records and must not be disclosed to another person without the worker's written consent, except where the records are required to be given under the *Work Health and Safety Regulations 2011* to:
 - 75.1. Comcare (the Regulator);
 - 75.2. another person or Person Conducting a Business or Undertaking who has a duty to provide health monitoring for the worker; or
 - 75.3. a person who must keep the record confidential under a duty of professional confidentiality.
- 76. Health monitoring includes longer-term epidemiological studies.
- 77. Health monitoring records for ADF and APS employees will be held on their medical records (electronic and hard copy) and must be separate to payroll and human resource data and classified "Protected Sensitive Personal".
- 78. Contractors who require health monitoring while carrying out activities for or on behalf of the Person Conducting a Business or Undertaking will keep their health monitoring records with their general practitioner.
- 79. Visitors and other persons who are exposed to hazardous chemicals will have their health monitoring costs paid by Defence and will follow the reportable events process in Sentinel.

- 80. Health monitoring records for all workers must be kept for at least 30 years after the record is made, even if the worker no longer works at the workplace.
- 81. For asbestos health monitoring, these records must be kept for at least 40 years. This is due to the long period of time it can take for asbestos-related diseases to develop.

Duty to give health monitoring report to the regulator

- 82. Defence must ensure that Comcare (the Regulator) is notified of:
 - 82.1. any advice of test results indicating that the worker may have contracted a disease, injury or illness as a result of carrying out the work using, handling, generating or storing hazardous chemicals that triggered the requirement for health monitoring; or
 - 82.2. any recommendation that the Person Conducting a Business or Undertaking take remedial measures, including whether the worker can continue to carry out the work using, handling, generating or storing hazardous chemicals that triggered the requirement for health monitoring.
- 83. The form for reporting to Comcare is the Health Monitoring Report.

Duty to provide a report to the relevant Person Conducting a Business or Undertaking

84. Defence must provide a copy of the health monitoring report to all other Person Conducting a Business or Undertaking who have a duty to provide health monitoring for the worker as soon as practicable after obtaining the report.

Remedial action

- 85. If Defence is advised by a medical practitioner of the need for remedial action following the health monitoring of a worker, Defence must, as soon as practicable:
 - 85.1. revise any assessment of the worker's exposure to the hazardous chemical; and
 - 85.2. take the steps that are necessary to comply with the requirements of the *Work Health and Safety Regulations 2011*.

Health monitoring report for Comcare

- 86. The requirement to give a copy of a health monitoring report to Comcare relates to:
 - 86.1. hazardous chemicals is work using, handling, generating or storing hazardous chemicals refer to *Work Health and Safety Regulations 2011*, Regulation 376 Duty to give health monitoring report to regulator;
 - 86.2. lead risk work refer to *Work Health and Safety Regulations 2011*, Regulation 413 Duty to give health monitoring report to regulator (lead risk work); and
 - 86.3. asbestos licensed removal work, ongoing asbestos removal work or asbestos related work refer to *Work Health and Safety Regulations 2011*, Regulation 442 Duty to give health monitoring report to regulator (Asbestos).
- 87. A copy of a health monitoring report relating to a worker must be given to Comcare, as soon as practicable after obtaining the report, if the report contains:
 - 87.1. any advice that indicates the worker may have contracted a disease, injury or illness as a result of carrying out the work;
 - 87.2. a recommendation that the Person Conducting a Business or Undertaking take remedial measures, including whether or not the worker can continue carrying out the work; and

87.3. in the case of lead risk work, test results that indicate the worker has exceeded relevant blood lead levels for that person under *Work Health and Safety Regulations 2011*, Regulation 415 – Removal of worker from lead risk work.

What format should the report take

88. Work Health and Safety Regulations 2011, Regulations 376, 413 and 442 mandates the health monitoring report is to be given to Comcare. The report template Health Monitoring Report – Copy to be Given to Comcare can be downloaded form the Comcare website.

References and related documents

- 89. Work Health and Safety Act 2011
- 90. Work Health and Safety Regulations 2011
- 91. SafetyMan Hazardous Chemicals Management
 - 91.1. <u>Procedure 03 Prohibited Carcinogens, Restricted Carcinogens and Restricted</u> <u>Hazardous Chemicals</u>
 - 91.2. Procedure 06 Hazardous Chemicals Risk Management
 - 91.3. Procedure 07 Hazardous Chemicals Risk Assessment
 - 91.4. Procedure 13 Monitoring for Airborne Contaminants
- 92. <u>SafetyMan Work Health and Safety Risk Management Procedure 04 Work Health and</u> <u>Safety Risk Matrix</u>
- 93. SafetyMan Lead Exposure Management Policy and Guidance
- 94. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 95. Comcare Health Monitoring Report Copy to be Given to Comcare
- 96. Comcare Guide on Authorisations to Use, Handle or Store Carcinogens
- 97. Defence Health Manual
- 98. An Introduction to Occupational Medicine in Defence Handbook
- 99. Defence Occupational Hygiene Training Manual
- 100. Safe Work Australia
 - 100.1. Adopted National Exposure Standard For Atmospheric Contaminants In The Occupational Environment [NOHSC: 1003 (1995)]
 - 100.2. Guidance of the Classification of Hazardous Chemicals under the Work Health and Safety Regulations
 - 100.3. Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants
 - 100.4. Health Monitoring for Exposure to Hazardous Chemicals Guide for PCBUs
 - 100.5. Health Monitoring for Exposure to Hazardous Chemicals Guide for Medical Practitioners
 - 100.6. Health Monitoring for Exposure to Hazardous Chemicals Guide for Workers
 - 100.7. Hazardous Chemicals Requiring Health Monitoring

Procedure 12 – Health Monitoring for Hazardous Chemicals

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 13 - Monitoring For Airborne Contaminants

- 1. This procedure provides work health and safety information relating to the SafetyMan -Hazardous Chemicals Management Policy and Guidance.
- 2. The Work Health and Safety Act 2011 and the Work Health and Safety Regulations 2011 mandate that workplaces containing hazardous chemicals should be adequately ventilated.
- 3. This procedure does not apply to gas monitoring in hazardous atmospheres, as required in *Work Health and Safety Regulations 2011, Chapter 3, Part 3.2, Division 8 Hazardous Atmospheres* (Annex A). In some situations, where the hazards are from oxygen depletion or enrichment or from fire or explosion, these are termed hazardous atmospheres.
- 4. Monitoring of airborne contaminants can be used to determine a worker's exposure to a substance or mixture in an airborne concentration that exceeds the exposure standard for that substance or mixture. Monitoring can help to assess whether an airborne contaminant may cause adverse health effects or undue discomfort to workers. A known volume of air is sampled to establish whether or not an airborne contaminant is present and if so, to determine if the concentration of the contaminant in the sample exceeds the exposure standard.
- 5. The requirements for managing air monitoring for airborne contaminants include:
 - 5.1 determining an appropriate air monitoring sampling strategy; and
 - 5.2 procedures for conducting air monitoring.
- 6. Indoor air quality in any building is a result of a constantly changing interaction between the building occupants and the effects of the site, climate, building structure, mechanical systems and contaminant sources (building materials and furnishings, moisture, processes and activities within the building, and outdoor sources). Indoor workplaces may have natural ventilation, mechanical ventilation (fans or extraction units) or air conditioning.
- 7. The *Work Health and Safety Act 2011* mandates Defence conduct air monitoring of airborne contaminants in workplaces to ensure that no worker is exposed to a substance or mixture in an airborne concentration that exceeds the relevant exposure standard for that substance or mixture (chemical) and that exposures are controlled.
- 8. Defence must comply with the hazardous chemicals exposure standards. Chemical safety data sheets are to be reviewed and risk assessments undertaken for all hazardous chemicals used, handled, generated or stored in the workplace.
- 9. This procedure is to be read in conjunction with the following:



9.1 SafetyMan Hazardous Chemicals Management:

9.1.1. Procedure 06 - Hazardous Chemicals Risk Management;

9.1.2. Procedure 07 - Hazardous Chemicals Risk Assessment;

- 9.2 SafetyMan Work Health and Safety Risk Management Procedure 04 Work Health and Safety Risk Matrix;
- 9.3 Defence Occupational Hygiene Training Manual; and
- 9.4 Defence Health Manual, Volume 3, Part 16 Preventative and Environmental Health.

Duties relating to airborne contaminants in the workplace

- 10. Work Health and Safety Regulations 2011, Regulation 49 Ensuring exposure standards for substance and mixtures not exceeded (Annex B) requires that a Person Conducting a Business or Undertaking must ensure that no person at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the relevant exposure standard for the substance or mixture. To determine whether exposure standards have been exceeded air monitoring may be required.
- 11. Work Health and Safety Regulations 2011, Regulation 50 Monitoring airborne contaminate levels (Annex C) requires a Person Conducting a Business or Undertaking at a workplace to ensure that atmospheric monitoring is carried out to determine the airborne concentration of a substance or mixture at the workplace to which an exposure standard applies if:
 - 11.1 the person is not certain on reasonable grounds whether or not the airborne concentration of the substance or mixture at the workplace exceeds the relevant exposure standard; or
 - 11.2 monitoring is necessary to determine whether there is a risk to health.
- 12. In addition, Work Health and Safety Regulations 2011, Regulation 420 Exposure to airborne asbestos at workplace (Annex D) requires a Person Conducting a Business or Undertaking at a workplace to ensure, so far as is reasonably practicable, that exposure of a person at the workplace to airborne asbestos is eliminated or minimised. Refer to SafetyMan Asbestos Management Policy and Guidance.

What is air monitoring?

- 13. Air monitoring (also known as atmospheric monitoring) is a means of evaluating an individual's level of exposure to a hazardous chemical or airborne contaminant by collecting and analysing a sample of air collected in the individual's breathing zone.
- 14. It should be noted that where air monitoring is used to estimate a person's inhalation exposure, the monitoring must be conducted in the breathing zone of the person, ie via "personal monitoring". If a respirator is worn, air monitoring samples should be taken outside the respirator. Breathing zone samples are usually obtained by fastening a sampling device to a shirt or jacket lapel of the worker.
- 15. Air samples taken at fixed locations in the working environment, that is, "static samples", cannot provide personal exposure information and their use should be limited to tasks such as assessing process control measures. In some cases, fixed continuous monitors may also be used to give early warning of leaks or other contaminating sources which could subsequently lead to worker exposures above the exposure standard.
- 16. In some situations, it may be desirable to conduct 'worst case scenario monitoring'. This is a monitoring strategy which is designed to reflect maximum risk. It is useful for measuring

those peak exposures where a peak limitation applies or even where short term exposure limits are applicable. However, it is not recommended for time weighted average exposure assessments.

- 17. Ideally for compliance purposes, exposure measurements should be made from unbiased and representative samples of actual worker exposure. Such a sampling strategy usually encompasses a selection of workers for personal monitoring as well as the timing of sampling. The monitoring strategy should also address issues such as the nature and duration of a process, sampling and analysis errors, statistical analysis of exposure data and the determination of the need for regular exposure measurement.
- 18. Analysis of samples taken in the workplace should be carried out by a National Association of Testing Authorities accredited laboratory. National Association of Testing Authorities accredits laboratories and regularly carries out re-accreditation audits of the laboratories. A list of accredited laboratories is available from the *National Association of Testing Authorities web site* (www.nata.asn.au).
- 19. Air sampling may be required:
 - 19.1 in anticipation of a new hazardous chemical being introduced into Defence;
 - 19.2 if it is not certain whether or not the airborne concentration of the substance or mixture at the workplace exceeds the relevant exposure standard;
 - 19.3 where monitoring is necessary to determine whether there is a risk to health;
 - 19.4 when evaluating effectiveness of controls, including personal protective equipment;
 - 19.5 for educating workers about the importance of safe work practices;
 - 19.6 when generating data for epidemiological studies;
 - 19.7 for determining source of leaks; and
 - 19.8 for establishing exclusion areas following a leak, spill or other uncontrolled release of a hazardous chemical.

What is an airborne contaminant?

20. Airborne contaminant means a contaminant in the form of a fume, mist, gas, vapour or dust, and includes microorganisms.

What are exposure standards?

- 21. Workplace exposure standards are airborne concentrations of a particular chemical or substance in the workers' breathing zone that should not cause adverse health effects or cause undue discomfort to nearly all workers. Exposure standards are legal concentration limits that must be adhered to.
- 22. The official list of workplace exposure standards for airborne contaminants is contained within the Safe Work Australia publication *Workplace Exposure Standards for Airborne Contaminants* and the Hazardous Substances Information System database.
- 23. Some chemicals without an Australian exposure standard may still need monitoring (eg diesel and kerosene). In these circumstances an international guideline may be consulted to provide additional information.

Who should carry out air monitoring?

- 24. Air monitoring should be carried out by a person such as an occupational hygienist with skills to carry out the monitoring according to the appropriate standard and to interpret the results. Most routine air monitoring can be conducted by level 1 trained occupational hygiene personnel, ie those who have completed the Monitoring for Health Hazards course. However, this should be done under the supervision of a level 2 occupational hygienist. More complex air monitoring is to be conducted by level 2 occupational hygienists.
- 25. Refer to the *Defence Occupational Hygiene Training Program* on the Work Health and Safety Branch website for more information about occupational hygiene.

General requirements for managing air monitoring

- 26. Do not take any action that may threaten your own health and safety or that of others in the workplace.
- 27. Wear appropriate personal protective equipment when working in contaminated atmospheres.

Table 1 – Air monitoring procedure			
Step	Action		
1	Establish the requirement for air monitoring		
	This will be determined by either a baseline survey or the risk assessment, which will help to identify the hazardous chemical(s) and any potential airborne contaminants.		
	Further information is provided in <i>SafetyMan Procedure 06 Hazardous Chemicals Risk Management</i> .		
	Relevant information on each hazardous chemical would, as a minimum, include a safety data sheet for each hazardous chemical used. Other useful sources include product labels, procedures, and codes of practice and guidance notes. From this information, the following should be determined about each chemical:		
	physical form and properties;		
	health effects;		
	 routes of entry into the body; 		
	exposure standards;		
	precautions for use;		
	safe handling; and		
	 managing emergencies such as spills and fire. 		
	Where it has been identified that there are chemical reactions that generate a different hazardous chemical or by-product, then information on these will also need to be obtained.		

2	Identify which workers are at risk of exposure		
	Workers who may be at risk of exposure may be identified from:		
	risk assessments;		
	baseline surveys;		
	 similar exposure groups potentially exposed to hazardous chemicals; 		
	walk-through surveys;		
	 incident reports (eg Sentinel or audit reports); and 		
	 medical reports indicating signs or symptoms of disease that may be associated with exposure to a hazardous chemical. 		
	Refer to the Occupational Hygiene Training Manual for more information about similar exposure groups.		
3	Determine what sources and processes are causing that risk		
	A diagram or outline of the workplace layout and process flow, which includes equipment, storage and handling areas, controls and specific work areas, is a valuable tool. This diagram forms part of the hygiene survey records and should always be kept up-to-date. The aim is to follow the start of the process from the receipt of raw products into the workplace, through to the transfer of the finished product from the workplace.		
	The process flow should identify:		
	the hazardous chemicals used;		
	 where and when, the hazardous chemicals are used; 		
	the quantities used; and		
	• any chemical reactions that take place and the by-products that are produced.		
4	Identify if and what kind of control measures should be implemented		
	The risk assessment will have identified whether controls are required, and should indicate the type of control. Consideration should be given to:		
	• whether particularly hazardous chemicals can be eliminated or substituted;		
	 reducing exposure through isolation by time, location or enclosure; 		
	 whether engineering controls, (eg local exhaust or general ventilation, can be applied); and 		
	use of administrative controls and personal protective equipment.		

5	Check the effectiveness of existing control measures		
	As part of the walk-through survey, existing control measures should be identified. In addition the following should be established:		
	• whether due consideration has been given to the hierarchy of control measures;		
	 whether the controls are appropriate to the nature of the hazard, ie fit for purpose; 		
	 whether the controls are regularly serviced, maintained or tested and that this is documented; 		
	• whether the controls are installed, set up and are being used correctly; and		
	• whether administrative controls, such as training or instruction are provided.		
6	Determine an appropriate sampling strategy		
	To accurately measure airborne levels, a sampling strategy must be devised. Preparation of a sampling strategy needs to take into account the following areas:		
	sample location;		
	 whom to sample, based upon similar exposure groups; 		
	sample duration;		
	 number of samples required; 		
	when to sample; and		
	selection of air monitoring equipment.		
	Refer to the Defence Occupational Hygiene Program for more information about similar exposure groups.		
7	Conduct the air monitoring		
	Detailed procedures for air monitoring for various contaminants are contained in Defence Health Manual, Volume 3, Part 16 – Preventative and Environmental Health.		

8	Assess the results against the exposure standard		
	Compliance with an exposure standard can be demonstrated only when the exposure of individual workers or groups of workers is known, with an accepted degree of certainty, to be below the exposure standard. In evaluating whether the exposure is acceptable, other factors will need to be considered:		
	• exposure standards only consider absorption via inhalation and are valid only on the condition that significant skin absorption cannot occur. In some cases, special measures may be required to prevent absorption through the skin. Substances requiring such precautions are specified by the notation 'Sk' in column 5 of table 1 in the <i>Workplace Exposure Standards for Airborne Contaminants</i> ;		
	 adjustment of exposure standards for extended work shifts; 		
	workload considerations;		
	• some substances cause sensitisation and present greater risks to sensitised workers. These substances are given the notation 'Sen' in <i>Workplace Exposure Standards for Airborne Contaminants</i> . Sensitised workers may subsequently react to levels of the substance below the exposure standard and should not be further exposed to the substance; and		
	 exposure to mixtures of substances – combined effects may be independent, additive, synergistic or may potentiate the effect of another chemical, or a biochemical or physiological effect. For example, exposure to ototoxins can result in damage to hearing or balance functions of the inner ear. 		
	 Guidance on interpretation of the results against the exposure standard is provided by Grantham (2001). 		
9	Results are well within the exposure standard, ie an action level of <50% exposure standard		
	Undertake the following:		
	 complete the risk assessment in accordance with Defence procedures; 		
	 ensure air monitoring records are kept for at least thirty years; 		
	 provide a report to the commanding officer, manager and to the worker(s), this should include recommendations on control measures; and 		
	 if the worker was exposed to a prohibited or restricted carcinogen, a written statement of exposure must be given to the worker at the end of the worker's engagement. 		
	If results are not well within the exposure standard, move to step 10.		

Procedure 13 - Monitoring for Airborne Contaminants

10	Results indicate that a worker may have been exposed to a hazardous chemical		
	Undertake the following:		
	report the exposure through Sentinel;		
	 complete the risk assessment in accordance with Defence procedures; 		
	consider the need for health monitoring;		
	 ensure air monitoring records are kept for at least thirty years; 		
	 provide a report to the commanding officer, manager and to the worker(s), which should include recommendations on control measures; and 		
	 if the worker was exposed to a prohibited or restricted carcinogen, a written statement of exposure must be given to the worker at the end of the worker's engagement. 		
	 Further information is provided in the SafetyMan – Hazardous Chemicals Management Procedures. 		
11	Conduct an investigation and implement corrective actions		
	Analysis and interpretation of the results will give a direct indication as to how the exposure may be most effectively and efficiently controlled:		
	 apply immediate controls, such as use of personal protective equipment and administrative procedures; 		
	 where appropriate, establish the cause of the exposure event, using an appropriate investigative tool; 		
	 consider how more effective measures from the hierarchy of controls may be applied. This may require significant effort in planning and some costs; and 		
	 control measures should reduce airborne contaminants to levels as low as is reasonably practicable, ie not to a level just within the exposure standard. 		

Determine the need for repeat sampling

Air monitoring should be repeated under the following circumstances:

- after controls have been implemented, to assess their effectiveness;
- at least once every five years;

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- when a safety data sheet for a hazardous chemical is amended by the supplier, or when an updated safety data sheet is reviewed after five years and the risk assessment indicates air monitoring is required;
- when other information becomes available that may indicate a need to review air monitoring. This may include changes in toxicity status, or changes in the workplace; or
- based on the results of the initial air monitoring survey, ongoing routine monitoring should be conducted based on the ratio of the measured exposure/exposure standard = R, as shown in the table below:

No of shifts/10 workers	R = <u>measured exposure</u> ES
1 per month	1 - 2
1 per quarter	0.5 – 1 or 2 – 4
1 per year	0.1 – 0.5 or 4 - 20
No repeat really needed	<0.1 or >20
Grantham (2001)	

References and related material

- 28. Work Health and Safety Act 2011
- 29. Work Health and Safety Regulations 2011
- 30. SafetyMan Hazardous Chemicals Management:
 - 30.1 Procedure 03 Prohibited Carcinogens, Restricted Carcinogens and Restricted Hazardous Chemicals
 - 30.2 Procedure 06 Hazardous Chemicals Risk Management
 - 30.3 Procedure 07 Hazardous Chemicals Risk Assessment
 - 30.4 Procedure 11 Safety Data Sheets
 - 30.5 Procedure 12 Health Monitoring for Hazardous Chemicals
 - 30.6 Procedure 14 Record Keeping for Hazardous Chemicals
 - 30.7 Procedure 26 Labelling of Hazardous Chemicals
- 31. SafetyMan Asbestos Management Policy and Guidance

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- 32. SafetyMan Work Health and Safety Risk Management Procedure 04 Work Health and Safety Risk Matrix
- 33. Hazardous Chemicals Hazard Reduction Program
- 34. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 35. Code of Practice Managing Noise and Preventing Hearing Loss at Work
- 36. Defence Health Manual, Preventative and Environmental Health
- 37. Defence Occupational Hygiene Training Program
- 38. Occupational Hygiene Training Manual
- 39. Workplace Exposure Standards for Airborne Contaminants
- 40. Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants, April 2013
- 41. National Association of Testing Authorities web site
- 42. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Annexes

- A. Work Health and Safety Regulations 2011, Chapter 3, Part 3.2, Division 8 Hazardous Atmospheres
- B. Work Health and Safety Regulations 2011, Regulation 49- Ensuring exposure standards for substance and mixtures not exceeded
- C. Work Health and Safety Regulations 2011, Regulation 50 Monitoring airborne contaminant levels
- D. Work Health and Safety Regulations 2011, Regulation 420 Exposure to airborne asbestos at workplace

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Work Health and Safety Regulations 2011

Chapter 3, Part 3.2, Division 8 - Hazardous atmospheres

Regulation 51 - Managing risks to health and safety

(1) A person conducting a business or undertaking at a workplace must manage risks to health and safety associated with a hazardous atmosphere at the workplace, in accordance with Part 3.1.

Note

Work Health and Safety Act-section 19 (see regulation 9).

(2)An atmosphere is a *hazardous atmosphere* if:

(a)the atmosphere does not have a safe oxygen level; or

(b)the concentration of oxygen in the atmosphere increases the fire risk; or

(c)the concentration of flammable gas, vapour, mist or fumes exceeds 5% of the Lower exposure level for the gas, vapour, mist or fumes; or

(d)combustible dust is present in a quantity and form that would result in a hazardous area.

Regulation 52 - Ignition sources

(1)A person conducting a business or undertaking at a workplace must manage risks to health and safety associated with an ignition source in a hazardous atmosphere at the workplace, in accordance with Part 3.1.

Note

Work Health and Safety Act-section 19 (see regulation 9).

(2)This regulation does not apply if the ignition source is part of a deliberate process or activity at the workplace.

Work Health and Safety Regulations 2011

Regulation 49 - Ensuring exposure standards for substance and mixtures not exceeded

A person conducting a business or undertaking at a workplace must ensure that no person at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the exposure standard for the substance or mixture.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

Annex C

Work Health and Safety Regulations 2011

Regulation 50 - Monitoring airborne contaminant levels

(1) A person conducting a business or undertaking at a workplace must ensure that air monitoring is carried out to determine the airborne concentration of a substance or mixture at the workplace to which an exposure standard applies if:

(a)the person is not certain on reasonable grounds whether or not the airborne concentration of the substance or mixture at the workplace exceeds the relevant exposure standard; or

(b)monitoring is necessary to determine whether there is a risk to health.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(2) A person conducting a business or undertaking at a workplace must ensure that the results of air monitoring carried out under subregulation (1) are recorded, and kept for 30 years after the date the record is made.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

(3) A person conducting a business or undertaking at a workplace must ensure that the results of air monitoring carried out under subregulation (1) are readily accessible to persons at the workplace who may be exposed to the substance or mixture.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000

Annex D

Work Health and Safety Regulations 2011

General duty

Regulation 420 - Exposure to airborne asbestos at workplace

- (1) A person conducting a business or undertaking at a workplace must ensure that:
 - (a) exposure of a person at the workplace to airborne asbestos is eliminated so far as is reasonably practicable; and
 - (b) if it not reasonably practicable to eliminate exposure to airborne asbestos—exposure is minimised so far as is reasonably practicable.

Note

Work Health and Safety Act-section 19 (see regulation 9).

(2) A person conducting a business or undertaking at a workplace must ensure that the exposure standard for asbestos is not exceeded at the workplace.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

- (3) Subregulations (1)(a) and (2) do not apply in relation to an asbestos removal area:
 - (a) that is enclosed to prevent the release of respirable asbestos fibres in accordance with regulation 477; and
 - (b) in which negative pressure is used in accordance with that regulation.



Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 14 – Recordkeeping **For Hazardous Chemicals**

- 1. This procedure relates to SafetyMan - Hazardous Chemicals Management Policy and Guidance and provides work health and safety information on the requirements for maintaining and retaining records in relation to hazardous chemicals management in Defence workplaces.
- 2. The following table sets out the recordkeeping requirements for hazardous chemicals management in Defence workplaces.
- Retention periods generally commence from the date of the most recent previous entry. 3.

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Recordkeeping requirements for hazardous chemicals management				
Record	Retention period	Location for retention/access		
 Safety data sheet: all safety data sheets must be accessible to persons who may be affected by hazardous chemicals and also accessible to emergency services personnel as outlined in of the Work Health and Safety Regulations 2011, Regulation 344 – Person conducting a business or undertaking to obtain and give access to safety data sheets and Regulation 346 – Hazardous chemicals register (Annex A). compliant safety data sheets must be available from ChemAlert. 	 retain safety data sheet while hazardous chemicals are in the workplace 	 hardcopy in workplace hazardous chemicals register ChemAlert 		
 The hazardous chemicals register: an up-to-date register that includes a copy of the updated ChemAlert stock holding report and safety data sheet for each hazardous chemical in the workplace. the register must be accessible to persons affected by hazardous chemicals and emergency service personnel as defined in the Work Health and Safety Regulations 2011, Regulation 346 – Hazardous chemicals register. Note: there are separate requirements for asbestos registers under the Work Health and Safety Regulation 425 – Asbestos register (Annex B) 	 retain register while hazardous chemicals are in the workplace destroy 75 years after last entry 	 Hardcopy in the workplace copy of ChemAlert stock holding report to be kept on Objective 		

Recordkeeping requirements for hazardous chemicals management				
Record	Retention period	Location for retention/access		
 Hazardous chemicals manifest: an up-to-date manifest, recording Schedule 11 hazardous chemicals and their location, including information as set out in the Work Health and Safety Regulations 2011, Schedule 12 - Manifest quantities (Annex C) This must be readily available to emergency services personnel. Note: there are regulatory reporting requirements for manifests – refer to the Work Health and Safety Regulations 2011 Chapter 7 – Hazardous chemicals, Division 3 - Register and Manifest of Hazardous Chemicals (Annex D). 	 retain manifest while hazardous chemicals are in the workplace destroy 75 years after last entry 	 hardcopy in the workplace in accordance with base emergency planning requirements copy of ChemAlert manifest report to be kept on Objective 		
Risk assessment reports:				
 records documenting risk management of work health and safety hazards where risk assessments indicate risk to workers and where health monitoring is required. This includes documentation that covers each stage of the process, ie treatment schedules and action plans. records documenting risk management of work health and safety hazards where risk assessments indicate no risk to the employees and where health monitoring is not required still need to be managed. risk assessments must be accessible to all persons affected by a hazardous chemical in the workplace and to emergency services personnel. work health and safety risk register that contains workplace and health monitoring data. 	• retain for a minimum of five years after last action and observe Defence recordkeeping requirements to destroy 75 years after last action	 hardcopy in the workplace ChemAlert Objective 		

Recordkeeping requirements for hazardous chemicals management				
Record	Retention period	Location for retention/access		
Induction and training:				
 records of training provided to workers should be kept, documenting the training, when it occurred and who was trained. 	observe Defence recordkeeping requirements	 workplace training records 		
• record details of all induction, instruction and training carried out relating to hazardous chemicals in the workplace. Records must be kept in the workplace while work with hazardous chemicals is being undertaken by the worker, and on their PMKeyS training record.		 individual PMKeyS training records 		
• there are specific requirements for training records for asbestos removal work under the Work Health and Safety Regulations 2011, Regulation 461 –Licensed asbestos removalist must keep training records (Annex E).				
• records documenting work health and safety training provided to personnel including managers and work health and safety representatives. This includes hazardous chemical training and training provided to staff working in confined spaces.				
 work health and safety training register. 				
Occupational hygiene and atmospheric monitoring:	rate in face at least 20			
• the results of the occupational hygiene and atmospheric monitoring must be recorded and made readily accessible to any person at the workplace who may be exposed to the mixture or substance as outlined in the Work Health and Safety Regulations 2011, Regulation 50 – monitoring airborne contaminants (Annex F)	 retain for at least 30 years after the date record is made 	 workplace and agency conducting monitoring Objective 		
 records documenting environmental monitoring of hazardous chemicals. 				

Recordkeeping requirements for hazardous chemicals management				
Record	Retention period Location for retention/acce			
Health monitoring records:				
 health monitoring reports must be provided to the worker and kept on the worker's confidential employment file, which must not be disclosed to another person without the worker's written consent as outlined in the Work Health and Safety Regulations 2011, Regulation 375 – Duty to give health monitoring report to worker and Regulation 418 – Health monitoring records (Annex G). a copy of the redacted (anonymous) information must be made available to the workplace commander or manager as outlined in the Work Health monitoring report to relevant persons conducting businesses or undertakings (Annex H) in some circumstances the report must be provided to the Regulations 2011, Regulations 2011, Regulations 2011, Regulations 2011, Regulations 376 – Duty to give health monitoring report to relevant persons conducting the provided to the Regulator as indicated in the Work Health and Safety Regulations 2011, Regulations	 retain for at least 30 years after the record is made as a confidential record (40 years for reports relating to asbestos exposure) 	 anonymous data to be kept on Objective workplace (anonymous) Agency conducting biological health monitoring worker's confidential medical record 		

Recordkeeping requirements for hazardous chemicals management				
Record	Retention period	Location for retention/access		
 Records for restricted and prohibited carcinogens: records of authorisations from Comcare to use, handle or store prohibited or restricted carcinogens as outlined in the Work Health and Safety Regulations 2011, Regulation 388 – Records to be kept (Annex J) records of workers who are likely to have been exposed to a prohibited or restricted carcinogen during the use, handling and storage of these substances as outlined in <i>Regulation 388</i> of the Work Health and Safety Regulations 2011. a written statement provided to a worker at the end of the worker's engagement of any exposure to a restricted or prohibited carcinogen as outlined in the Work Health and Safety Regulations 2011, Regulation 387 – Statement of exposure to be given to workers (Annex K). 	 at least 30 years after the authorisation ends 	 workers confidential medical record Objective 		
 Fire protection and fire fighting equipment: dated record of the latest testing results and maintenance. records documenting property surveys requested by the central office of an agency, eg fire and security surveys as outlined in the Work Health and Safety Regulations 2011, Regulation 359 – Fire protection and fire fighting equipment (Annex L). 	 until next test is conducted destroy two years after action completed 	 relevant maintenance management system 		

Recordkeeping requirements for hazardous chemicals management					
Record	Retention period	Location for retention/access			
Orders, instructions and publications:					
 Orders, instructions and publications that describe the hazards and controls associated with the use of the chemical must be readily accessible to workers. a master set of agency manuals, handbooks, directives etc detailing work health and safety requirements for specific tasks and work procedures. 	 review every five years or when significant changes in operations take place destroy 75 years after procedures are superseded 	 workplace and orders, instructions and publications sponsor Objective 			
• master set of other manuals, handbooks, directives etc detailing routine procedures supporting the work health and safety function, including registers of legal responsibilities under the <i>Work Health and</i> <i>Safety Act 2011.</i>					
 records documenting the development of agency procedures supporting the work health and safety function. 					
 copies of manuals, handbooks, directives, etc. 					
Emergency plans:					
• emergency plans for hazardous chemicals must be integrated in the base emergency plans and made accessible to workers and emergency service personnel.	 review every five years or when significant changes in operations take place 	workplaceObjective			
 master set of agency manuals, handbooks, directives etc detailing procedures for property management function. Includes emergency procedures as outlined in the Work Health and Safety Regulations 2011, Regulation 361 – Emergency plans (Annex M) 	 destroy 75 years after procedures superseded 				

Recordkeeping requirements for hazardous chemicals management				
Record		Retention period	Location for retention/access	
Inc	ident records:			
•	work health and safety incidents must be recorded on Sentinel.		Sentinel	
•	for Army personnel, the advanced inventory management system must be used.			
•	certain incidents (notifiable and dangerous incidents) must also be notified to Comcare as outlined in the <i>Work Health and Safety</i> <i>Act 2011, Part 3 – Incident notification</i> <i>(</i> Annex N)			
Dis	sposal of hazardous chemicals and waste:			
•	records of hazardous chemical disposals must be kept in accordance with state or territory legislative requirements.	 varies for different substances, eg records of carcinogens must be kept for 30 years 	workplaceObjective	
Wo	orkplace audits and inspections:			
•	records of workplace audits and inspections must be kept in Objective. refer to SafetyMan – Work Health and Safety Audit and Performance Improvement Policy for more information.		workplaceObjective	

Reference and related documents

- 4. Work Health and Safety Act 2011
- 5. Work Health and Safety Regulations 2011
- 6. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 7. Records Management Policy Manual (RECMAN)

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Work Health and Safety Regulations 2011

344 – Person conducting a business or undertaking to obtain and give access to safety data sheets

(1) A person conducting a business or undertaking at a workplace must obtain the current safety data sheet for a hazardous chemical prepared in accordance with these Regulations from the manufacturer, importer or supplier of the hazardous chemical in the following circumstances:

(a) either:

(i) not later than when the hazardous chemical is first supplied for use at the workplace; or

(ii) if the person is not able to obtain the safety data sheet under subparagraph (i) as soon as practicable after the hazardous chemical is first supplied to the workplace but before the hazardous chemical is used at the workplace;

(b) if the safety data sheet for the hazardous chemical is amended either:

(i) not later than when the hazardous chemical is first supplied to the workplace after the safety data sheet is amended; or

(ii) if the person is not able to obtain the amended safety data sheet under subparagraph (i)—as soon as practicable after the hazardous chemical is first supplied to the workplace after the safety data sheet is amended and before the hazardous chemical supplied is used at the workplace.

