

Protocol: Hazardous Substances

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Table of Contents

Introduction.....	2
Definitions	2
Reporting lines for HSNO	5
Responsibilities	6
General safety requirements	8
Training	9
Signage.....	9
Security	10
Safe Methods of Use (SMOU)	10
Purchasing hazardous substances.....	13
Tracking	13
Storage	14
Labelling	16
Transportation	17
Event reporting	17
Emergency procedures.....	17
References and further reading	18
Appendices	20
Appendix 1: Trigger quantities for test certificates, approved handlers and tracking	21
Appendix 2: Quantities allowed in Exempt labs	24
Appendix 3 - List of Persistent Organic Pollutants.....	25
Appendix 4: Emergency signage trigger quantities	26
Appendix 5: Substances requiring tracking.....	28
Appendix 6: Incompatible substances.....	30
Appendix 7: UN pictograms and HSNO equivalents	33
Appendix 8: Overview of hazardous property classification system.....	36
Appendix 9: Position overviews	38
Laboratory Manager	38
Laboratory Facility Director/Manager	40

Introduction

Legislation The use and management of hazardous substances is largely governed by the Hazardous Substances and New Organisms (HSNO) Act and Regulations. Radioactive substances are covered by the Radiation Protection Act and regulations.

A list of the specific legislation referenced during the writing of this protocol is provided under References and Further Reading in this document.

Scope of this protocol This protocol covers the management and use of substances covered by the HSNO legislation, and other items such as the disposal of sharps and the management of compressed gases.

It does not cover:

- The safe use and management of radioactive materials as this is covered by another protocol.
 - The safe use of biological materials and micro-organisms in detail, instead giving only broad duties to Manager/Head due to specific MAF requirements. Specific roles and duties are covered by the MAF Containment and Quarantine Manuals for each department.
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Biological hazards As these hazards have very specific control requirements, governed by the Biosecurity Act, HSNO (for importation of new organisms) and AS:NZS 2243.3:2002 for accepted industry practice, these will not be covered in detail in this protocol.

Definitions

Hazardous substance Under HSNO, a hazardous substance is any substance that meets the threshold for any hazardous property in the legislation. These hazardous properties are:

- Explosive (Class 1)
- Flammable gas (Class 2)
- Flammable liquid (Class 3)
- Flammable/reactive/ dangerous when wet solid (Class 4)
- Oxidiser or organic peroxide (Class 5)
- Toxic (Class 6)
- Corrosive (Class 8)
- Ecotoxic (Class 9)

For the purposes of this protocol the definition of hazardous substance has been extended to include sharps.

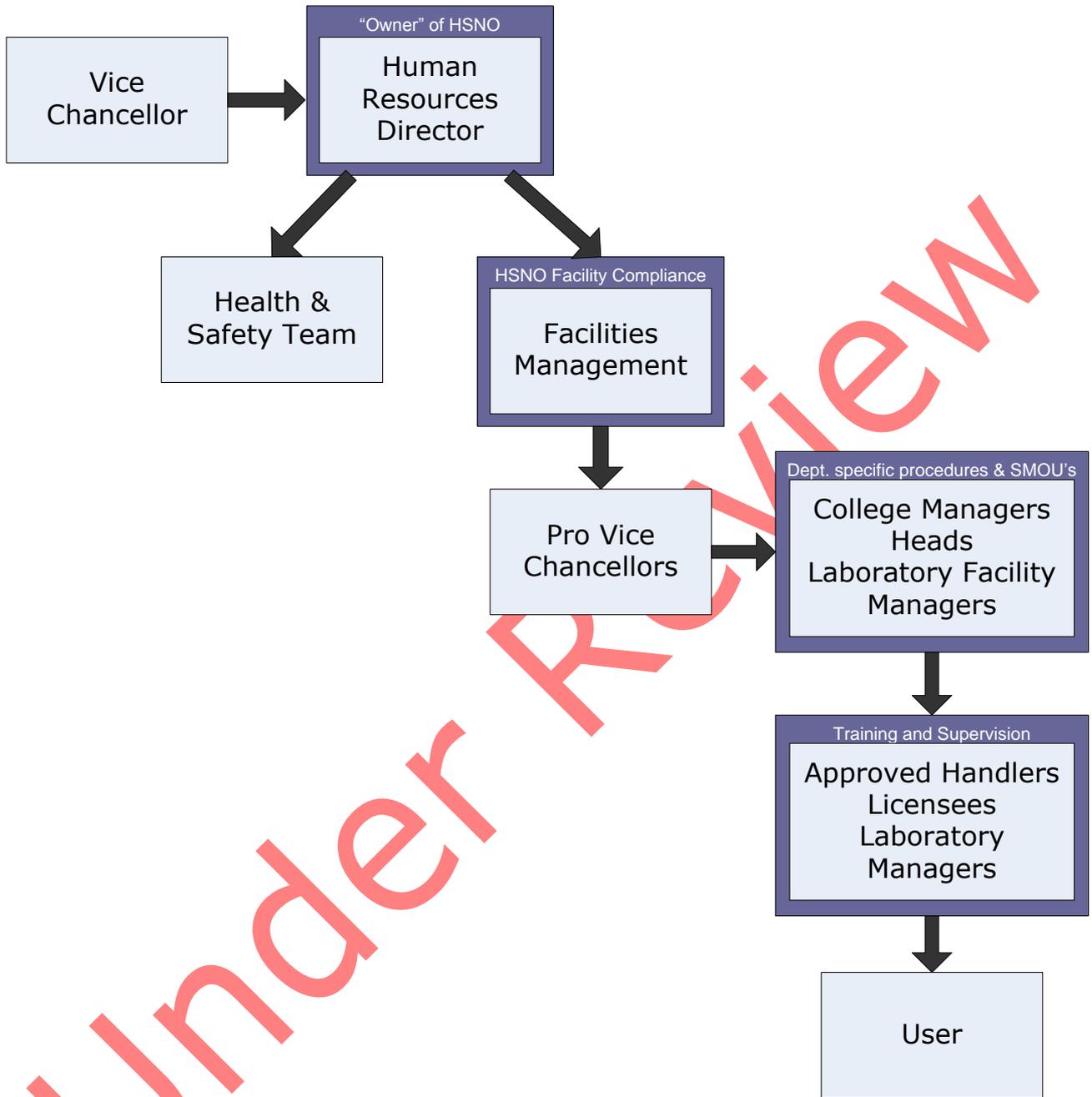
Class 7 has been kept for Radioactive substances under the UN transport regulations and is not covered by this protocol.