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

(2) The hazardous chemical is taken to be *first supplied* to a workplace if the supply is the first supply of the hazardous chemical to the workplace for 5 years.

(3) The person must ensure that the current safety data sheet for the hazardous chemical is readily accessible to:

(a) a worker who is involved in using, handling or storing the hazardous chemical at the workplace; and

(b) an emergency service worker, or anyone else, who is likely to be exposed to the hazardous chemical at the workplace.

Penalty:

- (a) In the case of an individual—\$3 600.
- (b) In the case of a body corporate—\$18 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

(4) Subregulations (1) and (3) do not apply to a hazardous chemical that:

(a) is in transit; or

(b) if the person conducting the business or undertaking at the workplace is a retailer—is:

- (i) a consumer product; and
- (ii) intended for supply to other premises; and
- (iii) not intended to be opened on the person's premises; or

(c) is a consumer product and it is reasonably foreseeable that the hazardous chemical will be used at the workplace only in:

- (i) quantities that are consistent with household use; and
- (ii) a way that is consistent with household use.

(5) In the circumstances referred to in subregulation (4), the person must ensure that sufficient information about the safe use, handling and storage of the hazardous chemical is readily accessible to:

(a) a worker at the workplace; and

(b) an emergency service worker, or anyone else, who is likely to be exposed to the hazardous chemical at the workplace.

Penalty:

- (a) In the case of an individual—\$3 600.
- (b) In the case of a body corporate—\$18 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

(6) The person must ensure that the current safety data sheet for the hazardous chemical is readily accessible to a person at the workplace if the person:

- (a) is likely to be affected by the hazardous chemical; and
- (b) asks for the safety data sheet.

Penalty:

- (a) In the case of an individual—\$3 600.
- (b) In the case of a body corporate—\$18 000.

Note: Section 12F of the Act provides that strict liability applies to each physical element of each offence under the Act, unless otherwise stated. The reference in section 12F of the Act includes these Regulations.

Division 3 - Register and manifest of hazardous chemicals

Subdivision 1 - Hazardous chemicals register

346 - Hazardous chemicals register

(1)A person conducting a business or undertaking at a workplace must ensure that:

(a)a register of hazardous chemicals used, handled or stored at the workplace is prepared and kept at the workplace; and

(b)the register is maintained to ensure the information in the register is up to date.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(2)The register must include:

- (a) a list of hazardous chemicals used, handled or stored; and
- (b) the current safety data sheet for each hazardous chemical listed.

(3)The person must ensure that the register is readily accessible to:

- (a) a worker involved in using, handling or storing a hazardous chemical; and
- (b) anyone else who is likely to be affected by a hazardous chemical at the workplace.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

(4) This regulation does not apply to a hazardous chemical if:

- (a) the hazardous chemical is in transit, unless there is a significant or frequent presence of the hazardous chemical in transit at the workplace; or
- (b) the hazardous chemical is a consumer product and the person is not required to obtain a safety data sheet for the hazardous chemical under regulation 344.

Note

See regulation 344(4).

Subdivision 2 - Manifest of Schedule 11 hazardous chemicals

Note

Regulation 361 requires an emergency plan to be prepared if the quantity of hazardous chemicals used, handled or stored at a workplace exceeds the manifest quantity for that hazardous chemical.

Annex B

Work Health and Safety Regulations 2011

425 – Asbestos register

(1) A person with management or control of a workplace must ensure that a register (an *asbestos register*) is prepared and kept at the workplace.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

(2) The person must ensure that the asbestos register is maintained to ensure the information in the register is up to date.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

(3) The asbestos register must:

(a)record any asbestos or ACM identified at the workplace under regulation 422, or likely to be present at the workplace from time to time including:

(i) the date on which the asbestos or ACM was identified; and

(ii) the location, type and condition of the asbestos or ACM; or

(b)state that no asbestos or ACM is identified at the workplace if the person knows that no asbestos or ACM is identified, or is likely to be present from time to time, at the workplace.

(4) The person is not required to prepare an asbestos register for a workplace if a register has already been prepared for that workplace.

- (5) Subject to subregulation (6), this regulation applies to buildings whenever constructed.
- (6) This regulation does not apply to a workplace if:

(a)the workplace is a building that was constructed after 31 December 2003; and

(b)no asbestos has been identified at the workplace; and

(c)no asbestos is likely to be present at the workplace from time to time.

Work Health and Safety Regulations 2011

Schedule 12 - Manifest quantities - Regulation 347(2)

1 Manifest—general information

The manifest of hazardous chemicals must include:

- (a) the name of the person conducting the business or undertaking; and
- (b) the address of the workplace; and

(c) the date the manifest was last amended or, if it has not been amended, the date it was prepared; and

(d) business hours and after hours telephone numbers for at least 2 persons who may be contacted if there is a notifiable incident at the workplace.

2 Manifest—bulk storage and containers

(1) This clause applies if a hazardous chemical is stored at a workplace in bulk or in a container.

(2) For each hazardous chemical stored in bulk other than in a container, the manifest of hazardous chemicals must include:

- (a) the name of the chemical; and
- (b) the quantity of the chemical stored.

(3)For each container storing the hazardous chemical, the manifest of hazardous chemicals must include:

- (a) the identification number or code of the container; and
- (b) the type and capacity of the container; and

(c) for a fixed vertical tank used to store fire risk hazardous chemicals—the diameter of the tank.

3 Manifest—identification of hazardous chemical

The manifest of hazardous chemicals must include:

(a) for a hazardous chemical, other than a flammable liquid category 4, unstable explosive, organic peroxide type A or self-reactive substance type A:

(i) the proper shipping name as stated in Table 3.2.3 of the ADG Code for the chemical; and

(ii) the UN number as stated in Table 3.2.3 of the ADG Code for the hazardous chemical; and

(iii) the class and division of the hazardous chemical as stated in Table 3.2.3 of the ADG Code; and

- (b) for a flammable liquid category 4:
 - (i) the product identifier; and
 - (ii) the words 'combustible liquid'; and
- (c) for an unstable explosive, organic peroxide type A or self-reactive substance type A:
 - (i) the name of the hazardous chemical stated in the ADG Code, Appendix A; and
(ii) the words 'goods too dangerous to be transported'.

4 Manifest—storage area for packaged hazardous chemicals

(1) This clause applies if:

(a) a storage area:

(i) contains, or is likely to contain, a packaged hazardous chemical, or a hazardous chemical in an IBC; and

(ii) is required under these Regulations to have a placard; and

(b) the hazardous chemicals are dangerous goods under the ADG Code.

(2) The manifest of hazardous chemicals must include:

- (a) the identification number or code for the storage area; and
- (b) for hazardous chemicals with an assigned class specified in Table 3.2.3 of the ADG Code—the largest quantity of each class of hazardous chemicals likely to be

kept in the storage area; and

(c) for the specified hazardous chemicals that are likely to be kept in the storage area:

(i) the proper shipping name of the hazardous chemical as specified in Table 3.2.3 of the ADG Code; and

(ii) the class to which the hazardous chemical is assigned as specified in Table 3.2.3 of the ADG Code; and

(iii) the largest quantity of the hazardous chemical likely to be kept in the storage area; and

- (d) for an unstable explosive, organic peroxide type A or self-reactive substance type A that is likely to be kept in the storage area:
 - (i) the name of the hazardous chemical; and
 - (ii) the words 'goods too dangerous to be transported'; and

(iii) the largest quantity of the hazardous chemical likely to be kept in the storage area; and

- (e) for hazardous chemicals with an assigned class specified in Table 3.2.3 of the ADG Code—the class to which the hazardous chemical is assigned; and
- (f) for flammable liquids category 4—the words 'combustible liquid'.

(3)In this clause, **specified hazardous chemicals** means any of the following:

- (a) flammable liquid category 1;
- (b) self-reactive substances type B;
- (c) substances which in contact with water emit flammable gas category 1;
- (d) pyrophoric liquids category 1;
- (e) pyrophoric solids category 1;
- (f) organic peroxides type B;
- (g) acute toxicity category 1;
- (h) oxidising solids category 1;

(i) oxidising liquids category 1;

(j) skin corrosion category 1A;

(k)gases under pressure with acute toxicity categories 1, 2 or 3 or skin corrosion categories 1A, 1B or 1C.

5 Manifest—hazardous chemicals being manufactured

For each area in which hazardous chemicals are manufactured, the manifest must include:

- (a) the identification number or code of the area; and
- (b) a description of the hazardous chemicals manufactured in the area; and

(c) the average and largest quantity of each hazardous chemical likely to be manufactured in the area.

6 Manifest—hazardous chemicals in transit

(1) This clause applies to hazardous chemicals at a workplace if the hazardous chemicals are:

- (a) dangerous goods under the ADG Code in transit at the workplace; and
- (b) accompanied by dangerous goods transport documents (the *transport documents*)
- in relation to the hazardous chemicals that comply with the ADG Code.

(2) The person conducting a business or undertaking at the workplace is taken to comply with clauses 4 and 5 in relation to the hazardous chemicals if the manifest includes a compilation of the transport documents.

7 Manifest—plan of workplace

The manifest of hazardous chemicals at a workplace must include a scale plan of the workplace that:

- (a) shows the location of:
 - (i) containers and other storage of hazardous chemicals in bulk; and
 - (ii) storage areas for packaged hazardous chemicals and IBCs; and
 - (iii) each area where hazardous chemicals are manufactured or generated; and
- (b) includes a description in words of the location of:
 - (i) the things referred to in paragraph (a); and
 - (ii) hazardous chemicals in transit; and

(c) provides the identification number or code, and a legend for the identification numbers and codes, for the things referred to in paragraph (a); and

- (d) shows the location of:
 - (i) the main entrance and other places of entry to and exit from the workplace; and

(ii) essential site services, including fire services and isolation points for fuel and power; and

- (iii) all drains on the site; and
- (iv) the manifest; and

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- (e) includes the direction of true north; and
- (f) describes the nature of the occupancy of adjoining sites or premises.

Annex D

Work Health and Safety Regulations 2011

Chapter 7 - Division 3 - Register and Manifest of Hazardous Chemicals

Subdivision 1 - Hazardous chemicals register

346 - Hazardous chemicals register

(1) A person conducting a business or undertaking at a workplace must ensure that:

(a)a register of hazardous chemicals used, handled or stored at the workplace is prepared and kept at the workplace; and

(b)the register is maintained to ensure the information in the register is up to date.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

- (2) The register must include:
 - (a) a list of hazardous chemicals used, handled or stored; and
 - (b) the current safety data sheet for each hazardous chemical listed.
- (3) The person must ensure that the register is readily accessible to:
 - (a) a worker involved in using, handling or storing a hazardous chemical; and
 - (b) anyone else who is likely to be affected by a hazardous chemical at the workplace.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

(4) This regulation does not apply to a hazardous chemical if:

- (a) the hazardous chemical is in transit, unless there is a significant or frequent presence of the hazardous chemical in transit at the workplace; or
- (b) the hazardous chemical is a consumer product and the person is not required to obtain a safety data sheet for the hazardous chemical under regulation 344.

Note

See regulation 344(4).

Annex E

Work Health and Safety Regulations 2011

461 - Licensed asbestos removalist must keep training records

(1) A licensed asbestos removalist must keep a record of the training undertaken by a worker carrying out licensed asbestos removal work:

(a) while the worker is carrying out licensed asbestos removal work; and

(b) for 5 years after the day the worker stopped carrying out licensed asbestos removal work for the removalist.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

(2) The licensed asbestos removalist must ensure that the training record is readily accessible at the asbestos removal area and available for inspection under the Act.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

Work Health and Safety Regulations 2011

50 – Monitoring airborne contaminants

(1) A person conducting a business or undertaking at a workplace must ensure that air monitoring is carried out to determine the airborne concentration of a substance or mixture at the workplace to which an exposure standard applies if:

(a) the person is not certain on reasonable grounds whether or not the airborne concentration of the substance or mixture at the workplace exceeds the relevant exposure standard; or

(b) monitoring is necessary to determine whether there is a risk to health.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(2) A person conducting a business or undertaking at a workplace must ensure that the results of air monitoring carried out under subregulation (1) are recorded, and kept for 30 years after the date the record is made.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

(3) A person conducting a business or undertaking at a workplace must ensure that the results of air monitoring carried out under subregulation (1) are readily accessible to persons at the workplace who may be exposed to the substance or mixture.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

Annex G

Work Health and Safety Regulations 2011

375 – Duty to give health monitoring report to worker and

418 – Health monitoring records and

The person conducting a business or undertaking who commissioned health monitoring for a worker must give a copy of the health monitoring report to the worker as soon as practicable after the person obtains the report.

Maximum penalty:

In the case of an individual—\$6 000.

418 - Health monitoring records

(1) A person conducting a business or undertaking must ensure that health monitoring reports in relation to a worker carrying out work for the business or undertaking are kept as a confidential record:

- (a) identified as a record in relation to the worker; and
- (b) for at least 30 years after the record is made.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

(2) The person must ensure that the health monitoring report and results of a worker are not disclosed to another person without the worker's written consent.

Maximum penalty:

In the case of an individual—\$1 250.

In the case of a body corporate—\$6 000.

(3) Subregulation (2) does not apply if the record is disclosed under regulation 412, 413 or 414 or to a person who must keep the record confidential under a duty of professional confidentiality.

Annex H

Work Health and Safety Regulations 2011

377 – Duty to give health monitoring report to relevant persons conducting businesses or undertakings

The person who commissioned health monitoring for a worker under regulation 368 must give a copy of the health monitoring report to all other persons conducting businesses or undertakings who have a duty to provide health monitoring for the worker as soon as practicable after obtaining the report.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

Annex I

Work Health and Safety Regulations 2011

376 - Duty to give health monitoring report to regulator

A person conducting a business or undertaking for whom a worker is carrying out work for which health monitoring is required must give a copy of the health monitoring report relating to a worker to the regulator as soon as practicable after obtaining the report if the report contains:

(a) any advice that test results indicate that the worker may have contracted a disease, injury or illness as a result of carrying out the work using, handling, generating or storing hazardous chemicals that triggered the requirement for health monitoring; or

(b) any recommendation that the person conducting the business or undertaking take remedial measures, including whether the worker can continue to carry out the work using, handling, generating or storing hazardous chemicals that triggered the requirement for health monitoring.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

Work Health and Safety Regulations 2011

388 – Records to be kept

(1) This regulation applies if a person conducting a business or undertaking at a workplace is authorised under regulation 384 to use, handle or store a prohibited carcinogen or restricted carcinogen at the workplace.

(2) The person must:

(a) record the full name, date of birth and address of each worker likely to be exposed to the prohibited carcinogen or restricted carcinogen during the period of authorisation; and

(b) keep a copy of each authorisation given to the person including any conditions imposed on the authorisation.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

(3) The person must keep the records for 30 years after the authorisation ends.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

Annex K

Work Health and Safety Regulations 2011

387 – Statement of exposure to be given to workers

- (1) This regulation applies if:
 - (a) a person conducting a business or undertaking at a workplace is authorised under regulation 384 to use, handle or store a prohibited carcinogen or restricted carcinogen at the workplace; and
 - (b) a worker uses, handles or stores the prohibited carcinogen or restricted carcinogen at the workplace.

(2) The person must give to the worker, at the end of the worker's engagement by the person, a written statement of the following:

- (a) the name of the prohibited or restricted carcinogen to which the worker may have been exposed during the engagement;
- (b) the time the worker may have been exposed;
- (c) how and where the worker may obtain records of the possible exposure;
- (d) whether the worker should undertake regular health assessments, and the relevant tests to undertake.

Maximum penalty:

In the case of an individual—\$3 600.

In the case of a body corporate—\$18 000.

Work Health and Safety Regulations 2011

359 – Fire protection and fire fighting equipment

(1) A person conducting a business or undertaking at a workplace must ensure the following:

(a) the workplace is provided with fire protection and firefighting equipment that is designed and built for the types of hazardous chemicals at the workplace in the quantities in which they are used, handled, generated or stored at the workplace, and the conditions under which they are used, handled, generated or stored, having regard to:

(i) the fire load of the hazardous chemicals; and

(ii) the fire load from other sources; and

(iii) the compatibility of the hazardous chemicals with other substances and mixtures at the workplace;

(b) the fire protection and firefighting equipment is compatible with firefighting equipment used by the primary emergency service organisation;

(c) the fire protection and firefighting equipment is properly installed, tested and maintained;

(d) a dated record is kept of the latest testing results and maintenance until the next test is conducted.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(2) If a part of the fire protection and firefighting equipment provided at the workplace becomes unserviceable or inoperative, the person must ensure that:

(a) the implications of the equipment being unserviceable or inoperative are assessed; and

(b) for risks that were controlled by the equipment when functioning fully, alternative measures are taken to manage the risks.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(3) The person must ensure that the fire protection and firefighting equipment is returned to full operation as soon as practicable.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

Annex M

Work Health and Safety Regulations 2011

361 – Emergency plans

(1) This regulation applies if the quantity of a Schedule 11 hazardous chemical used, handled, generated or stored at a workplace exceeds the manifest quantity for that hazardous chemical.

(2) A person conducting a business or undertaking at the workplace must give a copy of the emergency plan prepared under Division 4 of Part 3.2 for the workplace to the primary emergency service organisation.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

(3) If the primary emergency service organisation gives the person a written recommendation about the content or effectiveness of the emergency plan, the person must revise the plan in accordance with the recommendation.

Maximum penalty:

In the case of an individual—\$6 000.

In the case of a body corporate—\$30 000.

Annex N

Work Health and Safety Act 2011

Part 3 – Incident notification

35 - What is a notifiable incident

In this Act, *notifiable incident* means:

- (a) the death of a person; or
- (b) a serious injury or illness of a person; or
- (c) a dangerous incident.

36 - What is a serious injury or illness

In this Part, *serious injury or illness* of a person means an injury or illness requiring the person to have:

- (a) immediate treatment as an in-patient in a hospital; or
- (b) immediate treatment for:
 - (i) the amputation of any part of his or her body; or
 - (ii) a serious head injury; or
 - (iii) a serious eye injury; or
 - (iv) a serious burn; or

(v) the separation of his or her skin from an underlying tissue (such as degloving or scalping); or

- (vi) a spinal injury; or
- (vii) the loss of a bodily function; or
- (viii) serious lacerations; or
- (c) medical treatment within 48 hours of exposure to a substance;

and includes any other injury or illness prescribed by the regulations but does not include an illness or injury of a prescribed kind.

37 - What is a dangerous incident

In this Part, a *dangerous incident* means an incident in relation to a workplace that exposes a worker or any other person to a serious risk to a person's health or safety emanating from an immediate or imminent exposure to:

- (a) an uncontrolled escape, spillage or leakage of a substance; or
- (b) an uncontrolled implosion, explosion or fire; or
- (c) an uncontrolled escape of gas or steam; or
- (d) an uncontrolled escape of a pressurised substance; or
- (e) electric shock; or
- (f) the fall or release from a height of any plant, substance or thing; or

(g) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the regulations; or

- (h) the collapse or partial collapse of a structure; or
- (i) the collapse or failure of an excavation or of any shoring supporting an excavation; or
- (j) the inrush of water, mud or gas in workings, in an underground excavation or tunnel; or

(k) the interruption of the main system of ventilation in an underground excavation or tunnel; or

(I) any other event prescribed by the regulations;

but does not include an incident of a prescribed kind.

38 - Duty to notify of notifiable incidents

(1) A person who conducts a business or undertaking must ensure that the regulator is notified immediately after becoming aware that a notifiable incident arising out of the conduct of the business or undertaking has occurred.

Penalty

- (a) In the case of an individual—\$10 000.
- (b) In the case of a body corporate—\$50 000.
- (2) The notice must be given in accordance with this section and by the fastest possible means.
- (3) The notice must be given:
 - (a) by telephone; or
 - (b) in writing.

Example: The written notice can be given by facsimile, email or other electronic means.

- (4) A person giving notice by telephone must:
 - (a) give the details of the incident requested by the regulator; and

(b) if required by the regulator, give a written notice of the incident within 48 hours of that requirement being made.

(5) A written notice must be in a form, or contain the details, approved by the regulator.

(6) If the regulator receives a notice by telephone and a written notice is not required, the regulator must give the person conducting the business or undertaking:

- (a) details of the information received; or
- (b) an acknowledgement of receiving the notice.

7) A person conducting a business or undertaking must keep a record of each notifiable incident for at least 5 years from the day that notice of the incident is given to the regulator under this section.

Penalty:

- (a) In the case of an individual—\$5000.
- (b) In the case of a body corporate—\$25 000.

39 - Duty to preserve incident sites

(1) The person with management or control of a workplace at which a notifiable incident has occurred must ensure so far as is reasonably practicable, that the site where the incident occurred is not disturbed until an inspector arrives at the site or any earlier time that an inspector directs.

Penalty:

- (a) In the case of an individual—\$10 000.
- (b) In the case of a body corporate—\$50 000.

(2) In subsection (1) a reference to a site includes any plant, substance, structure or thing associated with the notifiable incident.

- (3) Subsection (1) does not prevent any action:
 - (a) to assist an injured person; or
 - (b) to remove a deceased person; or

(c) that is essential to make the site safe or to minimise the risk of a further notifiable incident; or

- (d) that is associated with a police investigation; or
- (e) for which an inspector or the regulator has given permission.



Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 15 - Battery Safety

1. This procedure provides work health and safety information supporting the SafetyMan, Hazardous Chemicals Management Policy and Guidance and battery safety in Defence.

Defence Battery Management Manual

2. The Defence Battery Management Manual (DBMM) is one of several sources in Defence for battery policy and procedures.

Hazard classification

- 3. There is a large range of battery types with differing chemical, electrical or other hazardous properties. These properties must be identified by the manufacturer or supplier.
- 4. The *Work Health and Safety Act 2011* requires manufacturers and distributors to provide up-to-date information on hazards and risks associated with specific products and information about their safe management. This includes the provision of safety data sheets for hazardous chemicals and technical data sheets and other information about the use, handling, storage, transport and disposal for specific battery types.

Storage

- 5. When storing batteries, especially different types of batteries in the same location, consideration must be given to:
 - 5.1. the environment,
 - 5.2. the types of chemicals and materials contained in the batteries, and
 - 5.3. the quantities.
- 6. The DBMM provides guidance on storing batteries.
- 7. Additional information on storage and handling can also be found in the manufacturer's safety data sheets and technical data sheets.

Transport

8. Batteries must be transported in accordance with the codes shown in Table 1 below. Restrictions may apply to batteries sent by air.

Table 1: Transport codes

Mode of transport	Code
Road and rail	Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
Sea	International Maritime Dangerous Goods (IMDG) Code
Air	International Air Transport Association (IATA) Dangerous Goods Regulations (DGR)



Disposal

9. Batteries can cause a fire risk and a risk to the environment if not stored, handled and disposed of correctly. All batteries used in Defence must be handled and disposed of in accordance with the DBMM. The manufacturer's safety data sheet for the specific battery can also provide disposal information.

Chemical components

10. Where hazardous chemicals (eg acid for filling lead batteries) are stored separately to the battery, storage of those chemicals must comply with SafetyMan, hazardous chemicals procedures related to storage.

References and related documents

Guidance

- 11. Work Health and Safety Act 2011
- 12. Work Health and Safety Regulations 2011
- 13. Codes of Practice via the Comcare Codes of Practice under the WHS Act page:

13.1. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice

SafetyMan

14. Hazardous Chemicals Management policy suite

Other resources

- 15. Australian Standards via SAI Global:
 - 15.1. AS 2149:2003 Starter Batteries Lead Acid
 - 15.2. AS 2359.6:2013 Powered Industrial Trucks, Part 6: Self-propelled Industrial Trucks, Other Than Driverless Trucks, Variablereach Trucks and Burden-carrier Trucks (ISO 3691-1:2011, MOD)
 - 15.3. AS 2676.1:2020 Installation, Maintenance, Testing and Replacement of Secondary Batteries in Buildings, Part 1: Vented Cells
 - 15.4. AS 2676.2:2020 Guide to the Installation, Maintenance, Testing and Replacement of Secondary Batteries in Buildings, Part 2: Sealed Cells
 - 15.5. AS 3011.1:2019 Electrical Installations Secondary Batteries Installed in Buildings, Part 1: Vented Cells
 - 15.6. AS 3011.2:2019 Electrical Installations Secondary Batteries Installed in Buildings, Part 2: Sealed Cells
 - 15.7. AS 3780:2008 The Storage and Handling of Corrosive Substances
 - 15.8. AS 4086.1:1993 Secondary Batteries for Use with Stand-alone Power Systems, Part 1: General Requirements
 - 15.9. AS 4775:2007 Emergency Eyewash and Shower Equipment
- 16. <u>Defence Battery Management Manual</u> (DBMM) Part of the Defence Logistics Manuals (DEFLOGMAN) series
- 17. <u>Australian Code for the Transport of Dangerous Goods by Road & Rail</u> (ADG Code), Edition 7.7, 2020

- <u>Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision</u> <u>7</u> (GHS 7). Purchase from the United Nations Bookshop. Although there is also a GHS 8, Australia adopted GHS 7 from 1 Jan 2021.
- 19. <u>Guidance on the Classification of Hazardous Chemicals Under the WHS Regulations (April 2012)</u>, Safe Work Australia
- 20. International Air Transport Association (IATA) Dangerous Goods Regulations (DGR). The IMDG Code is available via the Defence Library Service, <u>Newspapers and Standards</u> page.
- 21. <u>International Maritime Dangerous Goods (IMDG) Code</u>. The IMDG Code is available via the Defence Library Service, <u>Newspapers and Standards</u> page.

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Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 16 - Managing Risks Associated With Compressed And Liquefied Gases

1. This procedure relates to the *SafetyMan - Hazardous Chemicals Management Policy and Guidance* and provides work health and safety information to effectively manage the risks associated with storing and handling compressed or liquefied gases at Defence workplaces.

General safety considerations

2. The following table outlines basic safety requirements for safely using and storing compressed or liquefied gases.

Cylinder safety		
Step	Action	
1	Read labels and safety data sheets.	
	 Read risk assessments and ensure compatibility of cylinders with intended storage location. 	
	 Physically survey the intended location of cylinder storage prior to delivery to ensure the availability of a safe storage location. 	
2	Store cylinders in an upright position.	
	Always use cylinders in well ventilated, secure areas.	
3	• Secure cylinders upright so they cannot fall or be knocked over.	
4	• Wear all recommended personal protective equipment when handling cylinders.	
5	• Prior to manually handling cylinders, consider and assess requirements for equipment, extra personnel, space considerations and a safe transportation route.	
6	 Keep cylinders in a cool, well-ventilated area, away from heat sources, ignition sources and combustible materials—especially flammable gases. 	
	 Take precautions to ensure that no electric current, eg from electric welding processes can impinge on cylinders. Steel floor inserts, structural members or metal benches may carry earth return currents. 	
7	Keep full and empty cylinders separate.	

Cylinder safety		
Step	Action	
	 Cylinders of different gases, whether full or empty, should be segregated from each other, except when used in a trolley for welding, cutting, heating and allied processes. 	
8	 Keep ammonia-based leak detection solutions away from cylinders and valves. These solutions can cause stress cracks in brass fittings. 	
	 Ensure that neither oil nor grease is allowed to come into contact with the valves or cylinders used for the storage and transport of any gas. 	
	 Particular care should be taken to prevent contamination of any cylinder that contains oxygen, nitrous oxide, chlorine, any other oxidising agent or any gas for human respiration. 	
	 Only use gas supplier-approved leak detector solutions and lubricants for gas cylinders. 	
9	Do not repair or disguise cylinder markings or damaged cylinders.	
	If damaged, return cylinders to supplier immediately.	
10	• Be familiar with the emergency procedures related to the cylinders.	

Cylinder labels

- 3. The type of gas in the cylinder can be identified from the collar label affixed to the top of the cylinder near the valve. The label is the primary means of identification of the cylinder contents.
- 4. If the label is illegible or missing, or the cylinder has been painted or altered, do not use the cylinder—return it to the gas company for replacement. Never:
 - 4.1. change the contents of a cylinder from that which was intended;
 - 4.2. repaint a cylinder; and
 - 4.3. change the markings or identification on a cylinder.

Cylinder stamping

- 5. The type of gas in the cylinder can also be identified from the stamping or permanent identification markings usually found on the shoulder or base of the cylinder.
- 6. Colour is the secondary means of identification of the nature of the hazard associated with the gas contained in the cylinder.

Cylinder inspections

- 7. Look for signs of corrosion or damage to cylinder or valve and check for leakage. Cylinder valve outlets are delivered capped or plugged and in some cases PVC shrink wrapped to indicate the cylinder is a full cylinder. Check the valve is free from dirt, oil or grease.
- 8. Cylinder protection devices should be used at all times to prevent accidential damage to

cylinder valve fittings. Replace valve protection caps whenever the cylinder is not secured or not in use.

- 9. If, on delivery from supplier, the pressure release device is fitted to a cylinder but is not intact, the cylinder should not be accepted—it should be returned to the supplier. However, if noticed after delivery that the pressure release device is fitted but not intact, users are to complete the required information on tag AD197 Suspected Fault Tag or tag AD209 Suspected Fault Label and apply the tag to the cylinder. The tagged cylinder must be quarantined from use and referred for technical inspection. The AD197 and the AD209 forms are managed through the Defence Supply System (MILIS). These forms are ordered through the Q Store by submitting a completed AB189 Unit Stores Requisition form.
- 10. In the event a cylinder activates any pressure release device, contact the cylinder supplier or emergency services.
- 11. The plastic test date tags fitted by suppliers on the cylinder valve inlet connection distort or melt at a predetermined temperature when the test date tag is heated. This is to alert gas cylinder re-fillers and customers of any heat damage to the cylinder.
- 12. Where users suspect a fault with a gas cylinder (as indicated by the test date tag), users are to apply a completed tag (*AD197 Suspected Fault Tag* or *AD209 Suspected Fault Label*) to the gas cylinder and it must be quarantined from use and referred for technical inspection.
- 13. Heat-affected cylinders must be sent to an authorised cylinder test shop.
- 14. If the cylinder valve key rotates without the valve opening, in the first instance the user must apply tag *AD197 Suspected Fault Tag* or tag *AD209 Suspected Fault Label* and refer the defective equipment to the unit maintenance processes for appropriate technical inspection.
- 15. Gas cylinder valves must not be removed or tampered with at any time. Removing fittings under pressure may result in serious personal injury as fittings may be projected at high velocity.
- 16. The tags *AD197 Suspected Fault Tag* and *AD209 Suspected Fault Label* are available on demand via Defence Protected Network using the Defence Web Forms system.

Valve outlet screw threads

- 17. Valve outlets for non-flammable gases and non-toxic gases have conventional right-hand (turn clock-wise to tighten) threads. In contrast, valve outlets for flammable gases have left-hand (turn anti-clockwise to tighten) threads which are identifiable by their notched appearance. The only exception to this rule is cylinders used on forklift trucks—which have right-hand thread valve outlets.
- 18. Do not damage the threaded portions by connecting an incorrect regulator.
- 19. Do not over-tighten or use excessive force to connect equipment.
- 20. Contact your gas supplier for a replacement cylinder if the regulator does not connect properly.

Cylinder accessory care and use

- 21. Carefully open cylinders slowly anti-clockwise. Do not force the cylinder fully open. Once the cylinder is fully open, close it by half a turn—to avoid seizure in the open position.
- 22. Wear required personal protective equipment before operating a cylinder valve. A leak check must be conducted prior to and after removing the seal (especially for toxic gases).
- 23. Ensure that the system to which you are connecting the cylinder is suitable for the gas and pressure involved. Ensure that any accessories (such as hoses attached to the cylinder

valve or the system being connected to) are securely connected.

- 24. Ensure that no-one is in line with the back of the cylinder valve when the valve is opened. This is in case a back-plug is loose or a bursting disc vents.
- 25. When you shut the valve turn it clockwise sufficiently to stop the gas completely. Never use a wrench or other tool to close the valve. If you are going to stop work for a while (eg morning tea break, etc) the cylinder valve should be closed.

Pressure regulators

- 26. As pressure regulators thread directly to the cylinder valve outlet, their size and tolerance must meet the requirements of the relevant Australian standards.
- 27. Never remove exchange or tamper with a pressure regulator that is fitted with gauges (content and delivery pressure). Contact your supplier for any replacement or repair of gauges.
- 28. Never install additional piping or fittings between regulators and the outlet valves of cylinder packs.
- 29. Check the inlet spigot connection first. Make sure the pressure regulator is designed for use with high pressure gas cylinders.
- 30. Check the inlet spigot thread matches the cylinder valve outlet and the o-ring or seal is in place, clean and undamaged.
- 31. Never force any regulator connection that does not fit.
- 32. Release (ie turn anti-clockwise then back off clockwise) the regulator adjusting knob before attaching the pressure regulator.
- 33. Before connecting a pressure regulator to a full cylinder, screw out (anticlockwise) the pressure adjusting knob so that there can be no flow through the regulator when the cylinder valve is initially opened.
- 34. Never pack out or use any connection that appears worn when tightening or is loose when fully screwed home.
- 35. Use the right regulator for the gas that will be used.
- 36. Do not interchange left-hand threaded pressure regulators between gases. Each is designed for use with a specific gas. Ensure the regulator has the capacity to match cylinder outlet pressure. Regulator pressure capacities and construction materials must be matched for a particular gas/cylinder delivery system. If in doubt contact the supplier.

Flashback arrestors

37. Flashback arrestors should be fitted downstream of pressure regulators in oxygen, acetylene, liquefied petroleum gas and hydrogen systems where flammable mixtures can occur. Flashback arrestors should be fitted to each gas line as the risk of a reverse flow of gas exists with both oxygen and fuel gas. Where cylinders are connected to a manifold, the system must be properly designed for the task and installed by a competent technician. Flashback arrestors should be tested every year.

Avoiding contamination of cylinders (backflow)

- 38. When cylinders are connected to a process in which the process pressure can exceed the cylinder supply pressure, precautions must be taken to avoid backflow into the cylinder, including:
 - 38.1. always closing the supply cylinder valve when not in use;
 - 38.2. never leaving an empty cylinder connected to a process; and

- 38.3. never using a cylinder as a receiver for waste gas, liquid or other material.
- 39. If the cylinder is not fitted with a non-return/minimum pressure retention valve, then fit a suitable non-return valve or fit an automatic shut-off/isolation valve.

Clearing cylinder valves

- 40. Cylinder valve outlets are delivered capped or plugged and in some cases PVC shrinkwrapped to indicate the cylinder is full and to keep the outlet clean and contamination free.
- 41. If it is necessary to clear an outlet valve, use clean compressed oil-free air or nitrogen. If these gases are unavailable, then use a clean lint free rag to clean the outlet, particularly the sealing surfaces.
- 42. Never open a cylinder valve to clear the outlet. For flammable gases this can result in ignition of the escaping gas. Ejected particles and resultant noise can also injure personnel.

Hoses

- 43. Hoses should be colour-coded in accordance with relevant Australian Standards.
- 44. Any deteriorated, damaged or worn hoses should be disposed of promptly.
- 45. Hoses must not be used for gases and pressures other than those for which they have been designed.
- 46. Hoses should be supplied with the correct threaded connections to fit pressure regulators or flashback arrestors. Check these connections regularly to ensure the correct connections are in place and secure.
- 47. Purge hoses and check for leaks and visible signs of damage before lighting a cutting or welding torch.
- 48. Hoses for fixed installations are to be as short as possible. Where longer lengths are needed, extension hoses coupled with the correct hose connectors may be used. Refer to *Australian Standards* 4289-1995 Oxygen and Acetylene Gas Reticulation Systems.
- 49. The maximum hose length for portable equipment shall be 15 meters for each gas or a distance that will allow the operator to be in sight of all supply cylinders, whichever is the shorter. Hoses shall be single length. Hoses should be protected from heat, mechanical damage, traffic sparks, slag and oil or grease.

Acetylene cylinders

- 50. Acetylene cylinders are transported standing vertically and are designed to be used in an upright position. Always store and leave these cylinders standing vertically.
- 51. Should acetylene cylinders have been stored or transported horizontally, place the cylinders in a vertical position and allow at least four hours before use.
- 52. Copper pipe must not be used to couple hoses carrying acetylene. Acetylene can form explosive mixtures when in contact with silver, mercury, copper and brass.
- 53. Do not store cylinders at temperatures greater than 65°C. Excessive heat can result in localised bulging and in extreme cases cause cylinder rupture.
- 54. Any hot works or other potential heat sources must be controlled when in proximity to gas cylinders.
- 55. Do not allow oxy-fuel gas torch flames to touch cylinders.

Manually handling cylinders

56. The following table outlines good practices (Do) for manually handling gas cylinders, along with poor practices (Don't).

Do	Don't	
Provide safe, clear and adequate access for	Bear-hug cylinders to affect a lift.	
drivers to handle cylinders at the delivery and storage areas.	Lift or lower cylinders where the operator's hands are above shoulder height or below mid-thigh height.	
Use mechanical aids in preference to direct		
forklifts, scissors lifts).	Edge roll cylinders up or down steps of 250 mm or greater.	
Positively secure cylinders to mechanical lifting/handling devices prior to movements.	Edge roll cylinders over discontinuous or soft surfaces.	
Remove any connected equipment (eg regulator) and refit any supplied valve	Attempt to catch or restrain a falling cylinder.	
protection cap and or valve outlet gas tight cap/plug prior to moving cylinders.	Attempt to handle cylinders if you are fatigued, physically compromised or under the adverse	
Ensure the cylinder valve is closed before moving or disconnecting equipment Take care not to turn the valve on when moving cylinder.	Drop cylinders as a method of transfer, ie this may seriously damage the cylinder or valve	
Apply appropriate safe lifting techniques/postures prior to manually handling heavy large gas cylinders.	resulting in their failure and product release.	
Provide instruction, training and supervision on techniques for safe handling of cylinders to ensure competency of persons required to deliver gas cylinders.		
Assess the load weight and dimensions before attempting any lift. Get help.		
Ensure a positive hand grip prior to commencing a manual lift.		
Ensure the load is equally shared when attempting a two-person lift.		
Note environmental conditions prior to handling cylinders, eg wet, hot or cold cylinders may diminish the quality of the hand grip and footing may be compromised.		
Use suitable personal protective equipment.		

Personal protective equipment when moving high pressure gas cylinders

57. As a minimum, wear safety footwear and leather gloves to prevent/reduce crush injury. The following personal protective equipment should also be considered, depending on the cylinder contents: flame resistant overalls/long sleeved shirts, long trousers, protective gloves, ear plugs (muffs when required) and eye protection (spectacles or goggles). Do not wear clothes made of highly combustible materials (especially when dealing with flammable and oxidising gases, ie oxygen or nitrous oxide). For a cylinder containing toxic, asphyxiate or other hazardous gas, a self-contained breathing apparatus must be worn. For refrigerated liquefied gases, wear cold insulating gloves, face shield and eye protection.

Transporting gas cylinders

- 58. The safest method to transport cylinders is to engage a professional gas transport company that is adequately equipped and whose workers are suitably trained. If cylinders are to be transported, application of the following the safety instructions is essential:
 - 58.1. Defence Work Health and Safety Bulletin No 7 April 2012: Safe Transport of Gas Cylinders;
 - 58.2. use a vehicle with purpose-built capacity to transport gas cylinders wherever possible;
 - 58.3. secure all cylinders against moving during transport, and having considered the potential forces that could be exerted by a traffic accident;
 - 58.4. limit the number of cylinders to be transported;
 - 58.5. use open vehicles or trailers in preference to any enclosed vehicles or trailers, and do not cover with a tarpaulin;
 - 58.6. ensure that the cylinders' labels can be clearly read;
 - 58.7. take care that cylinders are not dropped or subjected to shock;
 - 58.8. where possible, use mechanical lifting devices and trolleys to move cylinders;
 - 58.9. smoking is strictly forbidden when loading, transporting and unloading any cylinder; and
 - 58.10. always transport liquid gases and acetylene cylinders in an upright position.

Storage and return of cylinders

59. The SafetyMan Hazardous Chemicals Management Procedure 17 - Storage of Hazardous Chemicals provides further information addressing the appropriate storage and return of cylinders.

References and related documents

- 60. Work Health and Safety Act 2011
- 61. Work Health and Safety Regulations 2011
- 62. SafetyMan Hazardous Chemicals Management:
 - 62.1. Procedure 17 Storage of Hazardous Chemicals
 - 62.2. Procedure 18 Storage of Minor Quantities of Hazardous Chemicals

- 63. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
- 64. Australian Dangerous Goods Code, Edition 7.4
- 65. Australian Standards/New Zealand Standards:
 - 65.1. AS/NZS 1596:2014 The Storage and Handling of LP gas
 - 65.2. AS 1668.2:2012 The use of Ventilation and Air-Conditioning in Buildings Ventilation Design for Indoor Air Contaminant Control
 - 65.3. AS 1674.1:1997. Safety in Welding and Allied Processes Part 1 Fire
 - 65.4. AS 1915-1992 Electrical Equipment for Explosive Atmospheres Battery-Operated Vehicles
 - 65.5. AS 2030.1:2009 (Gas cylinders—General Requirements)
 - 65.6. AS 2030.4-1985 The Verification, Filling, Inspection, Testing and Maintenance of Cylinders for the Storage and Transport of Compressed Gases - Welded cylinders – Insulated
 - 65.7. AS 2030.5-2009 Gas Cylinders Filling, Inspection and Testing of Refillable Cylinders
 - 65.8. AS 2337.1-2004 Gas Cylinder Test Stations General Requirements, Inspection and Tests Gas Cylinders
 - 65.9. AS 2430.1:1987 Classification of Hazardous Areas
 - 65.10. AS/NZS 2865:2009 Confined Spaces
 - 65.11. AS 4289:1995 Oxygen and Acetylene Gas Reticulation Systems
 - 65.12. AS 4332 2004 The Storage and Handling of Gases in Cylinders
 - 65.13. AS 4839:2001 The Safe use of Portable and Mobile oxy-fuel Gas Systems for Welding, Cutting, Heating and Allied Processes
- 66. OHYG-BOC Gas Cylinder Safety.

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 17 – Storage of Hazardous Chemicals

- 1. The following information is provided to assist Defence workers to administer, implement or apply the SafetyMan Hazardous Chemicals Management Policy and Guidance.
- This procedure applies to Defence workplaces where hazardous chemicals are stored in dedicated stores in quantities exceeding the minor quantity thresholds and should be read in conjunction with SafetyMan - Hazardous Chemicals Management Procedure 18 – Storage of Minor Quantities of Hazardous Chemicals.
- 3. This procedure provides tools, guidance and/or information on:
 - 3.1. controls required for storage of hazardous chemicals above minor quantities in dedicated stores;
 - 3.2. options for the use of cabinets, cages and purpose-built storage units; and
 - 3.3. planning, operating and maintaining hazardous chemical storage infrastructure.
- 4. It does not cover hazardous chemical storage in general workplaces or protected places. Storage in these locations is to be in accordance with SafetyMan – Hazardous Chemicals Management Procedure 18 – Storage of Minor Quantities of Hazardous Chemicals.
- Individual hazardous chemical stores within the workplace can be treated as separate stores provided that the required separation distances between the locations—as specified in this procedure and/or SafetyMan – Hazardous Chemicals Management Procedure 18 – Storage of Minor Quantities of Hazardous Chemicals are met.

Controls for hazardous chemical storage

- 6. Hazardous chemical storage facilities must include controls to provide adequate:
 - 6.1. isolation (separation by distance or barriers, eg firewalls);
 - 6.2. ventilation;
 - 6.3. control of ignition sources;
 - 6.4. segregation of incompatibles;
 - 6.5. temperature control;
 - 6.6. protection from impact;
 - 6.7. spill containment;
 - 6.8. fire protection equipment;
 - 6.9. safety and emergency equipment; and
 - 6.10. safety signs.

Cabinets and cages

 There are a number of options, available commercially or through the Defence supply system, that provide a simple and flexible solution to hazardous chemical storage. Further information is provided in SafetyMan – Hazardous Chemicals Management Procedure 19 -Cabinets and Cages for Storage of Hazardous Chemicals.



Fridges and freezers for hazardous chemicals

- 8. Refrigerated storage may be required for hazardous chemicals to maintain product quality or ensure the hazardous chemical does not decompose. The use of domestic refrigerators is generally inappropriate because:
 - 8.1. vapours or spilt liquid can be absorbed and build-up in porous surfaces;
 - 8.2. flammable vapours can build-up in the fridge, particularly if there is a loss of power as this could allow the storage temperature to rise;
 - 8.3. ignition sources are present within the cabinet of domestic fridges (eg internal light, thermostat, timers, heating elements in frost free fridges); and
 - 8.4. ignition sources are present external to the cabinet of domestic fridges (eg compressor motor, electrical connection).
- 9. Two types of chemical storage fridges are commercially available, often from laboratory suppliers, with the following features:
 - 9.1. inside of fridge is suitable for storage of chemicals but external components (eg motor, electrical) are not suitable for use in hazardous areas (ie areas where flammable atmospheres may be present). Features include non-porous and corrosion-resistant internal fittings, spill containment shelf or drawer in base and no electrical components within the fridge space; and
 - 9.2. inside of fridge is suitable for storage of chemicals (as above) and external components have been modified so that they are suitable for use in hazardous areas (ie areas where flammable atmospheres may be present). In most cases, these fridges must be hard-wired electrically (ie they cannot be plugged into a power point).
- 10. The following factors should be considered when determining requirements for refrigerated storage:
 - 10.1. A fridge or freezer used for organic peroxides is to have:
 - 10.1.1. a lid or door that opens easily to relieve any internal pressure;
 - 10.1.2. a temperature monitoring device that gives a clear indication outside the refrigerator of the temperature inside; and
 - 10.1.3. a high temperature alarm that gives warning at a location that is permanently attended.
 - 10.2. Where a fridge or freezer is to be located in a hazardous area, as defined by Australian Standards/New Zealand Standards 60079-10 Explosive Atmospheres Classification of Areas, the selection, specification and design of the fridge or freezer and all electrical components is to be in accordance with the requirements of this procedure.
 - 10.3. Where it is reasonably foreseeable that vapours may be released within the fridge or freezer cabinet, or that chemical spills may occur within the fridge or freezer cabinet, then the fridge or freezer should be of a type that is suitable for the chemicals to be stored (eg non-porous and/or corrosion resistant internal fittings, internal spill containment, no electrical components within the fridge space).

Purpose-built chemical storage units

11. Purpose-built chemical storage units for hazardous chemicals are available commercially. These can be purchased and used as a dedicated store, eliminating the need for design

and construction of a permanent structure. There are two distinct types of purpose-built storage units available.

- 11.1. Bunded chemical storage units intended for the storage of packages, drums or intermediate bulk container with doors that open to allow forklift access. These units are usually designed to meet the requirements of Australian Standards 1940:2004 The Storage and Handling of Flammable and Combustible Liquids. Features include:
 - 11.1.1. in-built spill containment with a capacity that meets or exceeds the requirements of the relevant Australian Standard for the type of hazardous chemicals and maximum capacity of the storage unit;
 - 11.1.2. natural vents positioned at low level and high level with vent area and vent spacing that meets or exceeds the requirements of the relevant Australian Standard for the type of hazardous chemicals; and
 - 11.1.3. emergency escape handle or release accessible from inside the storage unit.
- 11.2. Gas cylinder storage units meeting the requirements of Australian Standards 4332:2004 The Storage and Handling of Gases in Cylinders. These storage units are constructed of fully vented metal walls (eg mesh) for upright storage of gas cylinders.

Location of chemical storage units

- 12. When storing hazardous chemicals in purpose-built chemical storage units **above minor quantities** in a dedicated store, the following criteria must be met:
 - 12.1. storage units must be located outdoors;
 - 12.2. storage units cannot hinder escape from a building in the event of a fire or other emergency;
 - 12.3. storage units are to be separated from boundaries and other buildings and infrastructure by the distances required by the relevant Australian standard;
 - 12.4. storage units must be adequately secured (bolted down) against high wind conditions;
 - 12.5. storage units are to be positioned or protected (eg with bollards) so that they will not be hit by vehicles;
 - 12.6. two or more storage units positioned together can be treated as individual hazardous chemical stores if they are separated by the distance required by the relevant Australian Standard. If the separation between the storage units is less than the required distance, then the storage units comprise a single hazardous chemical store with a storage capacity equal to the combined capacity of all the storage units;
 - 12.7. two or more storage units positioned together must be positioned so there is no restriction of ventilation through any of the installed vents;
 - 12.8. the area around storage units must be kept clear of combustible materials (eg timber pallets), vegetation and refuse for a distance of at least 3m;
 - 12.9. storage units are to be located at least 3m from heat sources (eg radiators, boilers, steam pipes, motors and stoves);
 - 12.10. storage units for flammable and oxidising materials are to be kept away from ignition sources. This includes electrical installations (such as power points, light switches and light fittings), traffic routes, car parks, and work areas where ignition sources may be present (eg areas where welding or grinding may take place); and

12.11. for gas cylinders in storage units, incompatible gas cylinders must be separated by at least 3m.

Storage and operations with chemical storage units

- 13. The following criteria are to be taken into account when storing hazardous chemicals in storage units:
 - 13.1. incompatible goods may be stored in the same storage unit provided they are adequately segregated. Specific information for individual products is in the product safety data sheet. General guidance is in Safe Work Australia - Hazardous Chemicals Dangerous Goods Storage Segregation Guide for Workplaces;
 - 13.2. packages in storage units must be closed. Do not open packages in the storage unit;
 - 13.3. people are not to enter the storage unit;
 - 13.4. for a storage unit holding flammable or oxidising materials, ignition sources are not to be taken inside the unit or within 3m of the unit. Ignition sources include electrical equipment, mechanical equipment, portable electrical equipment (eg cordless drill), portable electronic equipment (eg mobile phones, cameras) and any other device or activity that could cause heat or spark;
 - 13.5. storage units are predominantly intended for the storage of flammable and combustible liquids which are generally non-reactive with the storage unit construction materials. Any other stored products that may react with or damage the storage unit (eg acids, alkalis, oxidisers) are to be placed in spill trays; and
 - 13.6. although storage units are usually naturally ventilated, storage units in direct sunlight can become hot. Products that may be affected by high temperatures must not be stored in storage units unless the internal temperature is adequately controlled by a roof or other shading.

Fire protection

- 14. For storage units holding flammable, combustible or oxidising liquids or solids, the following fire protection equipment is to be provided:
 - 14.1. 2 x powder extinguishers (2A 60B(E), 9kg); and
 - 14.2. 2 x foam extinguishers (2A 20B).
- 15. For stores of gas cylinders of up to 12,000l (water) capacity, at least one hose reel and one fire extinguisher are to be provided. For larger stores (up to 60,000l capacity), additional fire extinguishers are to be provided so that the maximum travel distance to any fire extinguisher is no more than 15m.
- 16. Fire protection equipment is to be located at sufficient distance from the storage unit that it can be safely accessed in the event of an emergency. The recommended location of extinguishers is 3–10m from the storage unit they are intended to protect, along emergency exit paths and/or near primary access points to the storage unit.

Outdoor hazardous chemical stores

- 17. Outdoor storage of hazardous chemicals is acceptable provided the packages are suitably designed and constructed for outdoor exposure (ie drums, intermediate bulk containers or gas cylinders) and:
 - 17.1. there is adequate security (eg wire mesh fencing and gates) to prevent unauthorised access;

- 17.2. they are separated from boundaries and other buildings and infrastructure by the distances required by the relevant Australian Standard;
- 17.3. they are not located where they could hinder escape from a building in the event of a fire or other emergency; and
- 17.4. for gas cylinders, they are secured upright (eg with chains).
- 18. Outdoor hazardous chemical stores for liquids or solids are to be provided with adequate spill containment. The total capacity of the spill containment must be at least the sum of:
 - 18.1. the storage capacity of the largest single package stored; plus
 - 18.2. an additional 25% of the storage capacity up to 10 000l; plus
 - 18.3. an additional 10% of the storage capacity above 10 000l.
- 19. Stormwater in the bund of an outdoor hazardous chemical store must be prevented or managed. For prevention, a roof over the bunded area may be effective. For management, a procedure for inspecting the bund after rain is recommended. Stormwater that accumulates in the bund must be tested for contamination before it can be removed and disposed of as contaminated waste or released into the environment if testing confirms there has been no contamination. Procedures for testing and removing stormwater are recommended.
- 20. Outdoor hazardous chemical stores are to be positioned or otherwise protected (eg with bollards) so that they are protected from vehicle impact.
- 21. The location and management requirements in this procedure apply to outdoor storage units.
- 22. Fire protection is to be provided as specified in this procedure for purpose-built chemical storage units.

Specification and design of hazardous chemical storage infrastructure

- 23. Design and construction of new hazardous chemical storage infrastructure is the responsibility of the Estate and Infrastructure Group. For a new store or modifications to an existing store, this process must be undertaken as a collaborative effort between the workplace, Estate and Infrastructure Group and any contractors engaged.
- 24. Guidance on designing storage infrastructure is available in Australian Standards, Codes of Practice and industry specific guidance material. However, there is no prescribed approach. Each project must be analysed in detail, taking into account the specific hazards and advice in guidance material. The final design should represent a solution that integrates controls so risk is minimised so far as is reasonably practicable. Expert advice will be required.
- 25. Documentation on the specification and design of the hazardous chemical store is to be prepared by Estate and Infrastructure Group and provided as part of the handover to the end user. This documentation is to provide details of:
 - 25.1. the storage limits of the hazardous chemical store including the types and quantities of hazardous chemicals permitted;
 - 25.2. hazard controls incorporated into the hazardous chemical store;
 - 25.3. the design basis for the hazardous chemical store—eg the specific Australian Standard/s or guidance document/s applied to the design. Any deviations from the referenced document/s are to be shown as providing an equivalent or higher level of protection; and

- 25.4. the operational and maintenance requirements of the hazardous chemicals store, along with responsibilities for completing scheduled inspections and maintenance.
- 26. For existing infrastructure the documentation specified in paragraph 29 may not have been developed. In that case, the documentation is to be prepared by the workplace with guidance from Estate and Infrastructure Group.
- 27. Once the new store has been completed, the requirements for ongoing operation and maintenance are to be documented and monitored. The workplace and Estate and Infrastructure Group share the responsibility for ensuring that infrastructure is correctly operated and adequately maintained.

References and related documents

- 28. Work Health and Safety Act 2011
- 29. Work Health and Safety Regulations 2011

SafetyMan:

- 30. Hazardous Chemicals Management Policy and Guidance
- 31. Procedure 18 Storage of Minor Quantities of Hazardous Chemicals
- 32. Procedure 19 Cabinets and Cages for Storage of Hazardous Chemicals
- 33. <u>National Code of Practice for the Storage and Handling of Workplace Dangerous Goods</u> [NOHSC: 2017 (2001)]
- 34. Australian Dangerous Goods Code Edition 7.5, National Road Transport Commission
- 35. <u>Safe Work Australia Managing Risks of Storing Chemicals in the Workplace</u> <u>Australian Standards/New Zealand Standards:</u>
- 36. AS/NZS 1596:2014 The Storage and Handling of LP Gas
- 37. AS/NZS 4681:2000 The Storage and Handling of Class 9 (miscellaneous) dangerous goods and articles
- 38. AS/NZS 61241.14:2005 Electrical Apparatus for use in the Presence of Combustible dust Part 14: Selection and installation (IEC 61241-14, Ed.1.0(2004) MOD)
- 39. AS/NZS 3000:2007 Wiring Rules
- 40. AS/NZS 4081:2001 The Storage and Handling of Liquid and Liquefied Polyfunctional Isocyanates
- 41. AS/NZS 2022:2003 Anhydrous Ammonia—Storage and Handling
- 42. AS/NZS 60079.14:2009 Explosive Atmospheres Part 14: Electrical Installations Design, Selection and Erection (IEC 60079-14, Ed. 4.0 (2007) MOD)
- 43. AS/NZS 2927:2001 The Storage and Handling of Liquefied Chlorine Gas
- 44. AS/NZS 2243.1:2005 Safety in Laboratories Part 1: Planning and Operational Aspects
- 45. AS/NZS 4452:1997 The Storage and Handling of Toxic Substances
- 46. AS/NZS 3833:2007 The Storage and Handling of Mixed Classes of Dangerous Goods, in Packages and Intermediate Bulk Containers
- 47. AS/NZS 5026:2012 The Storage and Handling of Class 4 Dangerous Goods
- 48. AS/NZS 60079.10.1:2009 Explosive Atmospheres Part 10.1: Classification of areas— Explosive Gas Atmospheres

- 49. AS 3780-2008 The Storage and Handling of Corrosive Substances
- 50. AS 2714-2008 The Storage and Handling of Organic Peroxides
- 51. AS 1940—2017 The Storage and Handling of Flammable and Combustible Liquids
- 52. AS 4332-2004 The Storage and Handling of Gases in Cylinders
- 53. AS 4326-2008 The Storage and Handling of Oxidizing Agents.

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafeyMan

Hazardous Chemicals Management Procedure 18 - Storage of Minor Quantities of Hazardous Chemicals

- 1. This procedure relates to SafetyMan Hazardous Chemicals Management Policy and Guidance and provides work health and safety information on the precautions and storage of hazardous chemicals where the threshold quantities held are determined to be a minor quantity.
- 2. This procedure applies to all Defence workplaces where minor quantities of hazardous chemicals are held, including workshops, offices, stores, medical facilities, places of worship, dining areas, kitchens, theatres, sporting facilities, accommodation facilities, etc.
- 3. This procedure does not apply to:
 - 3.1. storage of hazardous chemical in Defence laboratories; and
 - 3.2. the transport of dangerous goods.
- 4. This procedure does not cover the storage of the following high hazard products defined in the *Australian Dangerous Goods Code*:
 - 4.1. Dangerous Goods Class 1 explosives;
 - 4.2. Class 4 flammable solids:
 - 4.2.1. Division 4.1 flammable solids, self-reactive substances and solid desensitised explosives;
 - 4.2.2. Division 4.2 substances apt to spontaneously combust; and
 - 4.2.3. Division 4.3 substances which, in contact with water, emit flammable gases.
 - 4.3. Pyrophoric liquids and solids category 1;
 - 4.4. Self-reactive substances type A and B;
 - 4.5. Division 5.2 organic peroxides type A and B;
 - 4.6. Class 6.2 biological substances (infectious substances); and
 - 4.7. Class 7 radioactive substances.

Overview of minor quantities

- 5. The threshold quantities specified in this procedure are considered to be small, or so scattered and separated, that they present a low risk while in storage. In an emergency, minor quantities are unlikely to:
 - 5.1. hinder the activities of emergency personnel;
 - 5.2. contaminate the surrounding areas; and
 - 5.3. add significantly to a building's fire load, or play a significant part in spreading a fire.

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- 6. If the quantities of hazardous chemical are:
 - 6.1. below the threshold quantities specified in this procedure, then the implementation of the safe storage practices outlined in this procedure should be sufficient to manage the risk; and
 - 6.2. above the threshold quantities specified in this procedure, then this procedure cannot be applied and reference is to be made to *SafetyMan Hazardous Chemicals Management Procedure17 Storage of Hazardous Chemicals.*

Calculator

- In this procedure, minor quantities means quantities of hazardous chemical that do not exceed specified threshold quantities. The threshold quantities are detailed in the following tables.
- 8. The *Defence Hazardous Chemicals Minor Quantities Calculator* (available on the Work Health and Safety intranet site) has been developed to assist users to determine whether their storage is below the minor quantity. Users should record a copy (electronic or hard copy) of the calculation with the storage plan.

Table detailing minor quantity thresholds for hazardous chemical stores

Note 1:

The quantity stored is the quantity located in the hazardous chemical store plus any of the hazardous chemical that is in-use within approximately 10 metres of the hazardous chemical store (measured from the outermost package in the hazardous chemical store) – refer to *Developing a Storage Plan* process steps outlined in the table in paragraph 9.

Note 2:

Kilograms (kg) are to be used for solids; litres (I) are used for liquids and gases; kg can be used for aerosol cans and disposable gas containers. The maximum quantities specified in the table are the sum of the number of kilograms (solids, aerosol cans, disposable gas cylinders) and the number of litres (liquids, gases), ie simply add quantities of kg and I (there is no need to convert from kg to I or vice versa).

Note 3:

All thresholds need to be met to consider the hazardous chemical store as a minor hazardous chemical store.

Note 4:

retail packages of gases (ie non-

For combustible liquids not stored with flammable gases, flammable aerosols or flammable liquids, there is no threshold. However, good storage practices outlined in sections 4 and 5 of *Australian Standard 1940-2004 The Storage and Handling of Flammable and Combustible Liquids* and *SafeyMan Procedure 16 – Managing Risks Associated with Compressed and Liquefied Gases* should be implemented, so far as is reasonably practicable.

-					
	Dediested	General workplace		Protected place	
	store	TOTAL	Open storage	TOTAL	Open storage
 A. LIQUIDS, SOLIDS, AEROSOL CANS, DISPOSABLE GAS CONTAINERS (eg lighters, camping GAZ) NOTE: Gases in cylinders are not included here – they are considered separately at Item D. 					
Total packing group I	50	50	5	5	0.5
Total packing group II	250	250	25	25	2.5
Total packing group III, aerosols,	4000	1000	4.00	100	10

1000

100

100

1000

10

refillable lighters, butane lighters, barbecue gas in disposable					
containers) and combustible liquids					
(C1 & C2)					
TOTAL	1000	1000	100	100	10
B. FLAMMABLE SOLIDS	-	-	-	-	
Division 4.1, 4.2, 4.3 PG I	10	10	1	1	Prohibited
Division 4.1, 4.2, 4.3 PG II	20	20	2	2	Prohibited
Division 4.1, 4.2, 4.3 PG III	40	40	4	4	0.4
TOTAL	40	40	4	4	0.4
C. ORGANIC PEROXIDES					
Division 5.2 Types C to F	10	10	1 1		Prohibited
D. GASES IN CYLINDERS The representative quantity of hazardous chemical in a gas cylinder is taken to be the water capacity of the cylinder (ie the number of litres of water that would be required to fill the cylinder).				ter capacity	
	Outdoors	Outdoor s	Indoors	Outdoors	Indoors
Division 2.1 (eg LPG, acetylene)	500	500	50	50	10
Division 2.2 Sub-Risk 5.1 (eg oxygen)	1000	1000	100	100	10
Division 2.2 (eg nitrogen, Argoshield)	2000	2000	200	200	20
Division 2.3 (eg ammonia, chlorine)	50	50	5	Prohibited	Prohibited
ΤΟΤΑΙ	2000	2000	200	200	20

Table detailing minor quantity thresholds for in-use hazardous chemicals

Note 1:

The quantity threshold is specified as a quantity (kg plus litres) in-use per 500m² area:

- if the in-use hazardous chemicals cover a smaller area, then the minor quantity threshold for in-use hazardous chemicals is adjusted accordingly. For example: if a workshop is 300m² in area, then the thresholds are reduced to 60% (300m² / 500 m²) of the threshold stated; if a workshop is 500m² in area and in-use hazardous chemicals are only in half of the area, then the thresholds are reduced by 50%; and
- if the in-use hazardous chemicals cover a larger area, then the area should be divided into multiple in-use areas, none of which should exceed 500m².

Note 2:

Kilograms (kg) are to be used for solids; litres (I) are to be used for liquids and gases; kg can be used for aerosol cans, disposable gas containers. The maximum quantities specified in the table are the sum of the number of kilograms (solids, aerosol cans, disposable gas cylinders) and the number of litres (liquids, gases), ie simply add quantities of kg and I (there is no need to convert from kg to I or vice versa).

Note 3:

All thresholds need to be met to consider the in-use hazardous chemicals as minor quantities.

	General workplace	Protected place	
	In-use (per 500m ²)	In-use (per 500m ²)	
 A. LIQUIDS, SOLIDS, AEROSOL CANS camping GAZ) NOTE: Gases in cylinders are not include 	, DISPOSABLE GAS CON d here – they are considere	FAINERS (eg lighters, d separately at Item D.	
Total packing group I	5	0.5	
Total packing group II	25	2.5	
Total packing group III, aerosols, retail packages of gases (ie non-refillable lighters, butane lighters, barbecue gas in disposable containers) and combustible liquids (C1 & C2)	100	10	
TOTAL	100	10	
B. FLAMMABLE SOLIDS	-		
Division 4.1, 4.2, 4.3 PG I	1	Prohibited	
Division 4.1, 4.2, 4.3 PG II	2	Prohibited	
Division 4.1, 4.2, 4.3 PG III	4	0.4	
TOTAL	4	0.4	
C. ORGANIC PEROXIDES	-		
Division 5.2 Types C to F	1	Prohibited	
D. GASES IN CYLINDERS The representative quantity of hazardous chemical in a gas cylinder is taken to be the water capacity of the cylinder (ie the number of litres of water that would be required to fill the cylinder).			
Division 2.1 (eg LPG, acetylene)	50	10	
Division 2.2 Sub-Risk 5.1 (eg oxygen)	100	10	
Division 2.2 (eg nitrogen, Argoshield)	200	20	
Division 2.3 (eg ammonia, chlorine)	5	Prohibited	
ΤΟΤΔΙ	200	20	

9. The process set out in the following table may be used develop a storage plan for minor quantities.

	Developing a storage plan				
Step	Action				
1	Identify the hazardous chemicals that need to be stored				
	1.1. Review orders, instructions and publications and/or tasks requiring the use of hazardous chemicals. Record information about the hazardous chemicals specified or used, including the product name, manufacturer, the quantity of hazardous chemicals required for the task and the frequency of the task.				
	1.2. Estimate the total maximum quantity of all hazardous chemicals that need to be held, taking into account hazardous chemical supply, quantity used per task, frequency of usage, historical usage figures, minimum order quantities and expected resupply timeframes.				
	1.3. For existing workplaces, conduct a physical stocktake, identifying the types and quantities of hazardous chemicals at the workplace. To allow data entry into ChemAlert, the information recorded should include the cabinet/cage/open shelf location, product name, manufacturer, package size and number of packages				
	1.4. For existing workplaces, the information from steps 1.2 and 1.3 should be compared to identify hazardous chemicals stored but not required or excess quantities of required hazardous chemicals held at the site. Arrange for disposal of hazardous chemicals that are not required at the site.				
	1.5. If excess quantities of required hazardous chemicals are held, review the usage rates and ordering schedule. Orders should cease until stock holdings have reduced to the maximum level required. If significant excess of stock is held, then arrangements should be made to transfer such hazardous chemicals/s to other units, or to dispose of the excess.				
2	Determine where hazardous chemicals need to be stored				
	2.1.To minimise the risks of moving hazardous chemicals from the place of storage to the place of use, hazardous chemicals should be stored close to the place of use. However, the actual location must take into account the risks imposed by the storage.				
	2.2. Identify quantities of hazardous chemicals that need to be readily accessible at the work location (eg on the workbench) or in the workplace (eg in the workshop) taking into account the frequency of usage and the quantity of usage.				
	2.3. Based on the maximum quantities required, identify the quantity of hazardous chemical that needs to be held in a dedicated store (ie the maximum quantity identified in step 1.2, less the quantity held within the workplace identified in step 2.1).				
3	Conduct preliminary confirmation that quantities held are below minor quantity thresholds				
	3.1. Based on the proposed locations identified in steps 2.1 and 2.2, check if the proposed storage quantities in each storage location are likely to be less than the minor quantity thresholds.				
	Note : A minor quantities calculator is available to assist users to determine whether storage is below the minor quantity thresholds (refer to step 5)				

	Developing a storage plan				
Step	Action				
4	Identify suitable storage locations				
	Storage locations for hazardous chemicals that meet the operational needs identified in steps 2.1 and 2.2 need to be identified, taking into account the following factors:				
	4.1 Australian Standards;				
	4.2 safety data sheets; and				
	4.3 supplier advice.				
5	Verify that minor quantity thresholds are not exceeded using the minor quantities calculator				
	5.1 Open the minor quantities calculator.				
	5.2 Select the tab for hazardous chemical store or in-use, as appropriate for the storage you are assessing.				
	5.3 Note, for in-use hazardous chemicals, specify the floor area occupied by the in- use hazardous chemicals (the area must be no greater than 500m ²).				
	5.4 Identify the site as a dedicated store (only for hazardous chemical store), a general workplace or a protected place.				
	5.5 Complete all boxes shaded yellow, or leave blank if stock holding is nil.				
	Note: this information may be available from the ChemAlert placard report, or by exporting a ChemAlert stock report as a CSV file which can be opened in Excel. Depending on how the stock locations are structured in ChemAlert, a single placard report or file export may provide sufficient information, or multiple reports and some data manipulation may be required.				
	5.6 Review the results:				
	 if all boxes show 'Minor Quantities' (green), this procedure can be applied; and 				
	• if any boxes show 'Not Minor Quantities' (Red), this procedure cannot be applied and reference is to be made to the series of procedures described in SafetyMan Procedure 17 - Storage of Hazardous Chemicals.				
	Note: if minor quantities are exceeded, it may be possible to re-arrange the storage to achieve minor quantities by:				
	 moving hazardous chemicals from open storage into a purpose-built chemicals storage cabinet or cage; and 				
	 moving products that exceed minor quantity thresholds into a separate dedicated store. 				
	5.7 Make a copy of the results from the minor quantities calculator and archive on Objective with the storage plan.				
6	Implement controls				
	6.1 For each minor hazardous chemical store or in-use area, implement the relevant controls.				

Developing a storage plan				
Step		Action		
7	Doc	sument the storage plan		
	7.1	Ensure the ChemAlert stock holdings site hierarchy correctly reflects the proposed storage arrangements (note that open storage still requires child sites to be detailed in ChemAlert),		
	7.2 Ensure maximum allowable storage quantities are entered into the correct stor location in ChemAlert,			
	7.3 Prepare a site layout showing each ChemAlert stock location on a map. Other information can be included if desired.			
	7.4	The ChemAlert stock holdings report and the site layout form the basis of the documented storage plan. Other information can be included if desired.		

Identifying and segregating incompatibles for minor quantities

- 10. Hazardous chemicals are to be segregated from any chemicals or other products that may be incompatible so that the possibility of reaction is minimised.
- 11. Incompatible hazardous chemicals dangerous goods Classes are to be recorded separately in the workplace's ChemAlert Site Hierarchy and in accordance with the ChemAlert naming conventions.
- 12. When storing minor quantities, hazardous chemicals are also to be segregated, as a minimum, in accordance with the following table. More specific information can be found on the product safety data sheet. If storing larger quantities, refer to *SafetyMan Hazardous Chemicals Management Procedure 17 Storage of Hazardous Chemicals* and the *Defence Hazardous Chemicals Dangerous Goods Storage Segregation Guide for Workplaces*.



- 13. Following are some simple rules for segregating minor quantities:
 - 13.1. for gas cylinders, separate incompatible gas cylinders by at least 3 metres;
 - 13.2. store incompatibles in separate chemical storage cabinets. These cabinets have built-in spill containment;
 - 13.3. place incompatibles in separate spill trays or tubs that are resistant to attack from the chemicals stored in them;
 - 13.4. separate incompatibles sufficiently to minimise the risk of mixing. Use the separation space to store compatible, non-combustible materials;
 - 13.5. do not store incompatibles on the same shelf (unless they are placed in separate spill trays or tubs);

- 13.6. do not store incompatibles above or below each other;
- 13.7. do not store Division 5.1 (oxidising agents) or Division 5.2 (organic peroxides) next to be combustible materials such as timber pallets, cardboard, etc; and
- 13.8. packages are to be kept on non-combustible surfaces that are not liable to attack or damaged by the hazardous chemicals if spilt, and that will not absorb any spilt hazardous chemicals.

Other precautions for storing minor quantities

- 14. If purpose-built chemical storage cabinets or cages are used, they are to be appropriate and approved for the type and quantity of hazardous chemicals to be stored.
- 15. Purpose-built chemical storage cabinets with a capacity greater than 250 litres must not be used for storage of minor quantities.

Spill control

- 16. The following spill control measures should be considered:
 - 16.1. store hazardous chemicals in their original container; if decanted into other containers, these are to be compatible and suitable for the purpose;
 - 16.2. store packages so that the risk of falling or being dislodged is minimised;
 - 16.3. store packages upright at all times;
 - 16.4. keep packages closed when not in immediate use;
 - 16.5. check containers—including lids, caps and seals—regularly for deterioration and replace when necessary;
 - 16.6. store larger containers on bunded pallets, in purpose-built chemical storage cabinets and/or on impervious spill trays;
 - 16.7. do not store liquid hazardous chemicals above solid hazardous chemicals that are in paper or absorbent packaging;
 - 16.8. store glass containers at lower levels to minimise the risk of breakage;
 - 16.9. use dispenser pumps or self-closing taps on containers for decanting;
 - 16.10. secure gas cylinders upright at all times (eg with chains); cylinder valves are to be closed when not in use; and
 - 16.11. ensure appropriate spill control measures are provided where packages are opened and their contents transferred.

Protection of chemicals

- 17. Hazardous chemicals are to be located away from vehicle, trolley or pedestrian thoroughfares. Where necessary, protective devices (eg bollards, kerbing and mirrors) are to be used to minimise the potential for impact.
- Wherever practicable, hazardous chemical containers are not to be stacked on top of each other. Stacking increases the likelihood that containers could fall or be damaged due to the weight.
- 19. The transfer of hazardous chemicals from the hazardous chemical store to the point of use is to be carried out in a manner that minimises the possibility of spillage or fire. The use of trolleys or carrying devices should be considered.

Chemical stability

- 20. Implement specified control conditions (eg maintain stabilisers or refrigeration, keep packages dry) to ensure stability.
- 21. Hazardous chemicals are to be stored at or below the maximum or recommended storage temperature stated in the safety data sheet. If refrigeration is required, a suitably designed commercial refrigerator or freezer is to be used.
- 22. Any commercial refrigerator or freezer used for organic peroxides is to have:
 - 22.1. protected or separated electrical equipment,
 - 22.2. a lid or door that opens easily to relieve any internal pressure,
 - 22.3. a temperature monitoring device that gives a clear indication outside the refrigerator of the temperature inside, and
 - 22.4. a high temperature alarm that is permanently attended and warns if the temperature exceeds the allowable maximum.

Ventilation

- 23. Adequate ventilation is to be available in areas where hazardous chemicals are stored, handled and used. Ventilation is to be sufficient to maintain concentrations of gases, vapours, dusts and mists at a safe level taking into account the potential for a flammable atmosphere and relevant workplace exposure standards.
- 24. Outdoor locations are preferred for opening, decanting and using chemicals, provided that adequate facilities (eg benches, spill control) are available for the tasks being conducted.
- 25. For indoor locations, exhaust hoods or exhaust cabinets are to be used for opening, decanting and using chemicals when available.
- 26. For air-conditioned or mechanically ventilated areas, the potential for build-up of hazardous chemical vapours or fumes within the system due to recirculation must be considered. Distribution to other non-related work areas through the vent system must also be considered.
- 27. Many hazardous chemicals have flammable properties; therefore, risks due to ignition sources are to be minimised wherever they are stored, handled or used.

Elimination of ignition sources

- 28. An ignition source is a source of energy sufficient to ignite a flammable atmosphere. Examples include:
 - 28.1. naked flames (pilot lights, welding, smoking, matches);
 - 28.2. electrical welding arcs;
 - 28.3. mechanical sparks (grinding, impact);
 - 28.4. static electricity (built-up when transferring some flammable liquids, clothing);
 - 28.5. electrical equipment (power points, lights, electrical switches and wiring);
 - 28.6. electronic equipment (mobile phones, pagers, cameras); and
 - 28.7. mechanical equipment (motors, fans, vehicles, forklifts).
- 29. A separation distance of 3 metres is recommended between hazardous chemical storage (particularly flammable and oxidising materials) and ignition sources.

- 30. For flammable liquid storage cabinets, ignition sources—including electrical installations such as power points, light switches and light fittings—are to be eliminated within 3 metres laterally and from floor level to one metre above the cabinet.
- 31. For flammable liquids and gases, hazardous areas as defined in *Australian Standard/New Zealand Standard 60079.10.1:2009 Explosive Atmospheres Part 10.1: Classification of Areas— Explosive Gas Atmospheres* may be present if the following quantities are exceeded:
 - 31.1. 100 litres in closed containers;
 - 31.2. 25 litres for decanting purposes (eg petrol transfer to a motor vehicle or lawn mower);
 - 31.3. 5 litres in open containers for occasional use; and
 - 31.4. one litre in open containers for continuous use.
- 32. If required, hazardous area classification in accordance with Australian Standard/New Zealand Standard 60079.10.1: Explosive Atmospheres Part 10.1: Classification of Areas Explosive Gas Atmospheres is to be conducted to determine zones where ignition sources are to be controlled.

Fire fighting equipment

- Refer to SafetyMan Hazardous Chemicals Management Procedure 28 Emergency Planning and Response for Hazardous Chemicals and SafetyMan Hazardous Chemicals Management Procedure 29 – Managing Hazardous Chemicals Spills.
- 34. When preparing the storage plan, consideration should be given to the adequacy of the existing fire protection equipment.
- 35. Wherever flammable liquids (Class 3) or flammable solids (Class 4) are stored, a suitable fire extinguisher or alternative fire-fighting equipment is to be provided. Where the nature of the hazardous chemicals is such that the use of portable fire extinguishers is inappropriate (eg Class 4.3 Dangerous When Wet), alternative fire-fighting equipment is to be provided. A water supply is to be available nearby for fire fighting and personal hygiene.

Emergency and safety equipment

- 36. An appropriate spill kit or clean-up equipment is to be readily accessible wherever liquid or solid hazardous chemicals are located. Commercial spill kits are available in a range of types (eg suitable for flammable liquids or corrosive liquids) and sizes. Provision of suitable spill equipment is to be determined when preparing the storage plan.
- 37. Safety equipment that may be required includes an eye wash, safety shower and first aid equipment. The need for these facilities is usually driven by the tasks done using hazardous chemicals, rather than the storage of the hazardous chemicals. The facilities required are to be considered when preparing the storage plan, with reference to risk assessments completed for tasks done in the area.

References and related documents

- 38. Work Health and Safety Act 2011
- 39. Work Health and Safety Regulations 2011
- 40. SafetyMan Hazardous Chemicals Management
 - 40.1. Procedure 11 Safety Data Sheets
 - 40.2. Procedure 17 Storage of Hazardous Chemicals

- 40.3. Procedure 21 Ventilation for Hazardous Chemicals
- 40.4. Procedure 23 Placarding of Storage Facilities for Hazardous Chemicals
- 40.5. Procedure 28 Emergency Planning and Response for Hazardous Chemicals
- 40.6. Procedure 29 Managing Hazardous Chemicals Spills
- 41. National Code of Practice for the Storage and Handling of Workplace Dangerous Goods [NOHSC: 2017(2001)]
- 42. Australian Dangerous Goods Code Edition 7.4, National Road Transport Commission August 2014
- 43. Australian Standard/New Zealand Standard
 - 43.1. AS 1940-2017 The Storage and Handling of Flammable and Combustible Liquids
 - 43.2. AS 1319:1994 Safety Signs for the Occupational Environment
 - 43.3. AS 1668.2:2012 The Use of Ventilation and Air-Conditioning in Buildings
 - 43.4. AS 2714:2008 The Storage and Handling of Organic Peroxides
 - 43.5. AS/NZS 3833:2007 The Storage and Handling of Mixed Classes of Dangerous Goods, in Packages and Intermediate Bulk Containers
 - 43.6. AS 4332:2004 The Storage and Handling of Gases in Cylinders
 - 43.7. AS/NZS 60079.10.1:2009 Explosive Atmospheres Part 10.1: Classification of Areas-Explosive Gas Atmospheres.
- 44. Australian Dangerous Goods Code
- 45. Defence Hazardous Chemicals Minor Quantities Calculator
- 46. Hazardous Chemicals Dangerous Goods Storage Segregation Guide for Workplaces

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Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 19 - Cabinets and **Cages for Storage of Hazardous Chemicals**

1. This procedure relates to the SafetyMan - Hazardous Chemicals Management Policy and Guidance and provides work health and safety tools on issues that must be considered when selecting the appropriate cage or cabinet to safely store hazardous chemicals. This procedure should be read in conjunction with SafetyMan - Hazardous Chemicals Management Procedure 17 - Storage of Hazardous Chemicals and SafetyMan - Hazardous Chemicals Management Procedure 18 – Storage of Minor Quantities of Hazardous Chemicals.

General requirements for hazardous chemical cabinets

2. Hazardous chemical cabinets must be appropriate for the type of hazardous chemicals to be stored.

Storage cabinets and cages

- 3. Purpose-built chemical storage cabinets for hazardous chemicals are available commercially. These cabinets provide a good storage option for smaller packages of hazardous chemicals (< 20 kg or I). They protect the contents in the event of a fire in the surrounding area, while the bottom of the cabinet provides a liquid-tight spill compound.
- 4. Cabinets are available in a range of sizes, from 30I capacity to 250I capacity, with larger cabinets (up to 850l capacity) allowable for certain classes of hazardous chemicals.
- 5. Cages or strong mesh enclosures can be used for the storage of aerosols and disposable gas containers so that in the event of a fire, exploding aerosols or containers do not act as missiles and impede the actions of emergency services or propagate the fire to unaffected areas.

Design and construction of cabinets and cages

6. Table 1 (below) lists the Australian Standards that specify the construction requirements for hazardous chemical cabinets and cages. Certification of compliance with the relevant Standards should be obtained and retained for cabinets used within Defence. This certification may be marked on the cabinet or provided in a separate certificate of compliance issued by the manufacturer/supplier.

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- 7. There are no specifications in the Australian Standards for the construction requirements of cages. Commercially available cages are often specified as aerosol storage cages. Defence storage equipment, such as crazy crates or crash cages may also provide adequate protection for the storage of aerosols and disposable gas containers. The following Defence steel cage pallets (with mesh tops) are considered suitable for storage of aerosols or disposable gas containers:
 - 7.1. Type 1A NSN 3990-66-141-5657;
 - 7.2. Type 1B NSN 3990-66-141-5658;
 - 7.3. Type 1C NSN 3990-66-141-5659; and
 - 7.4. Type 1D NSN 3990-66-141-6315.

Table 1 - Australian Standard/New Zealand specifying construction requirements for cabinets			
Class 3 (flammable liquids) and combustible liquids	Clause 4.9.2 and 4.9.3 AS 1940:2004 <i>The Storage and Handling of Flammable and</i> <i>Combustible Liquids</i>		
Class 4 (flammable solids)	Clause 5.7.3 AS/NZS 5026:2012 The Storage and Handling of Class 4 Dangerous Goods		
Class 5.1 (oxidising agents)	Clause 4.8.3 AS 4326:2008 The Storage and Handling of Oxidising Agents		
Class 5.2 (organic peroxides)	Clause 4.6.1 AS 2714:2008 The Storage and Handling of Organic Peroxides		
Class 6.1 (toxic substances)	Clause 4.4.2.3 AS/NZS 4452:1997 The Storage and Handling of Toxic Substances		
Class 8 (corrosive substances)	Clause 4.6.4 AS 3780:2008 The Storage and Handling of Corrosive Substances		

Location of cabinets and cages

- 8. The following criteria are to be met when storing hazardous chemicals exceeding minor quantities in cabinets:
 - 8.1. cabinets and cages are to be located only on floors that have direct access from street or ground level (ie the ground floor);
 - 8.2. cabinets and cages are not to be located where they could hinder escape from a building in the event of a fire or other emergency. If hazardous chemicals are to be stored in multi-storey buildings, special consideration is to be given to meeting this requirement for all building occupants;
 - 8.3. cabinets and cages are not to be placed nearer than 3 metres from any wall that is common with another room, unless that wall is constructed of concrete or masonry to ceiling height or 3 metres above the top of the cabinet (whichever is less) and 3 metres to either side of the cabinet;

- 8.4. cabinets and cages must be located outdoors and provide adequate protection against weather (rain, heat, wind), corrosion and traffic damage is provided. A roofed area with protection against direct sunlight is to be provided;
- 8.5. several cabinets can be positioned together in a group, but there are limits to how much can be stored within a group of cabinets. If storing Class 4, Class 5.1, Class 5.2 or Class 6.1, then the maximum storage is 250 kg or I. Otherwise, the maximum storage is 850 kg or I;
- 8.6. if the capacity of the cabinets (as marked on the cabinets) exceeds these maximum quantities, effective controls are to be in place to ensure the actual quantity stored does not exceed these maximum quantities;
- 8.7. a group of cabinets and/or cages (as described above) is to be separated from any other group of cabinets and/or cages by a distance of at least 10 metres;
- 8.8. the area around cabinets and cages is to be kept clear of combustible materials (eg timber pallets), vegetation and refuse for a distance of at least 3 metres;
- 8.9. cabinets and cages are to be located at least 3 metres away from heat sources (eg radiators, boilers, steam pipes, motors and stoves;
- 8.10. cabinets and cages for flammable and oxidising materials are to be kept away from ignition sources including electrical installations such as power points, light switches and light fittings. A distance of at least 3 metres laterally and 1 metre above the cabinet is required;
- 8.11. cabinets should be positioned on level ground to distribute the weight evenly for balance and stability. In some circumstances, it may be desirable to elevate the cabinet off the ground for example to provide forklift or pallet jack access (to relocate) or to prevent corrosion due to wet ground. In this case, it is essential that the following conditions are met:
 - 8.11.1. the elevating structure is to be designed and constructed to prevent any bowing or distortion of the cabinet structure. For larger cabinets, a structure that evenly supports the full base of the cabinet is required;
 - 8.11.2. the elevating structure is to be adequate to support the weight of the cabinet plus contents; and
 - 8.11.3. cabinet stability must be maintained.
- 8.12. the construction materials of the supporting structure must be non-combustible so, in the event of a fire, the stability of the cabinet is maintained; and
- 8.13. the design of the supporting structure is to allow for clean-up of any spill that may flow under the elevated cabinet.

Storage within cabinets and cages

9. Table 2 specifies the maximum quantities and the total quantity that can be stored in each cabinet/cage.

Table 2 - Maximum quantities in one cabinet			
	PG I	PG II	Total
Aerosols, disposable gas containers	N/A	N/A	850 kg or l
Class 3 (flammable liquids)	No restriction	No restriction	850 I
Class 4 (flammable solids)	50 kg	100 kg	250 kg
Division 5.1 (oxidising agents)	50 kg or l	250 kg or l	250 kg or l
Division 5.2 (organic peroxides) Type B	N/A	N/A	50 kg or l
Division 5.2 (organic peroxides) Type C, D, E or F	N/A	N/A	100 kg or l
Division 6.1 (toxic)	25 kg or l	50 kg or l	250 kg or l
Class 8 (corrosive)	50 kg or l	250 kg or l	1000 kg or l

- 10. The following criteria are to be met when storing hazardous chemicals that exceed minor quantities in a dedicated store:
 - 10.1. incompatible goods are not to be stored in the same cabinet. Specific information for individual products can be found on the product safety data sheets, or for general guidance refer to Defence *Hazardous Chemicals Dangerous Goods Storage Segregation Guide for Workplaces;*
 - 10.2. packages in cabinets are to be closed or fitted with a tap;
 - 10.3. packages are not to be stacked more than two high in a cabinet if they are of capacity greater than 60 litres;
 - 10.4. only one package of more than 60-litre capacity should be kept in a horizontal position for decanting within any one cabinet; and
 - 10.5. the base of the cabinet should form a liquid-tight bund designed to hold any spills that occur within the cabinet. The cabinet should be supplied with a lower shelf that prevents this bund from being used as a storage space. This shelf should not be removed or relocated to a different level within the cabinet, ie packages should not be stored directly in the bund of the cabinet.

Ventilation

- 11. Cabinets may be constructed with intake and exhaust vents, pre-fabricated with connection fittings and flash arrestors (if required). When supplied, these vents are sealed with a removable metal cap. These caps must remain tightly fitted unless a ventilation system is physically connected to the cabinet. Removing the caps could reduce the cabinet's ability to protect its contents from an external fire.
- 12. A ventilation system is required if there is a risk to users opening the cabinet and/or persons working in the vicinity. This may occur when the products stored are highly toxic, flammable or corrosive, and highly volatile (ie evaporate readily).
- 13. Note the cabinets are designed to protect the contents from a fire outside the cabinet. A vented cabinet could compromise the ability of the cabinet to protect its contents from a fire.

An alternative to storage in a cabinet—such as a separate room or enclosure—may allow for greater control of all product hazards.

14. Ventilation systems must be designed and constructed according to the process outlined in SafetyMan - Hazardous Chemicals Management Procedure 21 - Ventilation for Hazardous Chemicals.

Fire protection

15. Table 3 specifies the minimum fire protection equipment required for storage in cabinets in excess of minor quantities.

Table 3 - Minimum Fire Protection Requirements for Storage above MinorQuantities in Cabinets				
Aerosols, disposable gas containers	< 250l cabinets: 1 x powder extinguisher (2A 60B(E), 9kg)			
	 > 250l cabinets: 2 x powder extinguishers (2A 60B(E), 9kg) 			
Class 3 (flammable liquids)	< 250l cabinets: 1 x powder extinguisher (2A 60B(E), 9kg)			
	 > 250l cabinets: 1 x powder extinguisher (2A 60B(E), 9kg) 			
	PLUS additional 1 x powder extinguisher (2A 60B(E), 9kg)			
	OR 1 x foam extinguisher (2A 20B)			
	OR foam-injected hose reel (capable of producing 27 l/min of foam solution at a minimum of 220 kPa for 30 min).			
Class 4 (flammable solids)	Fire protection (eg extinguisher, hose reel) compatible with the products being stored.			
Division 5.1 (oxidising agents)	1 x water extinguisher (2A, 9I)			
Division 5.2 (organic peroxides)	2 x dry powder extinguishers (60B)			
Division 6.1 (toxic)	No specific requirements – fire protection should be adequate for surrounding building and equipment.			
Class 8 (corrosive)	No specific requirements – fire protection should be adequate for surrounding building and equipment.			

- 16. Fire protection equipment is to be located a sufficient distance from cabinets so that it can be safely accessed in the event of an emergency. It is recommended that extinguishers are located at least 3 metres and not more than 10 metres from the cabinet/s they are intended to protect, and are positioned along emergency exit paths and/or near primary access points to the storage area.
- 17. Existing fire protection equipment (eg extinguishers provided in buildings) can be included when considering the adequacy and provision of the required fire protection. A single fire extinguisher or hose reel can be considered to provide protection to a number of cabinets, provided that the location requirements specified in the above paragraph are met. However,

where a large number of cabinets are located together, additional fire extinguishers or hose reels may be required to manage the risk adequately.

References and related documents

- 18. Work Health and Safety Act 2011
- 19. Work Health and Safety Regulations 2011
- 20. SafetyMan Hazardous Chemicals Management
 - 20.1. Hazardous Chemicals Management Policy and Guidance
 - 20.2. Procedure 17 Storage of Hazardous Chemicals
 - 20.3. Procedure 18 Storage of Minor Quantities of Hazardous Chemicals
 - 20.4. Procedure 21 Ventilation for Hazardous Chemicals
- 21. National Measurement Act 1960
- 22. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 23. Code of Practice Managing Risks of Storing Chemicals in the Workplace
- 24. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
- 25. Australian Dangerous Goods Code, 7th Edition
- 26. Building Code of Australia (BCA)
- Guidance on the Classification of Hazardous Chemicals under the WHS Regulations: Implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 2012
- 28. NOHSC List of Designated Hazardous Substances [NOHSC:10005]
- 29. Hazardous Chemical Information System (HSIS)
- 30. NOHSC National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003]
- 31. Guidelines for Health Surveillance [NOHSC:7039]
- 32. National Industrial Chemicals Notification and Assessment Scheme (NICNAS) for the Australian Inventory of Chemical Substances (AICS)
- 33. Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
- 34. Australian Standard/New Zealand Standards
 - 34.1. AS/NZS 3000:2007 Electrical Installations (known as the Australian/New Zealand wiring rules) Wiring Rules (Incorporating Amendment No 1 and 2)
 - 34.2. HB 76 Dangerous Goods—Initial Emergency Response Guide
 - 34.3. AS 1216-2006 Class Labels for Dangerous Goods
 - 34.4. AS 1894—1997 The Storage and Handling of Non-Flammable Cryogenic and Refrigerated Liquids
 - 34.5. AS 1940-2017 The Storage and Handling of Flammable and Combustible Liquids
 - 34.6. AS 2187.2—2006 Explosives—Storage, Transport and Use (series)
 - 34.7. AS 2507—1998 The Storage and Handling of Agricultural and Veterinary Chemicals
 - 34.8. AS 2508.2.007 Safe Storage and Handling Information Card (series)

34.9. AS 2714 -2008 The Storage and Handling of Organic Peroxides

- 34.10. AS 2809 Road Tank Vehicles for Dangerous Goods (series)
- 34.11. AS 3780—2008 The Storage and Handling of Corrosive Substances
- 34.12. AS 3846- 2005 The Handling and Transport of Dangerous Cargoes in Port Areas
- 34.13. AS 4326-2008 The Storage and Handling of Oxidising Agents
- 34.14. AS 4332-2004 The Storage and Handling of Gases in Cylinders
- 34.15. AS/NZS 1596:2014 The Storage and Handling of LP Gas
- 34.16. AS/NZS 2022:2003 Anhydrous Ammonia—Storage and Handling
- 34.17. AS/NZS 2927:2001 The Storage and Handling of Liquefied Chlorine Gas
- 34.18. AS/NZS 4081:2001 The Storage and Handling of Liquid and Liquefied Polyfunctional Isocyanates
- 34.19. AS/NZS 4452:1997 The Storage and Handling of Toxic Substances
- 34.20. AS/NZS 4681:2000 The Storage and Handling of Class 9 (Miscellaneous) Dangerous Goods and Articles
- 34.21. AS/NZS 3833:2007 The Storage and Handling of Mixed Classes of Dangerous Goods
- 34.22. AS 4332:2004 The Storage and Handling of Gases in Cylinders
- 34.23. AS/NZS 2243.10:2004 Safety in Laboratories Storage of Chemicals
- 34.24. AS 1530.4-2005 Methods for Fire Tests on Building Materials, Components and Structures Fire-Resistance Test of Elements of Construction.

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Australian Government
 Department of Defence
 Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 20 - Containers For Decanted Hazardous Chemicals

1. This procedure relates to the *SafetyMan - Hazardous Chemicals Management Policy and Procedure* and provides work health and safety information on containers for hazardous chemicals that are decanted. It also provides information on safe decanting of hazardous chemicals. However, this procedure does not apply to decanting liquefied petroleum gas cylinders.

Decanting requirements

- 2. Defence is required to ensure that:
 - 2.1. workers are provided with information, training and instruction with regard to decanting processes they are required to undertake, in particular the nature and conduct of the decanting processes, the associated risks and the control measures implemented;
 - 2.2. suitable containers are selected for using, storing and/or handling hazardous chemicals so the containers do not become unstable, decompose or change thereby increasing the associated risk;
 - 2.3. decanted chemicals are appropriately labelled if the chemical is not immediately used;
 - 2.4. hazardous chemicals are appropriately packaged and labelled when the chemical is supplied to another workplace; and
 - 2.5. containers labelled for hazardous chemicals are used for the intended use, handling or storage of that hazardous chemical.

Labelling decanted hazardous chemical containers

3. Table 1 stipulates when containers require labelling having been used to hold a decanted hazardous chemical:

Та	Table 1 – Labelling requirements for decanted hazardous chemical containers				
Label not required on container of decanted chemical			Label required on container of decanted chemical		
•	If the chemical is decanted and used immediately; and	•	If the chemical is decanted and not used immediately; and		
•	If the container is thoroughly cleaned immediately after the chemical is used such that the container is in the condition that it would be in if it had never contained the hazardous chemical.	•	If the container is not cleaned and its contents are not neutralised, cured or deactivated.		



Containers for decanted hazardous chemicals

4. Packaging comprises the container and the closure device, both of which must be compatible with the hazardous chemical stored within. Closures are often lined with chemical resistant inserts or liners.

General safety requirements for decanting

- 5. The following general principles apply to decanting hazardous chemicals;
 - 5.1. never store hazardous chemicals in food or beverage containers;
 - 5.2. never order a pack size greater than what is required for the workplace activity;
 - 5.3. never fill the container beyond 95% of the nominated container volume;
 - 5.4. never fill metal containers with acids or bases; and
 - 5.5. never put oxidising substances into cardboard or fibreboard containers.
- 6. Table 2 outlines general safety requirements for decanting. Note that these requirements are not exhaustive:

Table 2 - General safety considerations for decanting				
Decanting area design safety and suitability	When considering setting up a dedicated decanting area, the manager/commander should include the decanting area in the unit/workplace storage risk assessment in order to identify and manage risks. Consideration should be given to:			
	construction and fire rating of the building;			
	 potential impact of waste or fire on neighbours and the environment; 			
	 thermal and environmental considerations which may impact the stability of the hazardous chemicals; 			
	 ventilation requirements for decanting areas to minimise unsafe atmospheres; 			
	fire protection requirements;			
	 spill containment systems and equipment; 			
	 separation and segregation requirements for incompatible substances; and 			
	accessibility to safety equipment and emergency assistance.			
Precautions to prevent mixing	Workers must conduct a thorough visual inspection before decanting to ensure the container to be used:			
chemicals	 has been thoroughly cleaned in accordance with manufacturer instructions so that the container is in the condition it would be in if it had never contained the hazardous chemical; or 			
	 held the same chemical that is to be decanted into it. 			
	Containers must be correctly labelled.			

Table 2 - General safety considerations for decanting				
Information, training and	Workers who decant hazardous chemicals must be provided with adequate information, training and instruction in:			
instruction	 authorised mixing processes in accordance with orders, instructions and publications, including supervision requirements; 			
	 properties of the chemicals and the risks associated with the work; 			
	container and labelling requirements;			
	 control measures including ventilation and requirements relating to personal protective equipments; and 			
	 emergency procedures, including spill response, exposure and inhalation response plan. 			
Supervision	Decanting involves the risk of spill and/or exposure. Local decanting procedures should include supervision or notification of a co-worker to ensure that any worker exposed receives immediate assistance including first aid assistance.			
Control of entry	Personnel not involved in the decanting process should be prevented from entering the decanting area during the decanting process.			
Ventilation	 Decanting areas must be provided with adequate natural or mechanical ventilation in order to reduce the potential inhalation and explosive vapour hazards; 			
	 Any mechanical ventilation system must have an airflow-failure warning device; 			
	 All equipment must be suitable for use in hazardous areas. The design of ventilation systems must be undertaken by a suitably qualified and accredited ventilation engineer. 			
Fire protection for decanting areas	• Fire protection systems may include sprinkler systems, fire suppression systems, alarms, etc. Fire-fighting arrangements must be based on an assessment of the risks associated with the hazardous chemicals that are used, handled, generated or stored in the workplace;			
	 Any risk to health and safety associated with a hazardous atmosphere or an ignition source must be managed. Intrinsically safe electrical wiring and equipment suitable for use in hazardous areas may be required. 			
Tools and equipment	Tools and equipment must be compatible with, and resistant to, the chemical being decanted. Dedicated drum taps, pumps or other devices are to be used when decanting. Mechanical aids for siphoning and pipetting must also be used.			

Table 2 - General safety considerations for decanting						
Container and hazardous chemical	•	Containers or other equipment used in direct contact with hazardous chemicals must not be made of materials that are incompatible with, or affected by, the hazardous chemicals;				
compatibility and fitness for purpose	•	Safety data sheets, Australian Standards and product suppliers can provide information about appropriate containers to use for decanted products.				
Signage for decanting	•	Signage should be established for all hazardous chemicals decanting areas such as:				
aleas		DANGER	FLAMMABLE LIQUIDS	NO SMOKING	KEEP FIRE AWAY	
	•	Consideratio instructions of procedures.	n should be given to pro or work area responsibili	viding signage th ties for decanting	at details work and emergency	

References and related documents

- 7. Work Health and Safety Act 2011
- 8. Work Health and Safety Regulations 2011
- 9. SafetyMan Hazardous Chemicals Management Policy and Guidance
- 10. Code of Practice Labelling of Workplace Hazardous Chemicals
- 11. National Code of Practice for the Labelling of Workplace Substances [NOHSC: 2012 (1994)]
- 12. Australian Dangerous Goods Code Edition 7.4
- 13. Standard for the Uniform Scheduling of Medicines and Poisons 2011 (SUSMP)
- 14. Australian Standard/New Zealand Standards
 - 14.1. AS 2216-1997 Packaging for Poisonous Substances
 - 14.2. AS 2714-2008 The Storage and Handling of Organic Peroxides
 - 14.3. AS 3780-2008 The Storage and Handling of Corrosive Substances
 - 14.4. AS 4326-2008 The Storage and Handling of Oxidizing Agents
- 15. Perry's Chemical Engineers Handbook 8th Edition Table 28-22 Chemical Resistance of Plastics
- 16. Lange's Handbook of Chemistry 14th Edition Table 10.5 Chemical Resistance
- 17. CRC Handbook of Chemistry & Physics Properties of Commercial Plastics

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 21 – Ventilation For Hazardous Chemicals

- 1. The following information is provided to assist Defence workers to administer, implement or apply the *SafetyMan Hazardous Chemicals Management Policy and Procedures*, and provides guidance on ventilation for hazardous chemicals engineering design considerations.
- 2. Ventilation is an engineering control measure that is used to maintain a safe atmosphere in the working environment, and to prevent airborne contaminants from entering the breathing zone of workers.
- 3. This procedure contains general information on ventilation systems as an engineering control measure for hazardous chemicals, types of ventilation systems and Defence points-of-contact for advice concerning ventilation.

Legislation

- 4. Under the *Work Health and Safety Act 2011*, Defence must ensure that worker consultation occurs and that the health and safety of workers and other persons are not put at risk from work involving the use, handling, generation and storage of substances by:
 - 4.1. providing appropriate ventilation systems that are designed, installed, used and maintained to remove hazardous chemicals in a safe manner;
 - 4.2. identifying reasonably foreseeable hazards that could give rise to risk;
 - 4.3. eliminating the risk so far as is reasonably practicable and where it is not reasonably practicable to eliminate the risk minimising the risk so far as is reasonably practicable by implementing control measures in accordance with the hierarchy of risk control (see SafetyMan Work Health and Safety Risk Management Procedure 03 Hierarchy of Controls);
 - 4.4. maintaining the implemented control measure so that it remains effective; and
 - 4.5. reviewing, and if necessary, revising all risk control measures to maintain, so far as is reasonably practicable, a work environment that is without risks to health and safety.
- 5. The Work Health and Safety Regulations 2011 also require that Defence ensures:
 - 5.1. no person at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the relevant exposure standard for the substance or mixture, and
 - 5.2. risks to health and safety associated with a hazardous atmosphere or an ignition source in a hazardous atmosphere at the workplace are managed.
- 6. To comply with the *Work Health and Safety Regulations 2011,* monitoring of workplace contaminant levels for chemicals with exposure standards may need to be carried out. Further Information is provided in the *SafetyMan Hazardous Chemicals Management Procedure 06 Hazardous Chemicals Risk Management.*

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Definitions

- 7. Airborne contaminant a contaminant in the form of a fume, mist, gas, vapour or dust, and includes micro-organisms.
- 8. Exposure standards represent the airborne concentration of a particular substance or mixture that must not be exceeded. There are three types of exposure standard: 8-hour time-weighted average, peak limitation, and short term exposure limit. Exposure standards are based on the airborne concentrations of individual substances that, according to current knowledge, should neither impair the health of, nor cause undue discomfort to, nearly all workers. They do not represent a fine dividing line between a healthy and unhealthy work environment. Chemicals with workplace exposure standards are listed in the *Workplace Exposure Standards for Airborne Contaminants, Hazardous Chemical Information System* on the Safe Work Australia website and section 8 of the manufacturer's safety data sheet.
- 9. Lower explosive limit in relation to a flammable gas, vapour or mist, means the concentration of the gas, vapour or mist in air below which the propagation of a flame does not occur on contact with an ignition source.
- 10. Peak exposure limit the maximum or peak airborne concentration of a hazardous chemical that a worker can be exposed to without risk to the worker's health and safety.
- 11. Safe oxygen level a minimum oxygen content in air by volume of 19.5% and a maximum of 23.5% under normal atmospheric pressure.

What is ventilation

- 12. Ventilation is a means of maintaining a safe working atmosphere by the introduction or recirculation of air by natural, forced or mechanical means. A safe working atmosphere is characterised by:
 - 12.1. sufficient oxygen levels for breathing;
 - 12.2. concentrations of hazardous gases, vapours, mists, fumes and dusts are below the limits set in the relevant exposure standards;
 - 12.3. concentrations of flammable gases, vapours, mists fumes and dusts are at least 5% below their lower explosive limit; and
 - 12.4. build-up of heat and extremes of temperature are avoided.
- 13. Ventilation in hazardous chemical storage and handling areas can be an effective engineering control measure. It is widely used in workplaces to control dusts, fumes, gases and aerosols, and can help to minimise risks to health and safety by:
 - 13.1. carrying airborne contaminants away from people's breathing zone; and
 - 13.2. minimising the build-up of hazardous atmospheres.
- 14. Ventilation is also used for temperature control such as in air-conditioned office buildings. This type of ventilation uses recirculation of air and is not suitable for controlling hazardous chemical contaminants. Recirculation should only be used where temperature control is required.

Considerations for ventilation

- 15. Workplaces do not all have the same ventilation requirements. The choice of ventilation as a control measure will depend on the following considerations:
 - 15.1. the type of workplace office, workshop, storage facility, laboratory;
 - 15.2. the hazards to be controlled gases, vapours, mists, fumes, dusts;
 - 15.3. how the hazards present point of generation or diffused in the workplace; and
 - 15.4. the level of risk associated with the hazard low toxicity or high toxicity, etc.
- 16. While information and guidance on specific ventilation requirements may be found in relevant Workplace Exposure Standards, the manufacturer's safety data sheets, Australian Standards, etc, expert advice must be sought prior to designing, installing and maintaining ventilation systems.
- 17. The design of hazardous chemical storage and handling areas, including ventilation systems, requires careful examination and planning by experts–including building engineers, ventilation engineers, fire services engineers, electrical engineers and occupational hygienists.
- 18. Ventilation systems must:
 - 18.1. operate exclusively for the particular building, room or space;
 - 18.2. be suitable for the types of hazardous chemicals on the premises;
 - 18.3. be resistant to the gases, vapours, mists or dusts being extracted;
 - 18.4. minimise the risk of fire propagation and spreading;
 - 18.5. ensure exhaust gases and air are discharged where it will not cause other hazards and comply with local building or environment protection requirements; and
 - 18.6. undergo regular checks and planned maintenance.

Defence requirements

- 19. All ventilation systems installed to control hazardous chemical hazards and risks in Defence workplaces must meet the following requirements:
 - 19.1. designed to be fit for purpose;
 - 19.2. installed in accordance with the design specification by competent persons;
 - 19.3. have documented safe work procedures and training for workers;
 - 19.4. maintain a log book to record schedules for inspection, maintenance, repairs, etc;
 - 19.5. include provisions to address ventilation system failure or fire, such as alarms, notification processes, standby ventilation, etc;
 - 19.6. undergo regular inspections to assess control effectiveness, including checking that operators are following safe work procedures;
 - 19.7. undergo testing to ensure correct technical performance; and
 - 19.8. maintained in accordance with the recommended maintenance schedule.

Defence responsibilities

20. Under the *Work Health and Safety Act 2011*, Defence must ensure that workers and workplace health and safety representatives are consulted, so far as is reasonably

practicable, so that the health and safety of workers and other persons are not put at risk from work involving the use, handling, generation and storage of substances

- 21. Ventilation engineering is a complex matter and each ventilation solution will be based on the individual user requirements. Ventilation design must be suitable for the types of hazardous chemicals on the premises. Different classes of hazardous chemicals will require diverse ventilation requirements.
- 22. For further information refer to SafetyMan Hazardous Chemicals Management Procedure 17 Storage of Hazardous Chemicals.
- 23. The Defence Estate Quality Management System provides the Defence estate management framework for the design, building and commissioning of Defence infrastructure, including ventilation systems in buildings. Engineering support and advice must be sought in matters concerning the design, installation, use, monitoring, modification and maintenance of ventilation systems.
- 24. Defence project sponsors of infrastructure requirements have responsibilities to ensure the specification of 'fit for purpose' is considered and document any hazardous chemical use and storage requirements when requesting facilities. Details to be provided in specifications include:
 - 24.1. the type of chemical likely to be stored or used;
 - 24.2. the quantity of chemical likely to be stored or used; and
 - 24.3. processes which are likely to be undertaken in using the hazardous chemicals (specifically where the use may require specific ventilation, fire suppression or other emergency requirements).
- 25. Building occupants must ensure that any equipment, including ventilation, is operated in accordance with specifications. Any changes to the types of chemicals, quantity of chemicals or processes being undertaken must be identified and advised to Estate and Infrastructure Group as soon as information becomes available. An assessment will then need to be undertaken as to the ongoing suitability of the facilities for the proposed purpose or use.

Types of Ventilation

- 26. There are three types of ventilation:
 - 26.1. natural or general ventilation that displaces or dilutes the concentration of contaminants by adding fresh air to the workplace;
 - 26.2. mechanical or forced dilution systems that achieve ventilation through fans, ducts and vents; and
 - 26.3. local exhaust ventilation, which captures contaminants near the place where they are generated before they reach the breathing zone of a person working in the area.
- 27. Limitations of any ventilation system include the following:
 - 27.1. it is designed for a specific application and environment;
 - 27.2. it will deteriorate over the years because of contaminant build-up within the system, especially filters;
 - 27.3. it requires ongoing maintenance;
 - 27.4. it requires regular and routine testing to identify problems early and to implement corrective measures; and

- 27.5. it requires qualified persons to make modifications and to make sure the system continues to work effectively.
- 28. The standard air conditioning systems to recirculate air in the workplace are generally not suitable for controlling airborne contaminants and hazardous atmospheres. These are not covered by this procedure.

Natural dilution ventilation

- 29. Natural dilution ventilation uses large volumes of fresh air to dilute airborne contaminants and flush them outside the building. It relies on natural convection currents and wind. This type of ventilation uses features such as the building design and airflows for example, building doors, windows or vents.
- 30. Natural dilution ventilation has significant limitations as a control measure:
 - 30.1. the building needs to be large enough to provide the volume of fresh air that is required to dilute the contaminant;
 - 30.2. air flow is affected by changes in the weather, wind speed and direction;
 - 30.3. work process changes can affect the volume and toxicity of contaminants; and
 - 30.4. it requires careful consideration of the location of work processes within the building to ensure that airflow is away from personnel.
- 31. Natural dilution ventilation methods are only appropriate when:
 - 31.1. the air contaminant is low irritant, low toxicity or nuisance odours;
 - 31.2. the contaminant is generated at a consistent rate;
 - 31.3. the concentration of contaminant in the breathing zone of personnel remains below the peak exposure limits at all times;
 - 31.4. airing the work area following a spill (low toxic chemicals only);
 - 31.5. the contaminant is a gas or vapour (particulates are difficult to disperse in this way); or
 - 31.6. the diluted contaminant does not produce hazards to other parts of the workplace or environment.

Mechanical dilution ventilation

- 32. Mechanical dilution ventilation systems are where inlets and exhausts are mechanically assisted to reduce the airborne contaminant concentration in the workplace, for example exhaust venting, fans and methods to force additional fresh air into the workplace.
- 33. Mechanical dilution ventilation has limitations as a control measure:
 - 33.1. it does not completely remove contaminants;
 - 33.2. the hazard from the airborne contaminant must be low;
 - 33.3. it is a poor means of controlling particulates;
 - 33.4. the level of airborne contaminants must be low, otherwise the air volume required would be too great to effectively dilute;
 - 33.5. the generation of contaminants should be relatively consistent and not subject to fluctuations and surges; and
 - 33.6. it can often be uneconomical due to running costs, especially when compared with local exhaust ventilation.

- 34. When used to control chemical contaminants, mechanical dilution is generally only useful in the following situations:
 - 34.1. the amounts of contaminants generated are not very high;
 - 34.2. to control vapours of low toxicity; and
 - 34.3. workers do not carry out their tasks in the immediate vicinity of the source of contamination.
- 35. Where forced and natural dilution are both used, care must be taken that they are working in concert and not creating conflicting air movements.
- 36. The following diagram provides an example of acceptable mechanical dilution ventilation, where the contaminant is drawn away from the breathing zone of the worker:



- 36.1. The air or flow rate of dilution ventilation depends on the how fast the contaminant enters the air as well as the efficiency that fresh air mixes with workroom air.
- 37. The following diagram provides an example of unacceptable mechanical dilution ventilation, where the contaminant is drawn through the breathing zone of the worker:



UNACCEPTABLE air inlet and exhaust

6

Local exhaust ventilation

- 38. Local exhaust ventilation is an effective control for more highly toxic contaminants and is used to remove a range of contaminants such as dusts, mists, gases, vapour or fumes. The advantage of local exhaust ventilation as it removes airborne contaminants at the point of generation and prevents them from spreading in the general workplace air, and specifically to the breathing zone of workers in the area.
- 39. Factors that indicate the need for a local exhaust ventilation system:
 - 39.1. a requirement indicated in the regulations, safety data sheet or risk assessment;
 - 39.2. contaminants are highly toxic or hazardous;
 - 39.3. contaminants require excessive volumes of air to dilute;
 - 39.4. location of personnel in relation to the contaminants;
 - 39.5. contaminants are generated at inconsistent or variable rates;
 - 39.6. emission sources are fixed;
 - 39.7. concentrations of contaminants are above peak exposure limits; or
 - 39.8. duration of exposure makes the use of other controls unacceptable.
- 40. Local exhaust ventilation works in a similar way to a vacuum cleaner, where the hose is placed as close as possible to where the contaminant is located. There is a very large range of local exhaust ventilation equipment designed for specific applications, from small hand-held equipment that can be relocated for specific tasks to fully enclosed spray booths. Examples include:
 - 40.1. on tool extraction equipment for saws, sanders or drills to collect dusts;
 - 40.2. fixed and moveable capture hoods such as portable welding fume extractors;
 - 40.3. small booths such as fume cupboards; and
 - 40.4. large walk-in booths such as spray painting booths.
- 41. The diagrams below show some examples of local exhaust ventilation systems:





An abrasive blasting cabinet is a fully enclosed local exhaust ventilation system. The blue arrow indicates air intake and the red arrow, air expulsion (which is away from the worker) The grinding wheel is partially enclosed by the local exhaust ventilation system. The red arrows show the particulates are drawn away from the worker when the wheel is operating.

- 42. Well designed local exhaust ventilation will:
 - 42.1. enclose the source as much as possible;
 - 42.2. collect the air that contains the contaminants;
 - 42.3. keep the contaminant out of the worker's breathing zone;
 - 42.4. provide an adequate air supply;
 - 42.5. clean the air (if necessary); and
 - 42.6. safely discharge the exhausted air away from air inlets to prevent further contamination of the work areas, including any adjoining areas.
- 43. A common reason for local exhaust ventilation not working as well as it should is that the hood does not catch or contain the contaminants effectively. It is important to match the hood to the contaminant source to be controlled. There are many standard 'off-the-shelf' local exhaust ventilation systems, however local exhaust ventilation must be 'fit for purpose' to adequately control exposure. A detailed specification needs to be developed for the local exhaust ventilation supplier or ventilation engineer to design a system that will work for your application and environment.
- 44. The diagrams below show examples of good and poor design of local exhaust ventilation:



Good design carries contaminants away from the operator's breathing zone



Poor design carries contaminants through the operator's breathing zone

Elements of a local exhaust ventilation system

- 45. Local exhaust ventilation systems normally include the following elements:
 - 45.1. hood this is the most important feature of the system. It captures the contaminant at its source. The hood must draw contaminated air away from the breathing zone of workers who work in the vicinity of the hood. Hoods can either fully enclose the process or be exterior to the process. Both types have different features and uses. Some common examples are set out in the table below:

Table 1: Exhaust heads – features and examples			
Types and Features	Examples		
 Enclosing hoods: surround the process; can be small or large walk-in in size; suitable for very hazardous chemicals or processes that generate large quantities of airborne contaminants; and airflows are exhausted to waste or to a scrubber. 	 spray painting booths; fume cupboards; shot blasting chambers; and gaseous sterilising chambers. 		
 Exterior hoods: sit above, below or adjacent to the process; can be hand-held, adjustable or fixed; and generally need to be as close as possible to the process. 	 cooking exhaust hood; downdraught table for dusts; on-tool extraction devices for soldering irons, hand sanders and grinders; elephant trunk extraction hoods; and slotted hoods for work benches. 		

- 45.2. ducts carry contaminants away from the workplace. Ducts should be as short and straight as possible and accessible to permit cleaning, inspection and maintenance. Bends or changes to ducts can affect the diameter and lead to reductions in pressure and suction and allow material to deposit in the ducts themselves;
- 45.3. fans move air through the system. The fan type and capacity must be individually specified for each system design;
- 45.4. air cleaning systems are used to prevent the discharge of hazardous material directly into the atmosphere. Filters and scrubber systems may be required to clean contaminants from the air prior to air expulsion into the atmosphere. The type and size of filtration and collection equipment will depend on:
 - 45.4.1. the properties and hazards of the contaminant;
 - 45.4.2. the processes being undertaken in the workplace; and
 - 45.4.3. local building or environment protection requirements.
- 45.5. exhaust or discharge systems discharge cleaned, extracted air into the atmosphere. Systems that recirculate filtered air back into the workplace must be capable of capturing all hazardous contaminants.

Chemical storage cabinets and ventilation

- 46. Ventilation of chemical storage cabinets may be required as a risk control measure and will be based on an assessment of risks associated with the chemicals being stored.
- 47. The following general requirements must be considered in relation to chemical storage cabinets:
 - 47.1. cabinet ventilation is not an alternative to vapour-tight closure of all stored containers;
 - 47.2. where cabinets require ventilation, it must be vented to the outside atmosphere and vapours, fumes or dusts must be prevented from re-entering the building;
 - 47.3. vented vapours, fumes or dusts must be prevented from contaminating nearby workers, facilities or the environment;
 - 47.4. ventilation ducting must have the equivalent fire protection as provided by the cabinet;
 - 47.5. ventilation ducting must be resistant to vapours, fumes or dust in the cabinet; and
 - 47.6. include provisions to address ventilation failure or fire, such as alarms, notification processes and standby ventilation.
- 48. Different classes of hazardous chemicals will require diverse ventilation requirements where chemical storage cabinets are used. The relevant Australian Standards for each hazard class will include information about ventilation requirements for storage cabinets.

References and related documents

- 49. Work Health and Safety Act 2011
- 50. Work Health and Safety Regulations 2011
- 51. SafetyMan Hazardous Chemicals Management
 - 51.1. Procedure 06 Hazardous Chemicals Risk Management
 - 51.2. Procedure 07 Hazardous Chemicals Risk Assessment
 - 51.3. Procedure 11 Safety Data Sheets
 - 51.4. Procedure 12 Health Monitoring for Hazardous Chemicals
 - 51.5. Procedure 13 Monitoring for Airborne Contaminants
 - 51.6. Procedure 17 Storage of Hazardous Chemicals
 - 51.7. Procedure 19 Cabinets and Cages for Storage of Hazardous Chemicals
- Industrial Ventilation A Manual for Recommended Practice For Design, American Conference of Governmental Industrial Hygienists (ACGIH), Signature Publications, 26th Edition, 2007
- 53. Industrial Ventilation A Manual for Recommended Practice for Operation and Maintenance, ACGIH, Signature Publications, 2007
- 54. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 55. Safe Work Australia Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants, 2012
- 56. Australian Standard/New Zealand Standard:
 - 56.1. AS 1668.2-2012 The Use of Ventilation and Airconditioning in Buildings Part 2 Mechanical Ventilation in Buildings

- 56.2. AS/NZS 60079.10.1:2009 Explosive Atmospheres Classification of Areas Explosive Gas Atmospheres
- 57. HSG258 Controlling Airborne Contaminants at Work: A Guide to Local Exhaust Ventilation (LEV), 2nd Edition 2011, Health Safety Executive (UK)
- 58. Defence Occupational Hygiene Training Manual
- 59. Canadian Centre for OHS Industrial Ventilation, 2013

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Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 22 - Safety Signs For **Hazardous Chemicals**

This procedure relates to the SafetyMan - Hazardous Chemicals Management Policy and 1. Guidance and related Hazardous Chemicals Management Procedures and provides work health and safety information for the required safety signage to be displayed in Defence workplaces that use, handle, generate and store hazardous chemicals.

Signage requirements

- 2. Under the Work Health and Safety Regulations 2011, Defence has a duty to display a safety or hazard sign at the workplace to:
 - 2.1. warn of a particular hazard associated with the hazardous chemicals; and/or
 - 2.2. state the responsibilities of a particular person in relation to the hazardous chemicals.
- 3. Defence also has a duty to ensure that the safety sign is:
 - 3.1. located next to the hazard; and
 - 3.2. clearly visible to a person approaching the hazard.

Safety signs

4. Safety signs must accord with Australian Standard 1319:1994 Safety Signs for the Occupational Environment which classifies safety signs according to their function using colour and symbols. The following table outlines the method for identifying safety sign requirements.

Table 1: Safety sign requirements			
Methodology			Resources/tools
Step 1 – identify all areas, processes and situations where hazardous chemicals are used, handled, generated or stored and there is a risk of exposing people. Consider:		•	ChemAlert; safety data sheets, hazardous chemical container labels,
•	hazards associated with the chemical,	•	manufacturer instructions,
•	hazards in relation to work processes,	•	risk assessments, and
•	potential routes of chemical exposure,	•	other sources of information.
•	any hazards in the surrounding environment of the hazardous chemical, and		
•	controls implemented to minimise or		

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Table 1: Safety sign requirements						
Methodology	Resources/tools					
reduce exposure to hazardous chemicals.						
Step 2 – identify responsibilities or behaviours for hazardous chemical. For example:	As for step 1.					
flammable risk - no smoking;						
 corrosive to skin – gloves, apron and full face protection must be worn; and 						
 restricted or access-controlled areas (eg unauthorised persons keep out). 						
Step 3 – check the visibility and function.	• Walk-through of hazardous chemical use,					
• Is the sign located next to the hazard?	generation and storage areas, including an inspection of safety signage at varying					
• Is the sign clean, legible and in accordance with <i>Australian Standard</i> 1319:1994 and <i>Work Health and Safety Regulations</i> 2011?	 For signs with words, will the meaning need to be conveyed to persons not familiar with 					
• Does the sign clearly communicate the hazard? Would the sign function be understood by non-english speaking people?	 the english language? In addition to english, it may be necessary to repeat the message in one or more other languages, particularly if instant recognition 					
• Does the sign clearly communicate behavioural requirements? Is information accurate?	of the message may be needed in a critical situation. Translated messages shall adhere as closely as practicable to the intent of the english version					
 Does the sign conflict with other signs or information (eg placards, standard operating procedures, etc)? 	 If a symbol or symbolic sign is used, does the meaning, as specified in the standard 					
 Is signage visible to a person approaching the hazard, giving consideration to situations of reduced visibility - low light, line of sight impediment, etc. 	tor that symbol or sign, accurately convey the message?					
Step 4 – implement an inspection and verification of signs as part of workplace inspections.	Workplace inspections; andChemAlert (stock holding by site) report.					
Any new hazardous chemical or work processes involving hazardous chemicals may require new or additional safety signs.						
	Table 1: Safety sign requirements					
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	Methodology	Resources/tools				
 Step 5 – replace old or incorrect signs. If a new or replacement safety sign is needed, request a replacement sign. 		Interim Business Information System request,				
•	Ensure that the type of sign and the proposed location for the sign are clearly communicated as part of your request.	 Consultation with stakeholders, and Explanations of sign functions and meanings included in employee induction 				
•	Where it is proposed to display a new sign or to change the location of an existing sign, workers should be consulted beforehand, and an explanation given for the introduction of the new sign or the change in location of the existing one.	training programs.				

References and related documents

- 5. Work Health and Safety Act 2011
- 6. Work Health and Safety Regulations 2011
- 7. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 8. Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- 9. Australian Dangerous Goods Code, Edition 7.4
- 10. Guidance on the Classification of Hazardous Chemicals under the Work Health and Safety Regulations: Implementation of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) 2012
- 11. Australian Standard:
 - 11.1. AS 1319: 1994 Safety Signs for the Occupational Environment;
 - 11.2. AS 2293.1-2005 Emergency Escape Lighting and Exist Signs for Buildings System Design, Installation and Operation

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Australian Government **Department of Defence** Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 23 - Placarding Of **Storage Facilities For Hazardous Chemicals**

- 1. This procedure relates to SafetyMan - Hazardous Chemicals Management Policy and Guidance and related Hazardous Chemicals Management Procedures and provides work health and safety information on hazardous chemical placarding in Defence hazardous chemical storage areas and workplace facilities where quantities exceed the placarding threshold quantities of hazardous chemicals set out in Schedule 11, table 11.1, column 4 of the Work Health and Safety Regulations 2011 (Annex A).
- This procedure does not cover placarding requirements for the mode of transport used to 2. deliver the goods, or placarding for biological or radioactive materials.

Determining placard requirements

	Table 1: Steps to determine placard requirements						
Step	Methodology	Resources/tools					
1	 Identify: maximum quantity of hazardous chemicals stored on site, classes of hazardous chemicals stored on site, and placard quantity for the classification of those hazardous chemicals. 	 ChemAlert placarding report by site, Safety data sheets, and Work Health and Safety Regulations 2011 Schedule 11 and Schedule 13 (Annex B). 					
2	Identify and verify any exceptions or exclusions to regulatory requirements, including dangerous goods in-transit areas.	 Inspection or walk-through of site and consultation with stakeholders. 					
3	 Identify the required placards: outer warning placard, and dangerous goods class type for the classification of hazardous chemicals. 	Work Health and Safety Regulations 2011 Schedule 13.					
4	Determine the proposed location for the placard signage.	Work Health and Safety Regulations 2011 Schedule 13.					
5	Request appropriate placard signs.	Interim Business Information System request.					

3. The following table sets out the steps to determine placard requirements.

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		•	Estate and Infrastructure Group request. Garrison and Estate Management System request.
6	Implement a placard review and inspection regime as part of the regular workplace safety inspections.	•	Workplace safety inspections.

Requirement to display outer warning placards

- 4. An outer warning placard with the word 'HAZCHEM' must be prominently displayed at the workplace if the total quantity of hazardous chemicals used, handled or stored at the workplace exceeds the placard quantity for the hazardous chemical or group in Schedule 11 of the *Work Health and Safety Regulations 2011.*
- 5. Placards must comply with Schedule 13 of the Work Health and Safety Regulations 2011.

Requirement to display other placards

- 6. Placards must be prominently displayed if the total quantity of hazardous chemicals used, handled or stored at the workplace exceeds the placard quantity for the hazardous chemical or group in Schedule 11 of the *Work Health and Safety Regulations 2011*. These placards are similar to the full-size emergency information placards required by the *Australian Dangerous Goods Code* for bulk transport, without the emergency contact details.
- 7. Placards must comply with Schedule 13 of the Work Health and Safety Regulations 2011.
- 8. This requirement does not apply if the hazardous chemical is:
 - 8.1. in bulk in a container, including an intermediate bulk container, that is intended for transport and a placard is displayed on the container in accordance with the *Australian Dangerous Goods Code*; or
 - 8.2. a flammable liquid stored in an underground tank at a retail outlet and used to refuel a vehicle (Defence underground tanks would not be classed as retail outlets).

Positioning placards

- 9. Outer warning placards must be located at each entrance to the workplace where an emergency service organisation may enter the workplace.
- 10. If there is a placard quantity of a hazardous chemical contained in a building, the placard and outer warning placard must be:
 - 10.1. located as close as is reasonably practicable to the main entrance of the building; and
 - 10.2. located at the entrance to each room or walled section of the building in which the hazardous chemical is used, handled or stored.
- 11. If the placard quantity of hazardous chemical is in a container or outside storage area, the placard must be located next to the container or outside storage area and an outer placard installed.

Placard review and inspection

12. Where Schedule 13 of the *Work Health and Safety Regulations 2011* requires a placard, the relevant dangerous goods class label (pictogram) must be displayed on the placard,

rather than the corresponding Globally Harmonized System of Classification and Labelling of Chemicals pictogram.

- 13. All placards have regulated requirements for sign dimensions, colors and information positions. Further information is in Schedule 13 of the *Work Health and Safety Regulations* 2011.
- 14. Placards must be:
 - 14.1. clearly legible by persons approaching the placard; and
 - 14.2. separate from any other sign or writing that contradicts, qualifies or distracts attention from the placard.
- 15. Placards must be amended as soon as practicable if:
 - 15.1. the type or quantity of hazardous chemicals used, handled or stored at the workplace changes; and
 - 15.2. the change requires the placard to be amended.
- 16. Placards must be maintained to ensure they are kept clean, maintained in good repair, not covered or obscured, and replaced when faded or damaged.

References and related documents

- 17. Work Health and Safety Act 2011
- 18. Work Health and Safety Regulations 2011
- 19. Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals
- 20. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 21. Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- 22. Australian Dangerous Goods Code, 7th Edition
- 23. Guidance on the Classification of Hazardous Chemicals under the Work Health and Safety Regulations: Implementation of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) 2012
- 24. Australian Standard AS1940-2004 The Storage and Handling of Flammable and Combustible Liquids

Annexes

- A. Work Health and Safety Regulations 2011, Schedule 11 Placard and manifest quantities
- B. Work Health and Safety Regulations 2011, Schedule 13 Placard requirements

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Annex A

Work Health and Safety Regulations 2011

Schedule 11 – Placard and manifest quantities

Regulations 347-350, 361, 390 and 391

Table 11.1

Column 1	Column 2	Column 3	Column 4	Column 5
Item	Description chemical	of hazardous	Placard quantity	Manifest quantity
1	Flammable gases	Category 1	200L	5000L
2	Gases under	With acute toxicity, categories 1, 2, 3 or 4	50L	500L
3	pressure	With skin corrosion categories 1A, 1B or 1C	50L	500L
4		Aerosols	5000L	10 000L
5		Not specified elsewhere in this Table	1000L	10 000L
6	Flammable	Category 1	50L	500L
7	liquids	Category 2	250L	2500L
8		Category 3	1000L	10 000L
9		Any combination of chemicals from Items 6 to 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000L	10 000L
10		Category 4	10 000L	100 000L
11	Self-	Туре А	5kg or 5L	50kg or 50L
12	reactive substances	Туре В	50kg or 50L	500kg or 500L
13		Type C to F	250kg or 250L	2500kg or 2500L
14	Flammable	Category 1	250kg	2500kg
15	solids	Category 2	1000kg	10 000kg

Column 1	Column 2	Column 3	Column 4	Column 5
Item Descripti chemica		of hazardous	Placard quantity	Manifest quantity
16		Any combination of chemicals from Items 12 to 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
17	Pyrophoric liquids and pyrophoric solids	Category 1	50kg or 50L	500kg or 500L
18	Self-heating substances	Category 1	250kg or 250L	2500kg or 2500L
19	and mixtures	Category 2	1000kg or 1000L	10 000kg or 10 000L
20		Any combination of chemicals from Items 17 to 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
21	Substances	Category 1	50kg or 50L	500kg or 500L
22	which in contact with water emit	Category 2	250kg or 250L	2500kg or 2500L
23	flammable gas	Category 3	1000kg or 1000L	10 000kg or 10 000L
24		Any combination of chemicals from Items 21 to 23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
25	Oxidising	Category 1	50kg or 50L	500kg or 500L
26	liquids and oxidising solids	Category 2	250kg or 250L	2500kg or 2500L
27		Category 3	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description of hazardous chemical		Placard quantity	Manifest quantity
28		Any combination of chemicals from Items 25 to 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
29	Organic	Туре А	5kg or 5L	50kg or 50L
30	peroxides	Туре В	50kg or 50L	500kg or 500L
31		Type C to F	250kg or 250L	2500kg or 2500L
32		Any combination of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250kg or 250L	2500kg or 2500L
33	Acute	Category 1	50kg or 50L	500kg or 500L
34	toxicity	Category 2	250kg or 250L	2500kg or 2500L
35		Category 3	1000kg or 1000L	10 000kg or 10 000L
36		Any combination of chemicals from Items 33 to 35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
37	Skin	Category 1A	50kg or 50L	500kg or 500L
38	corrosion	Category 1B	250kg or 250L	2500kg or 2500L
39		Category 1C	1000kg or 1000L	10 000kg or 10 000L
40	Corrosive to metals	Category 1	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description chemical	of hazardous	Placard quantity	Manifest quantity
41		Any combination of chemicals from Items 37 to 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
42	Unstable explosives		5kg or 5L	50kg or 50L
43	Unstable chemicals	Any combination of chemicals from items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5kg or 5L	50kg or 50L
Notoo	•		·	

1 In item 2, Gases under pressure with acute toxicity, category 4 only applies up to a LC50 of 5000 ppmV. This is equivalent to dangerous goods of Division 2.3.

2 Item 4 includes flammable aerosols.

Annex B

Work Health and Safety Regulations 2011

Schedule 13 – Placard requirements

Regulations 349(2) and 350(2)

1 Displaying placards

- This clause applies if a person conducting a business or undertaking at a workplace must display a placard at the workplace in relation to a hazardous chemical.
- (2) The person must ensure that the placard is:
 - (a) clearly legible by persons approaching the placard; and
 - (b) separate from any other sign or writing that contradicts, qualifies or distracts attention from the placard; and
 - (c) if a placard quantity of the hazardous chemical is contained in a building:
 - (i) located as close as is reasonably practicable to the main entrance of the building; and
 - (ii) located at the entrance to each room or walled section of the building in which the hazardous chemical is used, handled or stored; and
 - (d) if the hazardous chemical is contained in a container or outside storage area—located next to the container or outside storage area; and
 - (e) for a placard to which clause 3 applies—located at each entrance to the workplace where an emergency service organisation may enter the workplace; and
 - (f) for a placard to which clause 4 applies—located on or next to each container or storage area in which the hazardous chemicals are stored; and
 - (g) for a placard to which clause 6 applies—located at each entrance to a storage area in which the hazardous chemicals are stored.

2 Maintaining placards

A person who is required to display a placard must:

- (a) amend the placard as soon as practicable if:
 - (i) the type or quantity of hazardous chemical used, handled or stored at the workplace changes; and
 - (ii) the change requires the information displayed on the placard to be amended; and
- (b) ensure that the placard is:
 - (i) kept clean; and
 - (ii) maintained in good repair; and
 - (iii) not covered or obscured.
- **3** Outer warning placards—requirements

(1) This clause applies if a person conducting a business or undertaking at a workplace must display an outer warning placard at the workplace in relation to a hazardous chemical.

Note

Regulation 349 sets out when an outer warning placard is required, and states that it is not required for retail fuel outlets.

- (2) The outer warning placard must:
 - (a) comply with the form shown in figure 13.1; and
 - (b) display the word 'HAZCHEM' in red letters on a white or silver background.



600 mm

Figure 13.1 Form and dimensions of outer warning placard

(3) In this clause, *red* means the colour 'signal red' in accordance with AS 2700S– 1996 (R13) (Colour standards for general purposes—signal red).

4 Placards for particular hazardous chemicals stored in bulk

- (1) This clause applies if a person conducting a business or undertaking at a workplace must display a placard at the workplace in relation to the storage in bulk of any of the following hazardous chemicals:
 - (a) gases under pressure, including flammable gases and flammable aerosols;
 - (b) flammable liquids category 1, 2 or 3;
 - (c) flammable solids category 1 or 2, self-reactive substances types B to F, self-heating substances category 1 or 2 or substances that, in contact with water, emit flammable gases;
 - (d) organic peroxides types B to F, oxidising solids and oxidising liquids category 1, 2 or 3;
 - (e) acute toxicity category 1, 2 or 3;
 - (f) skin corrosion category 1A, 1B or 1C and corrosive to metals category 1.
- (2) The placard must:
 - (a) comply with the template in figure 13.2; and
 - (b) subject to subclause (4)(b) and (c), have dimensions not less than those shown in figure 13.2.
- (3) The placard must include the following in figure 13.2 for the hazardous chemical:
 - (a) in space (p)—the proper shipping name for the hazardous chemical as specified in Table 3.2.3 of the ADG Code;
 - (b) in space (q)—the UN Number for the hazardous chemical as specified in Table 3.2.3 of the ADG Code;

- (c) in space (r)—the Hazchem Code for the hazardous chemical as specified in Table 3.2.3 of the ADG Code;
- (d) in space (s)—the class label and subsidiary risk label for the hazardous chemical as specified in Table 3.2.3 of the ADG Code.



Figure 13.2 Template for a placard for a hazardous chemical stored in bulk

- (4) For subclause (3)(a) to (c), the numerals and letters used for showing the proper shipping name, UN number and Hazchem Code must be:
 - (a) black on a white background, unless a letter of the Hazchem Code is white on a black background; and
 - (b) if the proper shipping name requires a single line only—at least 100mm high; and
 - (c) if the proper shipping name requires 2 lines—at least 50mm high.
- (5) For subclause (3)(d):
 - (a) the class label and subsidiary risk label (if any) must have the form and colouring stated in the ADG Code for the hazardous chemical; and
 - (b) the class label must have:
 - (i) if there is a subsidiary risk label—sides not less than 200mm; or
 - (ii) in any other case-sides of not less than 250mm; and
 - (c) if there is a subsidiary risk label—the subsidiary risk label must have sides of not less than 150mm; and
 - (d) if there are 2 or more subsidiary risk labels—the width of the right hand part of the placard may be extended.

5 Placards for unstable explosives, organic peroxides type A or self-reactive substances type A stored in bulk

- (1) This clause applies if a person conducting a business or undertaking at a workplace must display a placard at the workplace in relation to unstable explosives, organic peroxides type A or self-reactive substances type A that are stored in bulk.
- (2) The placard must:

- (a) comply with the form in figure 13.2; and
- (b) have dimensions not less than those shown in figure 13.2.
- (3) The placard must include the following, as indicated in figure 13.2, for the hazardous chemical:
 - (a) in space (p)-the name stated in the ADG Code for the hazardous chemical;
 - (b) in space (q)—the space left blank;
 - (c) in space (r)—the space left blank;
 - (d) in space (s)—the label in figure 13.3.



Figure 13.3 Label for unstable explosive, organic peroxide type A or self-reactive substance type A

- (4) For subclause (3)(a), the letters used for showing the name must be:
 - (a) black on a white background; and
 - (b) if the name requires a single line only-at least 100mm high; and
 - (c) if the name requires 2 lines—at least 50mm high.
- (5) For subclause (3)(d), the label must have sides of not less than 250mm.

6 Placards for packaged Schedule 11 hazardous chemicals (other than flammable liquids category 4) and IBCs

- This clause applies if a person conducting a business or undertaking at a workplace must display a placard at the workplace in relation to the storage of:
 - (a) packaged Schedule 11 hazardous chemicals (other than flammable liquids category 4); or
 - (b) a Schedule 11 hazardous chemical in an IBC.
- (2) The placard must:
 - (a) be in the form shown in figure 13.4; and

- (b) be of sufficient size to accommodate the labels to be included on the placard; and
- (c) have a white or silver background; and
- (d) include each required class label:
 - (i) in the form and colouring stated in the ADG Code for the hazardous chemical; and
 - (ii) with sides not less than 100mm.
- (3) The placard must include the following:
 - (a) for a Schedule 11 hazardous chemical (other than unstable explosive, organic peroxide type A, self-reactive substance type A) present in a storage area at the workplace—the class label as stated in the ADG Code for each category of hazardous chemicals present in at least the placard quantity; or
 - (b) for a flammable liquid category 4 stored with flammable liquids in a storage area at the workplace—a class 3 class label as stated in the ADG Code; or
 - (c) for an unstable explosive, organic peroxide type A or self-reactive substance type A—the label in figure 13.3.



Figure 13.4 General form of placard for packaged Schedule 11 hazardous chemicals

- (4) If hazardous chemicals in an IBC at the workplace are Schedule 11 hazardous chemicals intended for transport, and not intended for use at the workplace:
 - (a) the IBC must display a placard in accordance with the ADG Code; and
 - (b) the storage area at the workplace must display a placard in accordance with this clause.

7 Placards for flammable liquids category 4 packaged or in bulk

- This clause applies if a person conducting a business or undertaking at a workplace must display a placard at the workplace in relation to the storage of:
 - (a) a packaged flammable liquid category 4; or
 - (b) a flammable liquid category 4 in bulk.
- (2) The placard must:
 - (a) be in the form shown in figure 13.5; and
 - (b) have dimensions not less than those shown in figure 13.5; and
 - (c) have black letters on a white or silver background.

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100 mm lettering

Figure 13.5 Placard for flammable liquid category 4



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Hazardous Chemicals Management Procedure 24 - Notification of Schedule 11 Hazardous Chemicals Manifest Quantities, Abandoned Storage Tanks and Pipelines

- This procedure relates to SafetyMan Hazardous Chemicals Management Policy and 1. Guidance and provides work health and safety information on the requirements for preparing manifests and notifying Comcare when:
 - 1.1. Work Health and Safety Regulations 2011, Schedule 11 hazardous chemicals are used, handled or stored that exceed manifest threshold quantities allowed for Schedule 11 hazardous chemicals:
 - storage tanks previously used to store Schedule 11 hazardous chemicals are no 1.2. longer used; or
 - pipelines used to transfer Schedule 11 hazardous chemicals are used to move the 1.3. chemical across public areas.

Manifest quantities – procedure summary

- 2. The following steps must be completed in accordance with the Work Health and Safety Regulations 2011, Chapter 7, Part 7.1, Division 3, Subdivision 2 – Manifest of Schedule 11 hazardous chemicals relating to manifest quantities:
 - Determine whether your workplace holds or is likely to hold a quantity of hazardous 2.1. chemicals that exceeds any of the manifest quantities listed in Schedule 11 of the *Work Health and Safety Regulations 2011.* The hazardous chemical register stock holdings within ChemAlert provides the means to determine if any Schedule 11 hazardous chemicals are held in quantities that exceed manifest threshold levels.
 - Prepare a manifest complying with Schedule 12 Manifest Requirements of the 2.2. Work Health and Safety Regulations 2011. The manifest form is available on the Defence Protective Network as Smartform AE513 Manifest of Schedule 11 Hazardous Chemicals and includes guidance notes for completion. The hazardous chemical register (ChemAlert stock holdings) must match the quantities recorded in the manifest document.
 - 2.3. The manifest should reflect the maximum quantity of chemicals that would be expected to be stored, handled or used at the workplace.
 - The manifest must be amended as soon as practicable if: 2.4.
 - 2.4.1. the type or quantity of Schedule 11 hazardous chemicals or group of hazardous chemicals listed in the manifest changes; or
 - 2.4.2. there is a significant change in the information required to be recorded in the manifest.
 - 2.5. The manifest must include a scale plan of the workplace that complies with the requirements of Schedule 12, section 7 - Manifest – Plan of the Workplace of the Work Health and Safety Regulations 2011. A sample site plan can be found here. The plan must conform to the standards as seen in the sample.

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- 2.6. Site plans can be requested through Estate and Infrastructure Group through a Service Request form (AE547). More information can be found on the <u>Work Health</u> and Safety intranet page.
- 2.7. Prepare an emergency plan and procedures in consultation with relevant emergency service organisations. A copy of the emergency plan must be provided to the primary emergency services organisation, and if that organisation gives a written recommendation about the content or effectiveness of the emergency plan, the plan must be revised accordingly.
- 2.8. Defence Work Health and Safety Branch and Comcare must be advised of hazardous chemicals that exceed manifest quantities. This advice is first provided to Work Health and Safety Branch who, in turn (and contrary to instructions on the form used), shall advise Comcare.
- 2.9. The Service or Group who has responsibility for control or management of the asset or manifest quantity is responsible for completing the Comcare Form *WHS*–*HCM002 Notification Form* – *Manifest Quantities Schedule 11 Chemicals/Abandoned Tank Comcare Notification Form HCM002*.
- 2.10. The completed form, along with a copy of the manifest, may be scanned and emailed to Work Health and Safety Branch via <u>whs.hazchem@defence.gov.au</u>.
- 2.11. Notification forms are to be signed-off by the person with management or control of the workplace. Depending on who has management or control of the asset/manifest quantity, this could be the commanding officer, base services manager or unit commander. The local point of contact on the notification could be the person completing the notification or the person who manages/operates the asset/manifest quantity.
- 2.12. Those who initiate a notification should allow sufficient time for Work Health and Safety Branch to process the form to Comcare, noting the notification must reach Comcare within the following timeframes:
 - 2.12.1. immediately after it is known that the hazardous chemical is to be first used, handled or stored at the workplace or at least 14 days before that first use, handling or storage (whichever is earlier);
 - 2.12.2. immediately after it is known that there will be a significant change in the risk of using, handling or storing the hazardous chemical at the workplace or at least 14 days before that change (whichever is earlier); and
 - 2.12.3. as soon as practicable after the hazardous chemical is no longer used, handled or stored at the workplace and it is not likely to be in the future.
- 2.13. Work Health and Safety Branch will notify the originator when the advice form and manifest have been forwarded to Comcare, and when Comcare has confirmed receipt of the notification.

Abandoned storage tank notification requirements

- 3. A storage tank is deemed to be abandoned if:
 - 3.1. the tank has not been used to store flammable gases or flammable liquids for two years; or
 - 3.2. the Person Conducting a Business or Undertaking does not intend to use the tank to store flammable gases or flammable liquids again; and
 - 3.3. the tank has been cleaned by a certified/accredited cleaner who has certified the tank to be clean.

- 4. Comcare must be notified via Work Health and Safety Branch when the use of an underground (partially underground or fully mounded) tank that has previously been used to store flammable gases or liquids has been abandoned.
- 5. The notice must be given as soon as practicable after the tank has been abandoned using Comcare Form WHS–HCM002 Notification Form Manifest Quantities Schedule 11 Chemicals/Abandoned Tank. The notifier is deemed to be the Person Conducting a Business or Undertaking with control or management of the tank at the workplace.
- 6. On completion the notification form is processed as outlined in paragraphs 2.6 to 2.8.

Pipeline notification requirements

- 7. Comcare must be notified via Work Health and Safety Branch for all pipelines which carry Schedule 11 hazardous chemicals and cross into a public place. For notification purposes, a public place is outside Defence-controlled land, such as under a public road. Pipelines within Defence-controlled access areas do not require notification to Comcare. A notification to Comcare is also not required if the pipeline is regulated under a corresponding work health and safety law of a state or territory.
- 8. Notification is to be given using Comcare *Form WHS–HCP001 Notification Form Pipelines Which Transfer Schedule 11* Chemicals which can be found on the Work Health and Safety Branch intranet page together with guidance notes for completing the form.
- 9. The notification must be given:
 - 9.1. before the pipeline is commissioned;
 - 9.2. before the pipeline is likely to contain a Schedule 11 hazardous chemical;
 - 9.3. when there is any change to the information given to Comcare in a pipeline notification;
 - 9.4. before the pipeline is repaired; and
 - 9.5. when part of the pipeline is removed, decommissioned, closed or abandoned.
- 10. Once completed Form WHS-HCP001 Notification Form Pipelines Which Transfer Schedule 11 Chemicals is processed as outlined in paragraphs 2.6 to 2.8.
- 11. Pipelines that transfer hazardous chemicals are not recorded in the Defence Hazardous Chemicals Register (ChemAlert). However, the presence and location of pipelines on the Defence Estate must be considered in base emergency planning, and where applicable, must be shown on the Schedule 11 manifest notification site plan.
- 12. Pipelines are to be regularly inspected and labelled in accordance with Hazardous Chemicals Management Procedure 25 Labelling of Pipelines and Pipework.

References and related documents

- 13. Work Health and Safety Act 2011
- 14. Work Health and Safety Regulations 2011
- 15. <u>Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 3rd</u> Edition
- 16. Australian Dangerous Goods Code, 7th Edition
- 17. <u>Guidance on the Classification of Hazardous Chemicals under the WHS Regulations:</u> <u>Implementation of the Globally Harmonized System of Classification and Labelling of</u> <u>Chemicals (GHS)</u>
- 18. AE513 Manifest of Schedule 11 Hazardous Chemicals

19. Comcare:

- 19.1. Form WHS–HCP001 Notification Form Pipelines Which Transfer Schedule 11 Chemicals
- 19.2. Form WHS–HCM002 Notification Form Manifest Quantities Schedule 11 Chemicals/Abandoned Tank

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Department of Defence Defence People Group

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Hazardous Chemicals Management Procedure 25 - Labelling Of **Pipelines And Pipework**

- This procedure relates to SafetyMan Hazardous Chemicals Management Policy and 1. Guidance and provides work health and safety information on the labelling and signage of hazardous chemical pipelines and pipework so that users and others can readily identify the contents, the safe use of the chemical and any health risks.
- 2. This procedure applies to all Defence workplaces where hazardous chemicals are transported through pipelines and pipework.

Requirements for labelling pipelines and pipework

- 3. Pipelines and pipework that hold hazardous chemicals are to be labelled in accordance with the following requirements:
 - Work Heath and Safety Regulations 2011; and 3.1.
 - 3.2. Code of Practice - Labelling of Workplace Hazardous Chemicals.
- The Work Heath and Safety Regulations 2011 do not apply to a pipeline if: 4.
 - 4.1. the pipeline is regulated under a relevant state or territory work health and safety law or other law specified in that state or territory; or
 - 4.2. the hazardous chemicals are contained within portable firefighting or medical equipment for use in a workplace; or
 - 4.3. the hazardous chemicals form part of the integrated refrigeration system of refrigerated freight containers.

Summary of label requirements

- 5. All hazardous chemical pipelines or pipework labels should have:
 - 5.1. correct base identification colour;
 - 5.2. correct pipe marker/identifier in English;
 - 5.3. background colour block/patch large enough to accommodate words;
 - 5.4. contrasting border around the colour identification block;
 - 5.5. chevron within the border (if required);
 - 5.6. correct supplementary colours (if required); and
 - 5.7. supplementary safety signage as per Australian Standards, as required.
- 6. The following Australian Standards detail the specific requirements for identification and markings:
 - 6.1. AS 1345-1995 - Identification of Contents of Pipes, Conduits and Ducts; and
 - AS 2700-2011 Colour Standards for General Purposes. 6.2.

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Inspection of hazardous chemical pipeline and pipework labelling

- 7. It is recommended that hazardous chemical pipelines and pipework labelling is checked for conformance as part of regular safety site inspections. Environmental exposure of pipework, signs and labelling will impact on the required frequency of these inspections.
- 8. The steps to take when inspecting pipelines and pipework are set out in the following table:

	Table 1: Inspecting pipeline and pipework labelling			
Step	Action			
1	Check the ChemAlert hazardous chemical register to verify the contents of the pipelines or pipework.			
	Note: Refer to SafetyMan – Hazardous Chemicals Management Procedure 10 - Registers for Hazardous Chemicals for further information.			
2	Check the label information on the pipeline or pipework against the most up-to-date safety data sheet details to make sure the chemical information is the most recent available.			
3	Check the hazardous chemical workplace register to verify a risk assessment has been completed on the pipeline or pipework.			
4	Inspect the signs and labelling on or near the pipeline/pipework to ensure that the information is legible and the signs are intact.			
5	Ensure that the label complies with requirements for informational content and size. This information should also be recorded in the risk assessment under controls implemented.			
6	Report any non-compliant labels or signs immediately.			
7	Inspections of physical structures and supporting equipment may also be required when inspecting the pipeline/pipework.			

References and related documents

- 9. Work Health and Safety Act 2011
- 10. Work Health and Safety Regulations 2011
- 11. Globally Harmonized System of Classification and Labelling of Chemicals
- 12. Code of Practice Labelling of Workplace Hazardous Chemicals
- 13. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 14. Australian Standard
 - 14.1. AS 1319:1994 Safety Signs for the Occupational Environment
 - 14.2. AS 1345:1995 Identification of the Contents of Pipes, Conduits and Ducts
 - 14.3. AS 1940:2017 The Storage and Handling of Flammable and Combustible Liquids and
 - 14.4. AS 2700:2011 Colour Standards for General Purposes

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Hazardous Chemicals Management Procedure 26 - Labelling Of **Hazardous Chemicals**

- This procedure relates to SafetyMan Hazardous Chemicals Management Policy and 1. Guidance on labelling hazardous chemicals.
- 2. The Work Health and Safety Regulations 2011 require that hazardous chemical classification and hazard communication on labels and safety data sheets is based on the Globally Harmonized System of Classification and Labelling of Chemicals.
- This procedure applies to all Defence workplaces where hazardous chemicals are used, 3. handled, stored or manufactured.

Defence responsibilities as a manufacturer or importer

- Manufacturers and importers have the responsibility to ensure that hazardous chemicals 4. they manufacture or import are labelled correctly as specified in the Work Health and Safety Regulations 2011.
- 5. When Defence packages or labels hazardous chemicals with their own product name they are considered to be a manufacturer and will have the same obligations as the manufacturers or importers of that hazardous chemical.

Defence responsibilities as a supplier

Suppliers of hazardous chemicals must ensure that each container in which the hazardous 6. chemical is supplied is appropriately labelled in accordance with the Work Health and Safety Regulations 2011 and the Safe Work Australia Code of Practice Labelling of Hazardous Chemicals.

Replacement labels

- 7. Replacement labels in various sizes can be printed using the ChemAlert label function. The labels:
 - 7.1. should be printed in a colour or colours that provide a distinct contrast to the background colour; and
 - 7.2. must include information appropriate to the size of the container and be easily visible and legible in the workplace, with larger labels on larger containers. Reduced labelling under the Work Health and Safety Regulations 2011 is permitted for hazardous chemicals that are supplied in small containers.
- Labels should be firmly secured to the outside of the container and sufficiently durable to 8. remain legible and firmly attached to the container for the foreseeable lifetime of the product under normal storage and handling conditions.
- The following table provides guidance on the appropriate size of labels for various 9. capacities of containers

Labelling requirements for hazardous chemical containers

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Container Capacity	Minimum hazard pictogram dimensions	Minimum text size
<u>≤</u> 500 ml	15 x 15 mm	2.5 mm
> 500 ml and <u><</u> 5 l	20 x 20 mm	3 mm
> 5 I and <u><</u> 25 I	50 x 50 mm	5 mm
<u>> 25 I</u>	100 x 100 mm	7 mm

- 10. Defence procures a large number of products to military specification which are often repackaged and re-labelled with the North Atlantic Treaty Organisation Stock Number. This labelling does not comply with the regulatory requirements for labelling.
- 11. Where this is the case, the product must be identified by its commercial name and manufacturer and a new label printed and applied to the container.

Categories with special label requirements

- 12. Reduced labelling is permitted under the *Work Health and Safety Regulations 2011* and *Code of Practice Labelling of Workplace Hazardous Chemicals* and are:
 - 12.1. supplied in small containers (less than 500ml);
 - 12.2. research chemicals or samples for analysis;
 - 12.3. decanted or transferred;
 - 12.4. not supplied to another workplace and the hazards are known to the workers using the chemical;
 - 12.5. hazardous waste; or
 - 12.6. classified into the explosives hazard class and are not explosive articles.
- 13. Types of hazardous chemicals that are excluded from the *Work Health and Safety Regulations 2011* labelling requirements include:
 - 13.1. consumer products/dual use products;
 - 13.2. food and beverages;
 - 13.3. therapeutic goods; and
 - 13.4. agricultural and veterinary chemicals.

Labelling awkward containers

- 14. Some potential techniques to attach labels to containers which are awkward for normal labelling include:
 - 14.1. attaching the label to the container by string, cable tie or other device that has sufficient strength to ensure the label is not accidentally removed or damaged;
 - 14.2. storing the hazardous chemical within a larger container that is appropriately labelled;
 - 14.3. attaching a label to the supporting apparatus, eg a test tube rack or dedicated shelf (caution must be exercised to ensure that only the correct items are placed, replaced or stored in the labelled shelf, test tube holder or dedicated area); and

- 14.4. using fold-out leaflets attached to the container.
- 15. When deciding which technique is the most appropriate, the following should be considered:
 - 15.1. size and shape of the container and how this will impact on label visibility or legibility;
 - 15.2. user knowledge and access to the hazardous chemical;
 - 15.3. potential life span of the label; and
 - 15.4. the proposed use of the container—eg a swing label could increase hazards when using the chemical.

Dangerous goods in-transit

- 16. Dangerous goods are in-transit when the goods are:
 - 16.1. supplied to, or stored at, a workplace in containers that are not opened at the workplace;
 - 16.2. not used at the workplace; and
 - 16.3. kept at the workplace for not more than five consecutive days.
- 17. 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.
- 18. Dangerous goods that are transported by road or rail must comply with the labelling or marking requirements that are specified in the *Australian Dangerous Goods Code*.

Revision of labels

19. Importers, manufacturers and suppliers should review labels when new information about hazardous chemicals becomes available. For example when the safety data sheet is revised (eg due to new ingredients being introduced or new information about health hazards) containers must be re-labelled. When a new hazardous chemical is imported directly into Australia it must be checked for Australian regulatory compliance; this affords a good opportunity to review the label information.

Use of clips to identify the contents of jerry cans

- Comcare has granted an exemption for Defence from the requirements of Work Health and Safety Regulations 2011, Regulation 341 – Labelling hazardous chemicals – general requirement (Annex A) and Regulation 342(1) (b) and (2) – Labelling hazardous chemicals – containers (Annex B) for labelling five specified fuel products when used, handled or stored in jerry cans. The products are:
 - 20.1. KERO(B) F-58 kerosene (Grey clip);
 - 20.2. ULP/95 F-67 premium unleaded automotive petrol (Green clip);
 - 20.3. ULP/91F-46 unleaded automotive petrol (Green clip);
 - 20.4. AUTO DIESO F-54 automotive diesel (Yellow clip); and
 - 20.5. MARINE DIESO F-76 naval distillate (Yellow clip).
- 21. Managers and supervisors are to implement the use of identification clips for jerry cans only for the products specified in paragraph 20.

- 22. Workers are to be instructed on the use of the clips and how to identify the contents of jerry cans using the North Atlantic Treaty Organisation coding on the clips (eg Auto Dieso F-54 yellow clip).
- 23. The application of paint (colour-coding) to identify the contents of jerry cans or any other type of container is not an approved method of labelling and must not be used.

Labelling of unknown hazardous chemicals

- 24. Where the label on a container is damaged or obscured or the chemical cannot be clearly identified, a Department of Defence *AE133 'Unknown substance'* label must be applied to the container identifying the chemical as unknown.
- 25. A container that is not properly labelled should be stored in isolation until its contents can be identified with certainty and appropriately labelled.
- 26. If the contents cannot be identified, the contents and container must be disposed of in accordance with SafetyMan Hazardous Chemicals Management Procedure 33 Disposal and Decontamination of Hazardous Chemicals and Waste.

Labels for hazardous chemicals identified for disposal

- 27. Department of Defence AE130 'Awaiting disposal' labels must be applied to the containers of hazardous chemicals awaiting disposal.
- 28. Until the container that has held a hazardous chemical has been thoroughly cleaned and all chemical residues removed, the container is also classified as hazardous chemical waste and must be labelled in accordance with the instructions in paragraphs 24 to 27 and disposed of accordingly.

Labels for obsolete chemicals

- 29. For Defence, the term 'obsolete product' means a product for which the safety data sheet has expired – ie five or more years have elapsed since the date of issue or the most recent review – and the product is no longer manufactured or supplied. The safety data sheet for an obsolete product is the most recent one issued by the manufacturer or supplier of that product. For more information about obsolete chemicals and safety data sheet requirements refer to SafetyMan – Hazardous Chemicals Management Procedure 11 – Safety Data Sheets.
- 30. Provided the safety data sheet is the last of its kind, and the labelling on the chemical was compliant at the date of supply, obsolete chemicals do not require relabeling for Globally Harmonized System of Classification and Labelling of Chemicals compliance purposes. However, every effort should be made to reduce obsolete chemicals in the workplace.

References and related documents

- 31. Work Health and Safety Act 2011
- 32. Work Health and Safety Regulations 2011
- 33. Code of Practice Labelling of Workplace Hazardous Chemicals
- 34. Globally Harmonized System of Classification and Labelling of Chemicals
- 35. Australian Dangerous Goods Code 7th Edition (ADG7 Code)
- 36. Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
- 37. Agricultural and Veterinary Chemicals Code Act 1994
- 38. Agricultural and Veterinary Chemicals Code Regulations 1995

- 39. Australian Explosives Code (AEC) in conjunction with the GHS
- 40. Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]
- 41. AS 1345-1995 Identification of the contents of pipes, conduits and ducts for guidance
- 42. Australian Code for the Transport of Explosives by Road and Rail 3rd edition
- 43. SafetyMan Hazardous Chemicals Management Procedure 11 Safety Data Sheets

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Annexes

- A. Work Health and Safety Regulations 2011, Regulation 341 Labelling hazardous chemicals general requirement
- B. Work Health and Safety Regulations 2011, Regulation 342 Labelling hazardous chemicals containers

Annex A

Work Health and Safety Regulations 2011

Regulation 341 - Labelling hazardous chemicals—general requirement

(1) A person conducting a business or undertaking at a workplace must ensure that a hazardous chemical used, handled or stored at the workplace is correctly labelled in accordance with regulation 335.

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

Annex B

Work Health and Safety Regulations 2011

Regulation 342 - Labelling hazardous chemicals—containers

(1) A person conducting a business or undertaking at a workplace must ensure that a hazardous chemical is correctly labelled in accordance with regulation 335 if the hazardous chemical is:

- (a) manufactured at the workplace; or
- (b) transferred or decanted from its original container at the workplace.

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

(2) A person conducting a business or undertaking at a workplace must ensure, so far as is reasonably practicable, that a container that stores a hazardous chemical is correctly labelled in accordance with regulation 335 while the container contains the hazardous chemical.

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

Penalty:

- (a) In the case of an individual—\$6 000.
- (b) In the case of a body corporate—\$30 000.

(4) This regulation does not apply to a container if:

- (a) the hazardous chemical in the container is used immediately after it is put in the container; and
- (b) the container is thoroughly cleaned immediately after the hazardous chemical is used, handled or stored so that the container is in the condition it would be in if it had never contained the hazardous chemical.

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Hazardous Chemicals Management Procedure 27 - Transport Of Hazardous Chemicals And Dangerous Goods

- 1. This procedure relates to SafetyMan Hazardous Chemicals Management Policy and Guidance on the transport of hazardous chemicals and dangerous goods for Defence purposes.
- 2. This procedure applies to all Defence workplaces where hazardous chemicals are transported by Defence or contractors on behalf of Defence.

Sea transport

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3. The competent authority for sea transport of dangerous goods is the Australian Maritime Safety Authority. All Defence and contracted sea transport of dangerous goods must accord with the *International Maritime Dangerous Goods Code*. Information regarding relevant sea transport legislation, regulation, codes, competent authorities and Defence doctrine is available from Director General Navy Certification and Safety by emailing *NCS.Correspondence@defence.gov.au*

Land transport

- 4. Legislation and regulation regarding the land transport of hazardous chemicals is provided at the state and territory level and is conducted in accordance with the *Australian Dangerous Goods Code* which covers road and rail. While Defence does not operate rail facilities, it contracts rail operations and therefore has a shared responsibility for compliance with the *Australian Dangerous Goods Code* in relation to rail operations at the point of transfer for the transport of dangerous goods. All Defence and contracted land transport of dangerous goods is to accord with the *Australian Dangerous Goods Code*.
- 5. The primary Defence document relating to the land transport of dangerous goods is the *Defence Road Transport Manual.*

Air transport

- 6. In Australia, civilian air transport, including contracted air transport, is regulated under the *Civil Aviation Act 1988*.
- 7. The competent authority for the air transport of dangerous goods is the Civil Aviation Safety Authority. Australia is a signatory to the *International Convention on Civil Aviation* which established the International Civil Aviation Organisation.
- 8. Through Australia's involvement in the Air and Space Interoperability Council, Defence has agreed to be bound by the International Civil Aviation Organisation *Technical Instructions for the Safe Transport of Dangerous Goods by Air* for dangerous goods Classes 2 to 9 and the International Air Transport Association *Dangerous Goods Regulations* published by the International Air Transport Association.
- 9. Defence has agreed under the *Civil Aviation Act 1988 s4* to abide by International Civil Aviation Organisation rules and publications where they do not conflict with the primary

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Defence documents relating to the air transport of dangerous goods. The primary Defence documents relating to the air transport of dangerous goods are:

- 9.1. Air Force Air Movements Manual; and
- 9.2. Air Force Air Movements Dangerous Goods Manual.

Packaging and preparation for transport

- 10. All packaging and preparation of hazardous chemicals for transport must be carried out in a designated area which has been detailed on the unit storage plan.
- 11. Dangerous goods must not be offered for transport unless:
 - 11.1. the goods have been properly classified, packed, marked, labelled and described on a dangerous goods transport document;
 - 11.2. the goods are in a fit condition for transport as required by the relevant dangerous goods code, and no residue of the dangerous goods adheres to the outside of the package;
 - 11.3. road and rail transport assets are appropriately marked, labelled and have placards, if required, in accordance with the *Australian Dangerous Goods Code*; and
 - 11.4. transport assets are otherwise in a condition for transport as required by the relevant dangerous goods codes.

Transit storage

- 12. If hazardous chemicals remain loaded on a transport asset within a workplace for more than five consecutive days then the *Work Health and Safety Regulations 2011* and the relevant dangerous goods code must be applied. The implications depend upon the mode of transport, and a summary of the key implications follows:
 - 12.1. Sea. Transit storage does not apply to dangerous goods stowed aboard ships.
 - 12.2. Land. The road or rail transport asset and the goods loaded on that asset must comply with labelling, signage and placard requirements under both the *Work Health* and Safety Regulations 2011 and the Australian Dangerous Goods Code.
 - 12.3. **Air**. Aircraft are not to be used for dangerous goods transit storage. Dangerous goods and hazardous chemical cargo must not be stowed on an aircraft in a static location in excess of four days.

Contractor responsibilities

- 13. Defence contractors are to comply with all legislation, regulations and codes relating to the transport of those hazardous chemicals.
- 14. All Groups and Services arranging contracts involving the transport of hazardous chemicals are to ensure that the contract includes appropriate clauses relating to compliance with respective work health and safety responsibilities.

Incompatibility

- 15. Hazardous chemicals may react dangerously under certain conditions such as mixing or contacting with other materials with which they are incompatible. Hence, incompatible goods must not be carried in the same vehicle, freight container or vessel unless segregated in accordance with requirements set out in the relevant dangerous goods code.
- 16. The Defence Hazardous Chemicals Dangerous Goods Incompatibility Guide for Transportation by Road and Rail, which is a poster based on the Australian Dangerous

Goods Code, sets out guidelines for incompatibility based on dangerous goods classification.

Reference and related documents

- 17. Work Health and Safety Act 2011
- 18. Work Health and Safety Regulations 2011
- 19. Australian Dangerous Goods Code, 7th Edition
- 20. International Air Transport Association Dangerous Goods Regulations 2016
- 21. International Maritime Dangerous Goods Code, 2014
- 22. Defence Road Transport Manual
- 23. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
- 24. Guidance on the Classification of Hazardous Chemicals under the WHS Regulations: Implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 2012
- 25. Air Force Air Movements Manual
- 26. Air Force Air Movements Dangerous Goods Manual

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Hazardous Chemicals Management Procedure 28 - Emergency Planning And Response For Hazardous Chemicals

- 1. This procedure relates to SafetyMan Hazardous Chemicals Management Policy and Guidance and provides work health and safety information on emergency planning and fire protection requirements.
- 2. This procedure applies to all Defence workplaces where hazardous chemicals are used, handled, generated or stored.

Key considerations for hazardous chemicals emergency plans

- 3. Emergency plans and procedures for units and bases are developed in accordance with the roles and responsibilities of the emergency control organisation for each site. A comprehensive emergency plan should include:
 - 3.1. methods of communication, including both internal and external alarm devices and communications methods;
 - 3.2. a site map that indicates where hazardous chemicals are stored;
 - 3.3. provision of emergency, medical and first aid services;
 - 3.4. roles and responsibilities of key persons;
 - 3.5. estimating the extent of the emergency;
 - 3.6. provision of relevant information and assistance to the emergency services authority, both in anticipation of emergencies and when they occur such as safety data sheets;
 - 3.7. criteria for activating the plan and systems for raising the alarm, including alerting the emergency services organisation;
 - 3.8. community engagement and/or notification during drills;
 - 3.9. inclusion of local emergency service organisations during large scale drills;
 - 3.10. evacuation process and procedures to account for all people at the workplace;
 - 3.11. isolation of the emergency area to prevent entry by non-essential personnel and maintenance of site security throughout the emergency;
 - 3.12. the ability to contain gas, smoke or fumes within the confines of the unit or base, and the impact on the neighbouring community;
 - 3.13. containment of spills and preventing contaminated or hazardous material from escaping into drains or waterways;

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- 3.14. disconnection of power supplies and other energy sources except when required to maintain safety of a critical operation or to run emergency equipment such as fire booster pumps;
- 3.15. community engagement and dealing (or not dealing) with the press; and

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3.16. decontamination and rehabilitation of equipment and site.

Consultation and communication

- 4. Emergency planning must consider all people and activities within a geographical area which may be impacted by hazardous chemical emergency situation. Workers (including contractors), the emergency services organisation and neighbours must be consulted. The emergency services organisation should also be consulted when developing and designing fire protection systems to be used in the workplace.
- 5. The emergency plan should address how effects beyond the workplace boundary will be managed and how warnings will be communicate to neighbouring premises.
- 6. Emergency plans should be readily available to all workers in hard copy form and should be discussed with the emergency services organisation when updated or reviewed.
- 7. The *Work Health and Safety Regulations 2011* also require an emergency plan to be prepared and provided to the emergency services organisation if the quantity of one or more Schedule 11 (Annex A) hazardous chemicals stored in the workplace exceeds the manifest quantity. The plan must be revised in accordance with any recommendations from the emergency services organisation.

Review and maintenance of emergency plans

- 8. The emergency plan should be reviewed:
 - 8.1. at intervals of no more than five years;
 - 8.2. if there is a change of risk at or in the proximity of the workplace;
 - 8.3. when updated information becomes available; and
 - 8.4. when a possible deficiency is identified, eg through regular testing.
- 9. Table 1 outlines a broad process and responsibilities for reviewing emergency plans.

Table 1: Process and responsibilities for reviewing emergency plans			
Step	Actions		
1	For new and existing hazardous chemicals ensure:		
	• product is registered in ChemAlert and stock holding quantities are up to date;		
	 a compliant safety data sheet is available; and 		
	• the hazardous chemical register (and manifest if required) is up to date.		
2	 Ensure a risk assessment has been undertaken and hazards and appropriate control measures (including emergency requirements) have been identified; 		
	 If unsure, consult the Unit Safety Advisor or emergency control organisation commander. 		
3	Check whether any change in stock holdings (eg increased quantities, introduction of new chemicals, etc) requires:		
	 alteration or additional arrangements in relation to placarding, manifests, storage and handling; and/or 		
	alteration to unit and/or base emergency and evacuation procedures.		

Table 1: Process and responsibilities for reviewing emergency plans			
Actions			
 Check that the unit emergency procedures and control measures to address any potential emergencies have been implemented; 			
 Notify the base emergency control organisation commander and the relevant work area supervisor of any identified gaps to be addressed. 			
 Arrange for updated placarding, manifest, maps, plans and or procedures as required using information from the risk assessment; 			
 Report any changes to manifests, maps, plans or procedures to the Unit Safety Advisor and emergency control organisation commander. 			
• To update placarding, log a job with Defence Estate and Infrastructure Group.			
The base emergency control organisation commander will advise the emergency services organisation of any changes to base emergency plans (where appropriate).			

Identifying ignition sources

10. Ignition sources with the potential to ignite a flammable or combustible material must be identified. Ignition sources may be in, or adjacent to, the workplace, while others may periodically enter the workplace—eg vehicles with hot engine and exhaust systems making deliveries, visitors or other portable items like cordless power tools, radios and fans. Table 2 lists several ignition sources commonly found in workplaces.

Table 2: Common ignition sources			
Ignition source	Examples		
Flames	Welding flames, gas heaters, pilot lights.		
Sparks	 Welding arcs, starters for fluorescent lighting, electric motors, electrical equipment such as power points, cigarette lighters, switches and telephones; 		
	 static electricity including from friction sources; 		
	lightning; and		
	 friction from drilling, grinding, scraping of metal on concrete. 		
Heat	 Hot surfaces such as light bulbs, ovens, radiators or heaters, flue pipes, vehicle engines and exhaust systems, pumps and generators; and 		
	 exothermic chemical reactions (reactions that generate heat). 		

Considerations for fire protection

- 11. When identifying fire protection system requirements the following factors should be considered:
 - 11.1. the fire load of the hazardous chemicals and other materials in the workplace;
 - 11.2. compatibility of the hazardous chemicals with other substances or mixtures; and

11.3. compatibility of the equipment with equipment used by the primary emergency services organisations.

Selection of fire extinguishers

- 12. The number of fire extinguishers required on premises is outlined in the National Construction Code, incorporating the Building Code of Australia.
- 13. Additional requirements may apply if flammable liquids are stored on site, and Australian Standard *1940:2004 The Storage and Handling of Flammable and Combustible Liquids* should be consulted.
- 14. Fire extinguishers are colour-coded according to their contents and purpose. The class of fire determines the type of extinguisher required. All extinguishers are labelled using standard symbols. These symbols identify the class of fire for which they can be used.

Monitors and alarms

- 15. Monitors and alarms should be installed to identify early an emergency or dangerous situation. Where large quantities of hazardous chemicals are involved, the relevant emergency services organisation should be consulted about monitors and alarms.
- 16. Effective alarm systems should:
 - 16.1. activate automatically and be capable of being operated manually;
 - 16.2. be clearly audible throughout the premises;
 - 16.3. be seen (eg flashing lights);
 - 16.4. remain operable if the main power supply fails; and
 - 16.5. be tested regularly so they remain effective.

Automatic sprinkler systems

- 17. Automatic sprinkler systems can reduce risk to an acceptable level. These systems allow fires to be controlled almost immediately. However they are not all suitable in all workplaces—eg water from sprinklers could react with chemicals. Automatic sprinkler systems may comprise:
 - 17.1. individual-actuation sprinklers;
 - 17.2. deluge sprinklers;
 - 17.3. foam sprinklers; or
 - 17.4. a combination of sprinkler types.

Water supply

- 18. A reliable water supply is required to ensure that the protection system remains operable in an emergency. The supply should be sufficient to supply both the internal fire protection equipment and any additional equipment used by the emergency services organisation when controlling a fire at the premises.
- 19. Where sufficient supply is not available from the main water supply, it may be necessary to supplement this with additional water storage and/or pumps. If the local authorities permit it, water may be obtained from reliable alternative sources such as close by rivers and dams, using whatever resources are suitable.
- 20. The emergency services organisation is expected to attend a fire at the workplace should be requested to conduct regular checks on the adequacy of the local water supply and pressure within the workplace.

Provision of information and training

21. Workers need to be adequately trained in any procedures, including the correct use of fire extinguishers. Workers must be familiar with the content of emergency plans and the emergency plans must be tested to ensure effectiveness.

References and related documents

- 22. Work Health and Safety Act 2011
- 23. Work Health and Safety Regulations 2011
- 24. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 25. Code of Practice Work Health and Safety Consultation, Co-operation and Co-ordination
- 26. Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 3rd Edition
- 27. AS 1940:2017 The storage and handling of flammable and combustible liquids
- 28. Australian Dangerous Goods Code, 7th Edition
- 29. Defence Manual of Fire Protection Engineering
- 30. Defence Base Emergency Plan and Incident Response Procedure templates Base Emergency Management and Incident Response
- 31. Defence National Environmental Management System Defence decontamination and site rehabilitation requirements

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Annex

A. Work Health and Safety Regulations 2011, Schedule 11 – Placard and manifest quantities

Annex A

Work Health and Safety Regulations 2011

Schedule 11 Placard and manifest quantities

Regulations 347-350, 361, 390 and 391

Table 11.1

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description of hazardous chemical		Placard quantity	Manifest quantity
1	Flammable gases	Category 1	200L	5000L
2	Gases under	With acute toxicity, categories 1, 2, 3 or 4	50L	500L
3	pressure	With skin corrosion categories 1A, 1B or 1C	50L	500L
4		Aerosols	5000L	10 000L
5		Not specified elsewhere in this Table	1000L	10 000L
6	Flammable	Category 1	50L	500L
7	liquids	Category 2	250L	2500L
8	-	Category 3	1000L	10 000L
9		Any combination of chemicals from Items 6 to 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000L	10 000L
10		Category 4	10 000L	100 000L
11	Self- reactive substances	Туре А	5kg or 5L	50kg or 50L
12		Туре В	50kg or 50L	500kg or 500L
13		Type C to F	250kg or 250L	2500kg or 2500L
14	Flammable	Category 1	250kg	2500kg
15	solids	Category 2	1000kg	10 000kg
Column 1	Column 2	Column 3	Column 4	Column 5
----------	---	--	---------------------	---------------------
ltem	Description chemical	of hazardous	Placard quantity	Manifest quantity
16		Any combination of chemicals from Items 12 to 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
17	Pyrophoric liquids and pyrophoric solids	Category 1	50kg or 50L	500kg or 500L
18	Self-heating substances	Category 1	250kg or 250L	2500kg or 2500L
19	and mixtures	Category 2	1000kg or 1000L	10 000kg or 10 000L
20		Any combination of chemicals from Items 17 to 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
21	Substances	Category 1	50kg or 50L	500kg or 500L
22	which in contact with	Category 2	250kg or 250L	2500kg or 2500L
23	flammable gas	Category 3	1000kg or 1000L	10 000kg or 10 000L
24		Any combination of chemicals from Items 21 to 23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
25	Oxidising	Category 1	50kg or 50L	500kg or 500L
26	liquids and oxidising solids	Category 2	250kg or 250L	2500kg or 2500L
27		Category 3	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
ltem	Description of hazardous chemical		Placard quantity	Manifest quantity
28		Any combination of chemicals from Items 25 to 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
29	Organic	Туре А	5kg or 5L	50kg or 50L
30	peroxides	Туре В	50kg or 50L	500kg or 500L
31		Type C to F	250kg or 250L	2500kg or 2500L
32		Any combination of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250kg or 250L	2500kg or 2500L
33	Acute	Category 1	50kg or 50L	500kg or 500L
34	toxicity	Category 2	250kg or 250L	2500kg or 2500L
35		Category 3	1000kg or 1000L	10 000kg or 10 000L
36		Any combination of chemicals from Items 33 to 35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
37	Skin _.	Category 1A	50kg or 50L	500kg or 500L
38	corrosion	Category 1B	250kg or 250L	2500kg or 2500L
39		Category 1C	1000kg or 1000L	10 000kg or 10 000L
40	Corrosive to metals	Category 1	1000kg or 1000L	10 000kg or 10 000L

Column 1	Column 2	Column 3	Column 4	Column 5
Item	Description chemical	of hazardous	Placard quantity	Manifest quantity
41		Any combination of chemicals from Items 37 to 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L
42	Unstable explosives		5kg or 5L	50kg or 50L
43	Unstable chemicals	Any combination of chemicals from items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5kg or 5L	50kg or 50L

Notes

- 1 In item 2, Gases under pressure with acute toxicity, category 4 only applies up to a LC50 of 5000 ppmV. This is equivalent to dangerous goods of Division 2.3.
- 2 Item 4 includes flammable aerosols.

1 Determination of classification of flammable liquids

For the purposes of this table, if a flammable liquid category 4 is used, handled or stored in the same spill compound as one or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquids categories 1, 2 or 3 must be determined as if the flammable liquid category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point.

Example

For placarding and manifest purposes, a spill compound containing 1000L of flammable liquid category 1 and 1000L of flammable liquid category 4 is considered to contain 2000L of flammable liquid category 1



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Hazardous Chemicals Management Procedure 29 - Managing Hazardous Chemical Spills

This procedure relates to SafetyMan Hazardous Chemicals Management Policy and Guidance and provides work health and safety information on the safe practices for managing hazardous chemicals spills and leaks in the workplace.

This procedure applies to all Defence workplaces where hazardous chemicals are used, handled, generated or stored.

Developing a spill response plan

Table 1 outlines the steps to develop a spill response plan.

Table 1: Steps to develop a spill response plan		
Step	Action	
1	Review the safety data sheet and risk assessment for:	
	hazards and precautions;	
	 recommended spill clean-up methods and materials; 	
	 personal protective equipment, eg respirator, gloves, protective clothing; 	
	emergency response measures; and	
	first aid information.	
2	Acquire sufficient quantities and types of appropriate spill control materials to contain any spills that could be reasonably anticipated.	
3	Acquire recommended personal protective equipment. Personnel must be trained in correct use and attend annual training and fit-testing.	
4	Place spill control materials and personal protective equipment in a readily accessible location within or immediately adjacent to the workplace where the chemical is used, handled or stored.	



Table 1: Steps to develop a spill response plan		
Action		
Create a spill response plan that includes:		
• names and telephone numbers of individuals to be contacted in the event of a spill;		
 evacuation plans for the workplace as appropriate; 		
 instructions for containing the spilt material, including potential releases to the environment (eg protect floor drains); 		
 an inventory of spill control materials and personal protective equipment; 		
 means for proper disposal of clean-up materials (in most cases as hazardous waste) including contaminated tools and clothing; 		
 decontamination of the area following the clean-up; and 		
post-event reporting as required.		
Discuss the spill response plans with all workers in the area. Training must be provided for workers who work directly with chemicals and for those who are expected to respond to assist with spill clean-up.		
Ensure that a copy of the final spill response plan is kept in the workplace and is incorporated into the base/workplace emergency plan.		
Display the spill response plan near where the chemical is used, so that people have ready access in an emergency.		
Ensure all workers receive training and instruction, which could include a local exercise or scenario walk-through.		

Spill containment systems

- The spill containment system must effectively contain, clean up and dispose of the spill or leak and any resulting effluent. The system must not create a hazard by bringing together different hazardous chemicals that are not compatible or that would react together to cause a fire, explosion, harmful reaction or evolution of flammable, toxic or corrosive vapour.
- Any spill containment system should be large enough to ensure that all spills can be held safely until cleaned up. Factors to consider when designing a spill containment system include:

the nature of the hazardous chemicals (whether liquid or solid);

the quantity of the hazardous chemicals;

the size of the largest container or reasonably foreseeable largest spill;

the potential impact if the hazardous chemicals escape into the environment;

the need to provide for the management of water used for fire fighting at an event;

a separate spill containment system for incompatible goods;

compatibility of the hazardous chemicals with the materials used to construct the containment system and to absorb the hazardous chemicals;

other materials in the vicinity that will prevent contamination of groundwater or soil; and

the system's ability to function during any reasonably foreseeable event.

For large quantities of hazardous chemicals, bunding may be required. Bunding should be designed and constructed in accordance with the relevant Australian standard specific to the type of hazardous chemical —for example *Australian Standard 1940:1993 - The storage and handling of flammable and combustible liquids*—and in consultation with the emergency services authority.

Select a location to store the spill containment system along with the documented spill response plan. The location should be:

easily accessible at all times;

available where spills are most likely to occur, eg next to filling connections, transfer hoses or where decanting takes place.

Maintaining spill kits

For a spill kit to function when needed it must be:

routinely checked;

include a table of contents;

contain all quantities and materials listed in the table of contents; and

maintained in good condition and working order.

Each time the kit is used the following actions are to be completed:

contents and equipment to be checked and stock levels replenished; and

equipment to be cleaned and verified to be in good condition and good working order.

Spill kits and their contents are replaceable through the unit or workplace supply chain.

Communication and training

All workers who have access to hazardous chemicals must be provided with appropriate information, instruction and training on the hazardous chemical spill response plans and spill containment systems relevant to their workplace.

Managing a spill

The following flowchart illustrates how to determine whether a spill should be managed as a minor or major spill so the most appropriate course of action can be initiated.



Minor spill procedure

Table 2 outlines the procedure to manage a hazardous chemical minor spill.

Table 2: Minor spill procedure			
Step	Actic	on	
1	Identify the spilled material.		
	If the spilled material	then	
	is a hazardous chemical	continue to step 2	
	is not a hazardous chemical	clean up the spill using standard cleaning procedures	
	is unable to be identified	go to procedure for managing a major spill	
2	Notify personnel in the area and ask others working nearby.	them to leave until the spill is cleared. Inform	
3	Quickly assess if you are able to cont	trol the spill by:	
	referring to the chemical spill resp	oonse plan and the safety data sheet; and	
	considering the volume and locat	ion of the spill.	
	Notes:		
	You must not place yourself or ot	hers in danger.	
	• Wherever possible, ensure that at least two personnel are present and that trained personnel handle the spill.		
	If you	then	
	can manage the spill safely	continue to step 4	
	cannot control the spill safely	the procedure for managing a major spill must be used.	
	cannot control the spill safely	the procedure for managing a major spill must be used. Immediately:	
	cannot control the spill safely	 the procedure for managing a major spill must be used. Immediately: contact the Unit Safety Advisor 	
	cannot control the spill safely	 the procedure for managing a major spill must be used. Immediately: contact the Unit Safety Advisor escalate to your commander or manager for further instructions 	
4	Cannot control the spill safely	 the procedure for managing a major spill must be used. Immediately: contact the Unit Safety Advisor escalate to your commander or manager for further instructions 	
4	cannot control the spill safely Locate the chemical spill kit and equi Protect yourself by using the correct the spill response plan.	 the procedure for managing a major spill must be used. Immediately: contact the Unit Safety Advisor escalate to your commander or manager for further instructions 	
4 5 6	cannot control the spill safely Locate the chemical spill kit and equi Protect yourself by using the correct the spill response plan. Ensure fire protection is available for	the procedure for managing a major spill must be used. Immediately: • contact the Unit Safety Advisor • escalate to your commander or manager for further instructions pment. personal protective equipment as detailed in flammable spills. Remove ignition sources.	
4 5 6 7	cannot control the spill safely cannot control the spill safely Locate the chemical spill kit and equi Protect yourself by using the correct the spill response plan. Ensure fire protection is available for Establish exhaust ventilation if outline outside the building by opening window	the procedure for managing a major spill must be used. Immediately: • contact the Unit Safety Advisor • escalate to your commander or manager for further instructions pment. personal protective equipment as detailed in flammable spills. Remove ignition sources. ed in spill response plan; vent vapours to pws and turning on fume hoods.	
4 5 6 7 8	cannot control the spill safely Locate the chemical spill kit and equi Protect yourself by using the correct the spill response plan. Ensure fire protection is available for Establish exhaust ventilation if outline outside the building by opening winder Control the source of the spill (where hazardous chemical, eg:	the procedure for managing a major spill must be used. Immediately: • contact the Unit Safety Advisor • escalate to your commander or manager for further instructions pment. personal protective equipment as detailed in flammable spills. Remove ignition sources. ed in spill response plan; vent vapours to bws and turning on fume hoods. safe to do so) to prevent further spill of the	
4 5 6 7 8	cannot control the spill safely Locate the chemical spill kit and equi Protect yourself by using the correct the spill response plan. Ensure fire protection is available for Establish exhaust ventilation if outline outside the building by opening window Control the source of the spill (where hazardous chemical, eg: • turn off the valve or tap; and/or	the procedure for managing a major spill must be used. Immediately: contact the Unit Safety Advisor escalate to your commander or manager for further instructions pment. personal protective equipment as detailed in flammable spills. Remove ignition sources. ed in spill response plan; vent vapours to pows and turning on fume hoods. safe to do so) to prevent further spill of the	

Table 2: Minor spill procedure			
Step	Action		
9	Contain the hazardous chemical spill by using the spill kit specified for the chemical. This could include:		
	 using damming, bunding and absorbing products; and 		
	covering drains with drain mats or sandbags.		
10	Neutralise acids/alkalis and other chemicals, if applicable.		
11	Collect all spill residues and any contaminated material and place in an appropriate container. Material must be disposed of in accordance with <i>SafetyMan</i> – <i>Disposal and Decontamination of Hazardous Chemicals and Waste</i> . This includes:		
	chemical waste;		
	materials used in the clean-up; and		
	contaminated clothing.		
12	Decontaminate the affected area using an appropriate material. Decontaminate any affected equipment and personal protective equipment.		
13	Analyse the area to ensure proper decontamination has taken place. Examine walkways, floors, stairs, equipment, etc, for other hazards or damage.		
14	Report the spill.		
15	Check all spill kits and equipment and restock where necessary. Repair all damaged equipment or plant.		
16	When the area is deemed clear, it can be re-opened for operations.		
17	Conduct an investigation into the cause(s) of the spill and implement corrective actions.		

Major spill procedure

Table 3 outlines the procedure to manage a hazardous chemical major spill.

Table 3: Major spill procedure		
Step	Action	
1	Raise the alarm and contact the emergency service/s.	
2	Commence local emergency evacuation;	
	 Inform others working nearby; and 	
	 secure the area to prevent others from entering. 	
3	 Determine whether personal injury or contamination may have occurred. Move any victim from the immediate area—provided this can be done without further injury to anyone. 	
	Call for first aid or medical treatment.	
4	Do not touch or attempt to clean up the chemical, but isolate the spill if safe to	

Table 3: Major spill procedure		
Step	Action	
	do so.	
5	Turn off plant and remove potential sources of ignition if safe to do so.	
6	Assist emergency services personnel by providing information about the chemical and its location.	
7	Report the spill.	
8	Conduct an investigation into the cause(s) of the spill and implement corrective actions.	

Reporting and investigation

- All events involving a spill or leak of hazardous chemicals must be reported, no matter how minor.
- Once the emergency has been controlled, the event must be reported in accordance with the SafetyMan – Work Health and Safety Event (Incident) Reporting Policy.
- The relevant environmental regulator must be notified following consultation with the relevant Defence Estate Infrastructure Group representative.
- Following an unintended release of a hazardous chemical, all reasonable steps must be taken to ensure the release does not occur again.
- An investigation should be initiated to determine the cause/s of the spill. As part of the investigation, the current risk assessment must be reviewed to determine if the controls in place are sufficient to control the identified risks.
- If the work involving the spilled chemical must continue, consideration should be given to implementing additional interim control measures until the findings of the investigation, issues and corrective actions have been agreed.

All investigation findings should be communicated to workers and other key stakeholders.

Follow-up actions

Once the spill has been resolved, the actions outlined in table 4 must be implemented.

Table 4: Actions after a spill		
Step	Action	
1	All workers, including emergency services personnel, involved in the spill response should be debriefed after the spill has been resolved.	
2	The spill event must be thoroughly investigated and corrective actions implemented to ensure that the event does not re-occur.	
3	All spill kits and equipment must be checked and/or restocked.	
4	All damaged equipment or plant must be repaired.	
5	When the area is deemed clear, it can be re-opened for operations.	

References and related documents

Work Health and Safety Act 2011

Work Health and Safety Regulations 2011

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Australian Dangerous Goods Code, 7th Edition, National Road Transport Commission, 2007

- SAA/SNZ HB 76:2010 Standards Australia/Standards New Zealand Handbook Dangerous Goods – Initial Emergency Response Guide
- AS/NZS 2243.2:2006 Australian/New Zealand Standard Safety in laboratories Part 2: Chemical aspects

AS 1940:2017 The storage and handling of flammable and combustible liquids

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Hazardous Chemicals Management Procedure 30 – Contractor Management

- 1. This procedure relates to *SafetyMan- Hazardous Chemicals Management Policy and Guidance* and provides work health and safety information for the management of contractors.
- 2. This procedure applies to all Defence workplaces where contractors may be involved in using, handling and storing hazardous chemicals.
- 3. Under the Work Health & Safety Act 2011, a contractor is listed as a worker as described in *Part 1, Division 3, Subdivision 2* (Annex A).

Contractor requirements in relation to hazardous chemicals

- 4. Defence will confirm that contractors have an agreed and approved Safety Management System in place. Evidence of this compliance must be shown to their Defence contract manager. This evidence must include (but not limited to) the following:
 - 4.1. up-to-date registers and manifests for hazardous chemicals;
 - 4.2. compliant safety data sheet and labels for each hazardous chemical brought onto a Defence site;
 - 4.3. risk assessments and appropriate control measures;
 - 4.4. appropriate storage and emergency arrangements; and
 - 4.5. safe work procedures or standard operating procedures before commencing work.
- 5. Contractors must obtain approval from the Defence contract manager prior to bringing hazardous chemicals onto a Defence site.
- 6. Hazardous chemicals that are not approved for use must not be brought onto Defence sites.

Using ChemAlert

7. The following table sets out six scenarios in relation to hazardous chemicals and for each scenario outlines Defence contractors' responsibilities for the use of ChemAlert.

ChemAlert use by contractors		
Scenario description	Requirements	
Registration of hazardous chemicals in ChemAlert is mandated		
Scenario 1	• Registration is mandatory for all hazardous chemicals.	
Hazardous chemicals are used and stored in Defence controlled		

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ChemAlert use by contractors		
Scenario description	Requirements	
workplaces by all workers (including embedded contractors).		
Scenario 2 Hazardous chemicals are used and stored by contractors in a Defence controlled workplace, eg contract cleaners.	 Contractor will register hazardous chemicals in ChemAlert; or Defence workplace controller will register hazardous chemicals in ChemAlert on behalf of the contractor. The contractor must provide and update data to the Defence workplace controller. Note: The Defence workplace controller will not always be the contract manager. 	
Scenario 3 Hazardous chemicals are owned by Defence (ie, Defence is the supplier), but the chemicals are handled by the contractor, irrespective of location.	 Contractor will register hazardous chemicals in ChemAlert; or Defence workplace controller will register the hazardous chemicals in ChemAlert on behalf of the contractor if the chemicals are used or handled in the workplace. The contractor must provide and update data to the Defence workplace controller. Note: The Defence workplace controller will not always be the contract manager. 	
Registration of hazardous chen	nicals in ChemAlert is preferred, but not mandated	
Scenario 4	The contractor must:	
The contractor owns and uses or stores hazardous chemicals in a contractor controlled area, which is situated on a Defence site, and contractor is not using ChemAlert.	 have in place and demonstrate to Defence a regulatory compliant system for registration, use and management of hazardous chemicals; provide Defence with details of manifest quantities (if required) so a base-wide approach for emergency response can be provided; provide Defence with details of hazardous chemicals that may represent a hazard to any workers that are adjacent to the contractor's work area; and 	
	 provide Defence with details of hazardous chemicals that may contaminate the workplace, or not removed. 	

ChemAlert use by contractors		
Scenario description	Requirements	
Scenario 5	The contractor must:	
Contractor brings a hazardous chemical temporarily (ie, for a one-off task) onto a Defence workplace. The hazardous chemical is for contractor use only, and does not involve storage or disposal at the Defence workplace. The	 have a regulatory compliant system in place for the registration, use and management of hazardous chemicals; 	
	 provide a temporary register to the Defence controller at the workplace; and 	
	 provide Defence with details of any hazardous chemicals that are being brought onto the workplace. 	
ChemAlert.	Note: Only following approval from Defence, the contractor may store a chemical at the workplace if it is stored for no longer than five days.	
Scenario 6	The contractor must:	
Contractor owns, uses and stores hazardous chemicals on a contractor site, where Defence	 have a regulatory compliant system in place for the registration, use and management of hazardous chemicals; and 	
Contractor is not using ChemAlert.	• provide Defence with details, eg safety data sheet, of any hazardous chemicals that Defence workers may be exposed to through operation, maintenance, transport or storage operations, etc.	

Emergency plans

8. Emergency plans must be developed in consultation with workers, contractors, the emergency services organisation and neighboring premises. Defence and contractor personnel must consult each other to confirm who is doing what, and must work together in a cooperative and coordinated way to develop appropriate emergency response plans.

Defence obligations

9. The following table summarises Defence obligations for managing the five categories of contracted workers in Defence workplaces.

Defence Supervisor/Contractor Manager Requirements

The following details actions to be taken by Defence supervisor/contract manager for contractors

- 10. Ensure work health and safety compliance clauses are included into contract as identified through Departmental Procurement Policy Instruction and Australian Standards for Defence Contracting (ASDEFCON) templates.
- 11. Ensure communication, coordination and cooperation mechanisms are in place and occur between contractors and Defence supervisor/contract manager and emergency control organisation and the Base Senior Australian Defence Force Officer.
- 12. Ensure contractors obtain approval before bringing hazardous chemicals on site and identify and monitor use, handling and storage of chemicals brought on site by contractors.
- 13. Ensure hazardous chemicals are subjected to the base/unit receipt process prior to introduction to the workplace.

- 14. Ensure a compliant safety data sheet is provided with first supply of any chemicals delivered to a Defence establishment.
- 15. Provide access to ChemAlert database and hazardous chemical registers (and manifests if required) (Note 2).
- 16. Ensure stock holdings are recorded in ChemAlert (Note 2).
- 17. Update workplace hazardous chemical register/manifest in accordance with Defence procedures.
- 18. Provide site induction, health and safety and emergency training to contractor workers for each area in which work is undertaken.
- 19. Ensure licensing requirements for contractor workers are monitored and enforced.
- 20. Provide procedures for the safe use, handling and storage of hazardous chemicals to contractors (if applicable).
- 21. Ensure safe work procedures are undertaken within areas of work according to legislative requirements and Defence policy (where required).
- 22. Identify and monitor practices relating to the use, handling and storage of chemicals brought on site by contractors.
- 23. Consult with base emergency control organisation regarding hazardous chemical deliveries to Defence establishment (including schedules, types and quantities).
- 24. Identify audit reporting schedule to enable compliance reporting within the group audit schedule.
- 25. Identify and provide health monitoring for workers, including contractors, where required.

Notes:

- 1. Includes the mandatory use of ChemAlert to register hazardous chemical stock holdings.
- 2. Refer to the table at paragraph 7 ChemAlert use by contractors, registration of hazardous chemicals is mandatory for scenarios 1, 2 and 3 and preferred for scenarios 4, 5, and 6.
- 3. Stock holdings must reflect potential maximum stored on site, eg capacity of the container or tank that is to hold the chemical.

Contractor Requirements

The following details contractor requirements in Defence workplaces.

- 26. Ensure communication, coordination and cooperation mechanisms are in place between contractors and Defence supervisor/contract manager, emergency control organisation warden and the Base Senior Australian Defence Force Officer.
- 27. Ensure approval is obtained before bringing hazardous chemicals on site.
- 28. Ensure information is provided about any hazardous chemicals being brought into a Defence workplace.
- 29. Ensure a compliant safety data sheet is provided with first supply of any chemical delivered to a Defence establishment.
- 30. Ensure hazardous chemicals are subjected to the base/unit receipt process prior to introduction to the workplace.

- 31. Register hazardous chemical stock holdings in the Defence ChemAlert system, provide a copy of the hazardous chemicals register (and manifest where required) to the base emergency control organisation and ensure procedures are in place to maintain currency (Note 1).
- 32. Participate in Defence site induction and emergency training.
- 33. Ensure licensing requirements for contractor workers are met.
- 34. Familiarise themselves with emergency procedures and participate in drills.
- 35. Ensure safe work procedures are undertaken within the area of work in accordance with Defence policy and legislative requirements.
- 36. Undertake work in accordance with Defence policy and procedures.
- 37. Consult with base emergency control organisation regarding delivery details to Defence establishment, including types and quantities of hazardous chemicals to be delivered to a Defence workplace.
- 38. Provide assurance to Defence that safe work procedures are being undertaken and compliance is being met in relation to work involving the use, handling or storage of hazardous chemicals brought on to a Defence site.
- 39. Remove all chemicals from Defence premises when leaving daily unless arrangements have been made for their correct and safe storage.
- 40. Provide delivery docket at security gate for inclusion in the manifest should an incident occur while on base.
- 41. Ensure safe handling procedures are in place and followed for the delivery.
- 42. Follow delivery directions within the base and follow any instructions from the emergency control organisation.
- 43. Provide copies of audit plan and hazardous chemical audit reports in relation to hazardous chemical use, handling and storage within the workplace.
- 44. Identify and provide health monitoring for workers, where required, and/or participate in Defence health monitoring program.

Notes:

- 1. Refer to the table at paragraph 7 ChemAlert use by Contractors, registration of hazardous chemicals is mandatory for scenarios 1, 2 and 3 and preferred for scenarios 4, 5, and 6.
- 2. Partnering contractors must participate in the Defence emergency planning requirements for hazardous chemicals to maintain consistency. If they use their own system it must be equivalent to the Defence system and Defence must have visibility of arrangements.
- 3. Partnering contractors must have appropriate safe work procedures in accordance with Defence policy and procedures. Partnering contractors may use their own hazardous chemical procedures; however they must meet legislative requirements and Defence must have visibility of arrangements.
- 4. Embedded contractors are required to participate in Defence health and safety training.
- 5. Periodic maintenance contractors must have appropriate safe work procedures in accordance with regulatory requirements.

References and related documents

- 45. Work Health and Safety Act 2011
- 46. Work Health and Safety Regulations 2011
- 47. Australian Dangerous Goods Code, 7th Edition
- 48. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 49. Code of Practice Work Health and Safety Consultation, Co-operation and Co-ordination
- 50. Defence Base Emergency Plan and Incident Response Procedure templates
- 51. SafetyMan Defence Work Health and Safety and Consultative Arrangements Policy and Guidance

Annex

 Work Health and Safety Act 2011 - Part 1, Division 2, Subdivision 2, Section 7 – Meaning of a Worker

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Work Health and Safety Act 2011

Part 1, Division 2, Subdivision 2, Section 7 - Meaning of a Worker

7 - Meaning of worker

(1) A person is a *worker* if the person carries out work in any capacity for a person conducting a business or undertaking, including work as:

- (a) an employee; or
- (b) a contractor or subcontractor; or
- (c) an employee of a contractor or subcontractor; or
- (d) an employee of a labour hire company who has been assigned to work in the person's business or undertaking; or
- (e) an outworker; or
- (f) an apprentice or trainee; or
- (g) a student gaining work experience; or
- (h) a volunteer; or
- (i) a person of a prescribed class.
- (2) For the purposes of this Act, the Commissioner of the Australian Federal Police, a Deputy Commissioner of the Australian Federal Police or an AFP employee (all within the meaning of the *Australian Federal Police Act 1979*) is:
 - (a) a worker; and
 - (b) at work throughout the time when the person is on duty or lawfully performing the functions of the Commissioner of the Australian Federal Police, a Deputy Commissioner of the Australian Federal Police or an AFP employee, but not otherwise; and
 - (c) carrying out work for a business or undertaking conducted by the Commonwealth when the person is on duty or lawfully performing the functions of the Commissioner of the Australian Federal Police, a Deputy Commissioner of the Australian Federal Police or an AFP employee, but not otherwise; and
 - (d) an employee of the Commonwealth.
- (2A) For the purposes of this Act, a member of the Defence Force is:
 - (a) a worker; and

- (b) at work throughout the time when the person is lawfully performing the functions of a member of the Defence Force, but not otherwise; and
- (c) carrying out work for a business or undertaking conducted by the Commonwealth when the person is lawfully performing those functions, but not otherwise; and
- (d) an employee of the Commonwealth.
- (2B) For the purposes of this Act, a person who is the holder of, or acting in, an office established by a law of the Commonwealth or a law of a Territory (other than the Australian Capital Territory, the Northern Territory or Norfolk Island) is:
 - (a) a worker; and
 - (b) at work throughout the time when the person is lawfully performing the functions of that office, but not otherwise; and
 - (c) carrying out work for a business or undertaking conducted by the Commonwealth when the person is lawfully performing those functions, but not otherwise; and
 - (d) an employee of the Commonwealth.
- (2C) For the purposes of this Act, a person who constitutes, or is acting as the person constituting, a public authority is:
 - (a) a worker; and
 - (b) at work throughout the time when the person is lawfully performing the functions of that authority, but not otherwise; and
 - (c) carrying out work for a business or undertaking conducted by the public authority when the person is lawfully performing those functions, but not otherwise; and
 - (d) an employee of the public authority.
- (2D) For the purposes of this Act, a person who is, or is acting as, a member or a deputy member of a public authority is:
 - (a) a worker; and
 - (b) at work throughout the time when the person is lawfully performing the functions of the public authority, but not otherwise; and
 - (c) carrying out work for a business or undertaking conducted by the public authority when the person is lawfully performing those functions, but not otherwise; and
 - (d) an employee of the public authority.
- (2E) For the purposes of this Act, a person who is, or is acting as, a member or a deputy member of a body established by or under an Act establishing a public authority for a purpose associated with the performance of the functions of the public authority is:

- (a) a worker; and
- (b) at work throughout the time when the person is lawfully performing the functions of the body, but not otherwise; and
- (c) carrying out work for a business or undertaking conducted by the public authority when the person is lawfully performing those functions, but not otherwise; and
- (d) an employee of the public authority.
- (2F) The Minister may, by instrument in writing, declare that a person of a class specified in the declaration is, for the purposes of this Act:
 - (a) a worker; and
 - (b) at work throughout the time specified in the declaration; and
 - (c) carrying out work for a business or undertaking conducted by the Commonwealth, or a public authority specified in the declaration, when the person is performing functions of the kind specified in the declaration; and
 - (d) an employee of the Commonwealth, or a public authority specified in the declaration.
- (2G) A declaration under subsection (2F) may only be made in relation to a class of persons if persons of that class engage in activities or perform acts:
 - (a) where the declaration specifies that persons of that class are carrying out work for a business or undertaking conducted by the Commonwealth, or are employees of the Commonwealth:
 - (i) at the request or direction of the Commonwealth; or
 - (ii) for the benefit of the Commonwealth; or
 - (iii) by or under a law of the Commonwealth or of a Territory (other than the Australian Capital Territory, the Northern Territory or Norfolk Island); or
 - (b) where the declaration specifies that persons of that class are carrying out work for a business or undertaking conducted by a public authority specified in the declaration, or are employees of a public authority specified in the declaration:
 - (i) at the request or direction of the public authority; or
 - (ii) for the benefit of the public authority.
- (2H) A declaration under subsection (2F) has effect according to its terms.
- (3) The person conducting the business or undertaking is also a *worker* if the person is an individual who carries out work in that business or undertaking.



Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 31 - Assurance for Hazardous Chemicals

- 1. This procedure has been revoked.
- 2. It was determined that there was no need to have specific assurance policy for Hazchem after the <u>Defence Enterprise Work Health and Safety Assurance Framework</u> was published in May 2021. The framework is listed in the SafetyMan, <u>Work Health and Safety Assurance Policy</u> reference list. Also, see the WHS Branch <u>WHS Assurance page</u>.
- 3. If you have further Hazchem assurance questions, email dpg.whs@defence.gov.au marked 'Attention: WHS Assurance'.







Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 32 - Unit Hazardous Chemicals Register Assurance

- 1. This procedure relates to SafetyMan Hazardous Chemicals Management Policy and Guidance provides information on how to maintain the Defence workplace hazardous chemicals register (ChemAlert) to ensure the information remains up to date.
- 2. This procedure applies to all Defence workplaces where hazardous chemicals are used, handled or stored.

Hazardous chemicals register

- 3. ChemAlert is the mandated register for hazardous chemicals used, handled or stored by Defence units.
- 4. The Stock Holding module is to be populated and maintained as the electronic register for hazardous chemicals at each workplace.
- 5. Verification checks of the register to ensure it is up to date must be conducted, as a minimum annually, and more frequently if the volume of hazardous chemicals stored increases, or hazardous chemicals-related activity increases, or if new hazardous chemicals are introduced to the storage facility.
- 6. The following table outlines the steps included in the verification check and associated corrective actions.

Step	Action	
1	Open ChemAlert, log	in and access the Stock / Stock Holding module.
2	Check that all child sites visible under the user login comply with ChemAlert hierarchy site naming conventions.	
	Corrective action	The user is to correct any incorrect child site naming.
3	Check that the only o	hild sites visible under the user login are those which are:
	managed by the	e user;
	• multi-user sites	shared by the user; or
	 associated with identifying number 	a parent site displaying an Interim Business Information System per.
Note: Empty child sites will remain visible on ChemAlert but will not be displa Stock Holding reports.		es will remain visible on ChemAlert but will not be displayed in s.
	Corrective action	The user is to forward a request to Defence ChemAlert Administration team at <i>whs.hazchem@defence.gov.au</i> detailing required amendments.

Step	Action		
4	Select the stock holding area to be verified, print the <i>Stock Holding Report</i> and <i>Storage Incompatibilities Report</i> for that area.		
5	Conduct a physical check of hazardous chemical holdings against the storage plan and the <i>Stock Holding Report</i> to verify that the maximum hazardous chemical holdings approved for storage are recorded.		
	Notes:		
	ChemAlert is not an inventory management system. ChemAlert stock holdings indicate the maximum quantity approved for storage and which could likely be held at any time, not the amount actually held at a given time. Following are examples that illustrate proper recording of quantities in ChemAlert:		
	• a half-full 20 litre	e drum – record as 20 litres;	
	 a fuel tank holds on average 5 000 litres but has a 20 000 litre capacity – record as 20 000 litres; 		
	 five x 20 litre drums of a chemical, three are empty, one is full, one is a third full – record as 100 litres; and 		
	 a workplace usually holds 10 boxes of hexamine fuel blocks at 14kg per box, currently 3 boxes are in stock – record as 140 kg. 		
	Zero (0) quantities are not to be maintained in ChemAlert.		
	Corrective action	• The user is to amend the stock holdings to reflect all products held.	
		• The user is to amend stock holding quantities to reflect the maximum quantity approved for storage and which could likely be held at any given time, not the amount identified by stocktaking.	
		• The user is to delete the product from their stock holdings if the product is not held and the user does not intend to stock the product.	
6	Use the Stock Holdin stock measurement u	ng Report to note whether products are recorded with incorrect units.	
	Note: Stock measurement units displayed in the quantities column are provided by default when no other units have been defined and may be added or deleted by the user. The measurement 'unit' should only be used when referring to such items as batteries. Gas cylinders should be recorded by the quantity and cylinder size, eg 44 P Cyl.		
	Corrective action	The user is to amend the stock measurement units or request assistance from <i>whs.hazchem@defence.gov.au</i> detailing amendments required.	
		Note: Refer to ChemAlert User Manual (Stock Register Item Properties).	
7	Use the Stock Holdin consumer/office prod	ng Report to note whether non-hazardous chemicals or lucts are recorded.	

Step	Action		
	Corrective action	The user is to remove the non-hazardous chemicals or consumer/ office products from the stock holdings.	
		Note: Refer to SafetyMan – Hazardous Chemicals Management Procedure 04 - Exempt and Consumer Products.	
8	Refer to the Storage segregated and store	<i>Incompatibilities Report</i> to verify that all incompatible products are ed correctly.	
	Corrective action	The user is to review storage to ensure that all incompatible products are segregated and stored correctly.	
		Note: Refer to SafetyMan Hazardous Chemicals Management Procedure 17 - Storage of Hazardous Chemicals and SafetyMan – Hazardous Chemicals Management Procedure 18 - Minor Storage of Hazardous Chemicals.	
9	Check the 'stock stat has been approved f	cus' column of the <i>Stock Holding Report</i> to verify that the product or use within Defence.	
	Corrective action	If the hazardous chemical has not been approved, the user is to identify an alternative product that has been approved.	
10	Cross check the 'risk conduct a risk asses	status' column of the <i>Stock Holding Report</i> with the requirement to sment, and the status of that risk assessment.	
	Corrective action	The user is to confirm and update the ChemAlert risk status in accordance with ChemAlert Information Sheets.	
11	 Check the safety data sheets in the <i>Stock Holding Report</i> are compliant. Common issues include: Out-dated safety data sheets. The most recent review date on a safety data sheet must be within the last five years. Safety data sheets must comply with the <i>Work Health and Safety Legislation 2 and the Globally Harmonised System of Classification and Labelling of Chemic</i> 		
	Corrective action	• The user is to contact the supplier to obtain a compliant safety data sheet and forward a copy to <i>whs.hazchem@defence.gov.au</i> for updating ChemAlert. Where a user is unable to obtain a compliant safety data sheet they are to refer the issue to <i>whs.hazchem@defence.gov.au</i> for resolution.	
		 The user is to update all folders containing hard copies of safety data sheet. 	
		Note: Refer to SafetyMan – Hazardous Chemicals Management Procedure 10 - Registers for Hazardous Chemicals.	
12	Bulk update 'Stock H parent/child site(s).	lolding Next Audit Date' in ChemAlert to the next due date for the	
	Note: Refer ChemAlert User Manual (Update Audit/Entry Dates).		

St	tep	Action
13		Once all the above required steps and corrective actions have been completed, create and store a copy of the <i>Stock Holding Report</i> in Objective as evidence that the verification check was done.

- 7. While conducting the ChemAlert verification check users are likely to identify areas of noncompliance which should be corrected. Common non-compliances include:
 - 7.1. hazardous chemicals no longer in use or have life-expired. Action is required to dispose of these substances. Further information is in *SafetyMan Hazardous Chemicals Management Procedure 33 Disposal and Decontamination of Hazardous Chemicals and Waste.*
 - 7.2. damaged, obscured or non-compliant container labels. Replace deficient labels immediately after the verification check using the ChemAlert label printing function. Further information is in SafetyMan Hazardous Chemicals Management Procedure 26 Labelling of Hazardous Chemicals and ChemAlert Quick Reference Guide How to Print a Replacement Label.
 - 7.3. damaged or inappropriate containers. Deteriorating, damaged or inappropriate containers (eg food containers being used to store chemicals) must be replaced. Further information is in *SafetyMan Hazardous Chemicals Management:*
 - 7.3.1. Procedure 17 Storage of Hazardous Chemicals;
 - 7.3.2. Procedure 18 Minor Storage of Hazardous Chemicals; and
 - 7.3.3. Procedure 20 Containers for Decanted Hazardous Chemicals.
 - 7.4. non-compliant safety data sheet. Safety data sheets are to be compliant with the Work Health and Safety Regulations 2011. Further information is in the SafetyMan Hazardous Chemicals Management Procedure 11 Safety Data Sheets.

References and related documents

- 8. Work Health and Safety Act 2011
- 9. Work Health and Safety Regulations 2011
- 10. ChemAlert Quick Reference Guides and User Manual
- 11. Globally Harmonized System of Classification and Labelling of Chemicals, 3rd Edition
- 12. Hazardous Chemicals Hazard Reduction Program
- 13. SafetyMan Hazardous Chemicals Management:
 - 13.1. Procedure 04 Exempt and Consumer Products
 - 13.2. Procedure 10 Registers for Hazardous Chemicals
 - 13.3. Procedure 17 Storage of Hazardous Chemicals
 - 13.4. Procedure 18 Minor Storage of Hazardous Chemicals
 - 13.5. Procedure 26 Labelling of Hazardous Chemicals
 - 13.6. Procedure 33 Disposal and Decontamination of Hazardous Chemicals and Waste

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Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 33 – Disposal and Decontamination of Hazardous Chemicals and Waste

- 1. This procedure relates to SafetyMan, Hazardous Chemicals Management Policy and Guidance and provides work health and safety information and points of contact for the safe disposal and decontamination of hazardous chemicals and waste.
- 2. This procedure applies to all Defence workplaces where hazardous chemicals are used, handled or stored.

Disposal and decontamination criteria

- 3. Disposal should be considered in the following circumstances:
 - 3.1. the chemical use is unknown;
 - 3.2. stock is obsolete or expired;
 - 3.3. the chemical cannot be identified;
 - 3.4. waste material is contaminated with hazardous chemical/s;
 - 3.5. compliant safety data sheet cannot be obtained; or
 - 3.6. the container is damaged or leaking.
- 4. Prior to commencing disposal of hazardous chemicals and waste, the risks to health and safety must be identified so that the most appropriate disposal method can be determined in accordance with sections 22 to 24 of the *Work Health and Safety Act 2011*.
- 5. Refer to the safety data sheet and label to obtain hazard information and disposal requirements for hazardous chemicals and wastes or contact the manufacturer or supplier.
- 6. Some materials for disposal may present multiple hazards; hence, as much information as possible about the material should be obtained before disposal.
- 7. Decontamination should be considered in the following circumstances:
 - 7.1. occupational hygiene monitoring indicates that a hazardous chemical is present above the exposure standard trigger level;
 - 7.2. known harmful contaminants have built up within specific purpose-built facilities (ie paint booths) and require removal;
 - 7.3. previously unknown contaminants are found in a facility (ie an unpredicted find); or
 - 7.4. after a one-off contamination event.
- 8. Advice is also available from local safety advisors, base environmental health personnel and email Work Health and Safety Branch via dpg.whs@defence.gov.au
- 9. Information about decontamination and site rehabilitation requirements should be requested from the base Security and Estate Group (SEG) representative or via the Defence Environmental and Resource Management website.



Labelling and marking for disposal

10. The label shown in Figure 1 below must be applied to the container of hazardous chemical or waste identified for disposal.

moved until collection for disposal. Disposal is to be in accordance with the Defence Hazard Chemical Disposal Procedure.	This item has be	en identified and registered for disposal.
Chemical Disposal Procedure.	Disposal is to be in	e item must not be used or id until collection for disposal.
r information contact:	Ch	emical Disposal Procedure.
r internation conside.	a laformation conta	ct:
	or information conta	
egistration date: Registration number:	or information conta	

Figure 1: Awaiting disposal label

- 11. Any new label applied to a container must not obscure the original label on the container.
- Labels can be ordered from the Work Health and Safety Branch using form AE713 'Hazardous Chemicals Printed Resources' available from the Web Forms portal on the DRNet.
- 13. Update the status of the chemical stock holding in ChemAlert and the workplace hazardous chemical register to show 'for disposal'. At the same time arrange disposal through Security and Estate Group (SEG).

Labelling and marking for disposal of unknown substances

- 14. Containers with unknown contents should be isolated until their contents have been identified or the product is collected for disposal.
- 15. Every effort must be made to identify and appropriately label the container. The safety data sheet and ChemAlert provide information about the characteristics of chemicals and other information that may assist in identifying the contents. Expert assistance may also be sought to identify chemicals.
- 16. For assistance to identify unknown chemicals, the Defence ChemAlert administration team can be contacted by email whs.hazchem@defence.gov.au.
- 17. In the event that the contents of a container cannot be identified, disposal must be arranged.
- 18. In addition to the 'Awaiting Disposal' label an 'Unknown Substance' label, shown in Figure 2 below, must also be affixed to identify the contents as unknown.



Figure 2: Unknown substance label

19. Labels can be ordered from the Work Health and Safety Branch using form AE713 'Hazardous Chemicals Printed Resources' available from the Web Forms portal on the DRNet.

Storage of hazardous chemicals awaiting disposal

- 20. In general, hazardous chemicals and waste should be stored under the same conditions and class as non-waste materials and should remain in their current location until such time as they are collected for disposal.
- 21. Information about appropriate storage facilities can be obtained from the safety data sheet and from ChemAlert.
- 22. Where products are relocated to a central location for disposal, users must ensure that a dangerous mix is not created by their co-location which may require segregation. Hazardous chemicals must also be protected from adverse environmental conditions.
- 23. Observe the following requirements for storing hazardous chemicals and waste for disposal:
 - 23.1. establish storage in a restricted location away from critical infrastructure and buildings;
 - 23.2. provide secure storage and limit access to authorised personnel only;
 - 23.3. complete appropriate paperwork, including disposal register, and ensure everything is labelled appropriately;
 - 23.4. segregate in accordance with compatibility and hazardous chemical class;
 - 23.5. complete placarding and manifest requirements if required;
 - 23.6. inspect hazardous chemicals to identify any signs of leakage or changes in the container or in the chemical;
 - 23.7. provide adequate ventilation to reduce the accumulation of explosive or harmful vapours;
 - 23.8. observe maximum storage periods write the date of receipt and date of opening on containers of chemicals that are subject to deterioration;

23.9. label all containers to avoid substances becoming unknown wastes;

- 23.10. provide adequate storage bins, trays and shelves to store chemicals off the floor;
- 23.11. keep the store tidy at all times and keep walkways clear;
- 23.12. ensure visibility of labels at all times;
- 23.13. position waste containers to prevent leaks into storm water or drains;
- 23.14. provide bunding sufficient to contain any liquid in the event of an emergency spill or leak (bunding should provide storage that is 120% of the size of the container); and
- 23.15. provide emergency management and spill equipment and procedures.
- 24. Ensure that plant, pipework, equipment, containers or packaging for disposal:
 - 24.1. are free from hazardous chemicals or otherwise made safe prior to disposal;
 - 24.2. that are not free of hazardous chemical retain the labelling that identifies the residual hazard and are disposed of in accordance with the residual hazardous chemicals that may still be present; and
 - 24.3. that are no longer used and have been cleaned and are free from hazardous chemicals have their labels removed or obscured to avoid confusion as to the contents.

Hazardous chemicals and waste disposal functions

25. Table 1 outlines the steps required of the workplace controller leading up to a hazardous chemicals disposal.

Step	Action
Step 1 Log onto ChemAlert	 Go to the ChemAlert webpage on the Defence Protected Network to access ChemAlert. The ChemAlert 'Stock management' functions require a username and password.
Step 2 Update stock holding status	 Go to the 'Stock' module tab in ChemAlert, click on the 'Stock Holding' tab. Locate the item for disposal by 'Location' in the 'Stock holding'. Double click on the item to view the Stock holding item properties' and change the 'Stock status' to 'Disposal' then click 'OK'. Print a register of products for disposal; this register must be provided to the disposal contractor when the chemicals are collected from the workplace.
Step 3 Prepare item for disposal	 Ensure that the item for disposal is labelled with an appropriate disposal sticker attached to the container. A copy of the disposal report and safety data sheet should also be obtained for the contractor.

Table 1: Hazardous chemicals and waste disposal functions

Step	Action
Step 4 Organise disposal	 Disposal must be conducted by a SEG scheduled base level hazardous chemical and waste disposal service contractor and can be organised by: using the scheduled services provided in accordance with SEG and each Group or Service; and for unscheduled services, by viewing the SEG Waste Management page.
Step 5 Collection for disposal	 The following information and reports should be obtained from ChemAlert and provided to the disposal contractor on collection of items for disposal (as appropriate): ChemAlert report listing all stock holdings for disposal; a safety data sheet for each hazardous chemical or (contaminated) waste; <i>Emergency Procedure</i> Guide report for any dangerous goods being transported; and <i>Emergency Information Panel</i> – an emergency information panel when large quantities are being handled.
Step 6 Completion of disposal	Once the disposal is complete, remove the item from the stock holding list and file a copy of the disposal report in the workplace hazardous chemical register.

SEG disposal and decontamination responsibilities

- 26. SEG is responsible for:
 - 26.1. providing hazardous chemical waste removal and disposal from Defence establishments on a scheduled or fee-for-service basis (funded by the workplace controller), but excluding hazardous chemicals embedded in platforms, equipment and communications technology equipment; and
 - 26.2. cleaning hazardous chemical contaminated sites on a scheduled or fee-for-service basis (funded by the workplace controller).
- 27. SEG provides scheduled base hazardous chemical and waste disposal services under contract. Scheduled services are provided in accordance with agreements between SEG and each Group and Service. SEG is responsible for promulgating to Groups/Services when the scheduled waste disposal is being offered and the procedure for using this service.
- 28. Groups and Services can request unscheduled hazardous chemical and waste disposal and decontamination services through SEG by completing an Interim Business Intelligence System or Garrison Estate Management System work request. Interim Business Intelligence System is the transition system between Defence Estate Management System and Garrison Estate Management System. For the appropriate services to be delivered, the requesting Group/Service/unit/workplace must provide sufficient supporting information in the work request.

29. The requesting unit or workplace will authorise the work request arrangements, process and costs (if applicable) prior to commencement. SEG will provide an assurance that engaged contractors and subcontractors have appropriate certification, licences, induction and training to undertake hazardous chemical and waste disposal, in accordance with relevant Commonwealth, State and Defence policies.

Navy disposal

30. The disposal of hazardous chemicals from a naval ship should be arranged through the Regional Port Services Unit.

References and related documents

Work Health and Safety Act 2011

Waste Management page (SEG)

<u>Australian Code for the Transport of Dangerous Goods by Road & Rail</u> (ADG Code), Edition 7.7, 2020

<u>Globally Harmonized System of Classification and Labelling of Chemicals</u> (GHS), 7th edn (GHS 7). Purchase from the United Nations Bookshop. Although there is also a GHS 8, Australia adopted GHS 7 from 1 Jan 2021.

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Australian Government Department of Defence Defence People Group

Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 34 - Provision Of Information, Training And Instruction

1. This procedure relates to SafetyMan – Hazardous Chemicals Management Policy and Guidance applies to all Defence workplaces and provides guidance on the information, training and instruction required for workers who work in a workplace where hazardous chemicals are used, handled or stored.

Hazardous Chemicals Training Overview

- 2. Information, training, instruction and supervision must be provided to:
 - 2.1. workers who use, handle or store a hazardous chemical in the course of their work;
 - 2.2. workers who are likely to be exposed to a hazardous chemical in their workplace;
 - 2.3. supervisors of workers and/or contractors who use, handle or store hazardous chemicals;
 - 2.4. those who would provide immediate medical assistance, such as first aid attendants; and
 - 2.5. the unit/workplace Hazardous Chemicals Safety Adviser.
- 3. The mix of information, training, instruction and supervision provided will depend on the severity of the hazards and risks, and how much the Defence worker already knows about the hazardous chemicals. The levels of training to be provided are:
 - 3.1. initial/induction training to provide a general appreciation of the issues associated with handling hazardous chemicals;
 - 3.2. refresher training conducted at regular intervals, for currency of knowledge and/or qualifications if appropriate; and
 - 3.3. specialist training required for operators using hazardous chemicals that have a significant risk to health, safety and/or environment, and are typically relevant to job-specific hazardous chemical use.

Information, Training and Instruction Responsibilities

- 4. Training is to be carried out by qualified provider and is to be recorded on PMKeyS for ADF and APS personnel and in accordance with the Service or Group policy for contractors.
- 5. Defence Work Health and Safety Branch provide training for Defence workers covering generic hazardous chemical-related information; however, training in specific systems of work is the responsibility of the relevant Group or Service and are detailed in *SafetyMan Education, Awareness and Skilling Policy and Guidance.*



Defence Hazardous Chemicals Management System

- 6. The Defence Hazardous Chemicals Management System identifies a number of people who are able to provide information, training and instruction including:
 - 6.1. specialist hazardous chemical subject matter experts. There are subject matter experts within the Work Health and Safety Branch and Joint Health Command who can provide specialist advice or support the resolution/remediation of hazardous chemical issues. The following resources are available:
 - 6.1.1. occupational physicians accessible through Work Health and Safety Branch and Joint Health Command Directorate of Military Medicine;
 - 6.1.2. occupational hygienists accessible through Work Health and Safety Branch;
 - 6.1.3. toxicologists accessible through Work Health and Safety Branch; and
 - 6.1.4. other subject matter experts for hazardous chemical and dangerous goods, accessible through Work Health and Safety Branch.

Hazardous Chemicals Awareness Courses

- 7. The Defence Hazardous Chemicals Awareness on-line course is recommended for completion by all Defence workers who use, store, handle or specify hazardous chemicals. The course aims to provide trainees with introductory awareness and knowledge of the regulatory requirements, forms of hazardous chemicals, their effects on health, information sources and the basics of managing hazardous chemicals.
- 8. For most Defence workers, the awareness course is accessed through Campus, the Defence on-line learning system which operates via the Defence intranet. Contractors and other personnel can complete the course through 'Campus Anywhere' which operates via the internet.

ChemAlert Training Modules

- 9. The ChemAlert on-line training modules, available through Campus and Campus Anywhere, will continue as the primary form of training to use the ChemAlert application.
- 10. The titles and details of the six modules are:
 - 10.1. ChemAlert Quick Search (Campus code 00010153, PMKeyS code 214789, proficiency code P122294);
 - 10.2. ChemAlert Advanced Search (Campus code 00010151, PMKeyS code 214790, proficiency code P122295);
 - 10.3. ChemAlert Product Details (Campus code 00010152, PMKeyS code 214791, proficiency code P122296);
 - 10.4. ChemAlert Stock Holdings (Campus code 00010155, PMKeyS code 214793, proficiency code P122298);
 - 10.5. ChemAlert Stock Reports (Campus code 00010156, PMKeyS code 214794, proficiency code P122299); and
 - 10.6. ChemAlert Risk Assessment (Campus code 00010154, PMKeyS code 214792, proficiency code P122297).
- 11. Modules 1 to 3 are recommended for completion by all Defence employees and contractors.

12. Modules 1 to 6 are recommended for completion by all ChemAlert users who hold a read/write logon and are responsible for maintaining the workplace hazardous chemical register.

Hazardous Chemicals Handling and Storage Course

- 13. The Hazardous Chemicals Handling and Storage course trains Defence workers who are junior leaders or supervisors to safely handle and store hazardous chemicals in accordance with legislative requirements. The course provides the following detail on handling and storage of hazardous chemicals:
 - 13.1. legislative requirements;
 - 13.2. classification of hazardous chemicals;
 - 13.3. sources of information;
 - 13.4. handling hazardous chemicals;
 - 13.5. storing hazardous chemicals;
 - 13.6. emergency preparedness, response and incident reporting; and
 - 13.7. disposal of hazardous chemicals.
- 14. The course has a flexible delivery methodology. The courseware, including facilitator guide, PowerPoint presentation, participants course guide and other reference material may be accessed via the Work Health and Safety Branch intranet and can be used by unit level trainers, workplace supervisors and unit safety advisers to deliver instruction and assessment (at proficiency level) in hazardous chemical handling and storage.

Hazardous Chemical Safety Adviser Course

- 15. The Hazardous Chemicals Safety Adviser course comprises pre-requisites completed via Campus and an instructor-led component.
- 16. It is a requirement that every unit that handles, stores or uses hazardous chemicals has a trained Hazardous Chemicals Safety Adviser. Units with larger stocks of hazardous chemicals or with disparate geographic locations may require more than one Hazardous Chemicals Safety Adviser.
- 17. The 'Hazardous Chemicals Awareness' course (refer to para 8) and specified ChemAlert on-line modules (refer to para 10–11) are mandatory pre-requisites for the Hazardous Chemicals Safety Adviser course.

References and related documents

- 18. Work, Health and Safety Act 2011
- 19. Work Health and Safety Regulations 2011
- 20. Code of Practice Managing Risks of Hazardous Chemicals in the Workplace
- 21. SafetyMan Education, Awareness and Skilling Policy and Guidance
- 22. Hazardous Chemicals Handling and Storage Training Management Plan
- 23. Hazardous Chemicals Safety Advisor Training Needs Analysis.

Procedure 34 – Provision of Information, Training and Instruction

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Defence People Policy, SafetyMan

Hazardous Chemicals Management Procedure 35 - Handover and **Takeover of Hazardous Chemicals Responsibilities**

- 1. This procedure relates to SafetyMan – Hazardous Chemicals Management Policy and Guidance and provides information relating to hazardous chemicals management within Defence workplaces during handover/takeover periods.
- 2. This procedure applies to Defence units/workplaces that use, store and handle hazardous chemicals. This procedure applies to all commanders/managers and hazardous chemical appointment holders with health and safety responsibilities in Defence workplaces.

Hand over and take over responsibilities

- Each Group and Service maintains its own mandatory hand over/take over policies and 3. procedures. All hazardous chemicals and substances must be supplied and handled without risk to the health and safety of workers in line with Section 22 - 25 of the Work Health and Safety Act 2011.
- 4. The hand over and take over brief must be signed by the incoming commander/manager to demonstrate acceptance of responsibilities and awareness of issues, including:
 - 4.1. unit/workplace risk/hazard register (including hazardous chemical risks and hazards):
 - 4.2. outstanding corrective action requirements from work health and safety inspections or audits including those relating to hazardous chemicals,
 - 4.3. unit/workplace hazardous chemical standing instructions,
 - 4.4. manifest reporting requirements, and
 - 4.5. appointment of designated hazardous chemical management positions.
- The unit/workplace hazardous chemical safety advisor or other appropriately trained 5. unit/workplace hazardous chemical appointment holder must be available to provide unit/workplace hazardous chemical management advice to the incoming commander/manager at the time of acceptance.

Hazardous chemical safety advisor hand over and take over brief

- The outgoing hazardous chemical safety advisor is to provide the incoming hazardous 6. chemical safety advisor a verbal and written hand over and take over brief. The brief is to include:
 - 6.1. Written:
 - 6.1.1. preparation of a ChemAlert handover certificate (refer to para 9);
 - 6.1.2. copies of the previous hazardous chemical audit and unit/workplace inspection reports;
 - 6.1.3. details of ongoing investigations relating to hazardous chemicals; and
 - unit/workplace health and safety governance arrangements including the 6.1.4. name, membership, terms of reference and frequency of all work health and safety meetings/forums that appointment holders are required to attend.
 - Verbal: 6.2.

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- 6.2.1. the scope of the unit/workplace hazardous chemical management system (eg responsibility for other units, remote sub-units or detachments with responsibility for running their own system);
- 6.2.2. detailed explanation of the unit/workplace hazardous chemical standing instructions; and
- 6.2.3. unit/workplace performance against hazardous chemical key performance indicators mandated through the chain of command.

Subordinate hazardous chemical appointment holder hand over and take over brief

- 7. A subordinate hazardous chemical appointment holder is anyone in the unit who reports to the hazardous chemical safety advisor on hazardous chemical-related management issues, for example a supervisor who has a class 3 cabinet in their work area and has day to day responsibility for managing that cabinet.
- 8. Incoming subordinate hazardous chemical appointment holders require an awareness and understanding of their role. The hazardous chemical safety advisor is to ensure that all subordinate hazardous chemical appointment holders are appropriately briefed before they commence hazardous chemical duty.

ChemAlert handover certificate

9. A ChemAlert handover certificate is to be used by the outgoing unit/workplace member with primary responsibility for maintaining ChemAlert to handover ChemAlert responsibilities to the incoming member. The certificate form is on the *Work Health and Safety Branch Hazardous Chemicals ChemAlert webpage – <u>AE 757 ChemAlert Handover Certificate.</u>*

References and related documents

- 10. Work Health and Safety Act 2011, Section 22 25
- 11. Work Health and Safety Regulations 2011
- 12. Globally Harmonized System of Classification and Labelling of Hazardous Chemicals
- 13. Work Health and Safety Branch Hazardous Chemicals ChemAlert webpage

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