Class 6.2 is also omitted from HSNO legislation and this protocol as it is reserved for infectious materials. Infectious materials will be covered in a protocol to be developed for biologically hazardous materials.

Bio hazard	An actual or potentially infectious agent, (e.g. bacterial or viruses) that may harm a biological organism.
Safe Method of Use (SMOU)	<p>A document that gives specific information on the safe management, handling and use of a substance or class of substance. (Required under HSNO exempt lab provisions).</p> <p>Essentially this is a means of undertaking a hazard assessment and recommending appropriate hazard controls.</p>
Exempt laboratory	<p>A laboratory or facility that meets the requirements of the HSNO (Exempt Laboratories) Regulations 2001.</p> <p>Exempt laboratories do not have to obtain approvals for hazardous substances under the HSNO Act provided that:</p> <ol style="list-style-type: none"> 1. A substance, derivative or product is not sold from the lab. 2. The lab does not use any substances declined an approval under HSNO. 3. The hazardous substances are not being used in field trials. 4. The use of the substance does not create or involve a Persistent Organic Pollutant. 5. The lab has procedures and systems in place that meet the requirements of the HSNO (Exempt Laboratory) Regulations 2001.
Approved Handler	<p>A person certified to have the knowledge and experience specified in the HSNO Personnel Qualifications Regulations. Approved Handlers are required where hazardous substances are either present in significant amounts or are very hazardous. See Appendix 1 for a list of the hazardous substances.</p> <p>Approved Handlers must have a certain level of knowledge about the classes of substances they will be handling. This knowledge must be independently verified by an approved person. See Test Certifier below.</p> <p>Approved Handlers must be available or at the place where hazardous substances are used. They do not have to do all of the handling.</p>
Threshold	<p>The amount or level of hazardous property or concentration of a substance likely to cause an adverse effect on people or the environment. It is a trigger level for an effect that may require controls on the substance to meet the purpose of the HSNO Act.</p> <p>Thresholds can apply to substance properties as well as quantities.</p>
SDS	<p>Safety Data Sheet.</p> <p>A document providing information about the hazardous properties and safe handling of the substance including personal protective equipment, health effects and what to do in an emergency.</p>
Location Test Certificate	Where substances of Class 1, 2, 3, 4, or 5 (explosive, flammable and oxidising substances) are present above the threshold amounts, the location will need to be inspected to verify that the location meets the HSNO requirements. This approval is issued in the form of a Location Test Certificate.
Test Certifier	A qualified individual (under the HSNO Act) who has had approval to issue test certificates.

Classification	<p>The list of all the Classes, subclasses and categories in which the substance triggers the HSNO Hazardous Substances thresholds. A substance may have more than one hazardous property, e.g. toxic, ecotoxic and flammable.</p> <p>For example, the Classification for a Hydrochloric Acid (HCl) solution concentration of between 10 – 25% in water is: 6.1D, 8.1A, 8.2B, 8.3A, 9.3C</p> <p>This shows Toxic, Corrosive (metals, skin and eyes), and Ecotoxic properties.</p>
Persistent Organic Pollutant	<p>A substance defined by the Stockholm Convention Amendment Act 2003. These are listed in Appendix 3.</p>
Laboratory Manager	<p>An individual who is allocated responsibility for one or more exempt laboratories (rooms) and has specified duties and functions in respect to the HSNO Exempt Laboratories Code of Practice.</p>
Laboratory Facility Director	<p>A person designated as in charge of a HSNO Laboratory Facility and has specified duties and functions in respect to the HSNO Exempt Laboratories Code of Practice.</p>
HSNO Laboratory Facility	<p>A Laboratory facility that meets the requirements of the Hazardous Substances (Exempt Laboratories) Regulations. These facilities are generally a building (or part of a building) that contains multiple laboratory rooms.</p>
Person in Charge	<p>The owner, lessee, sublessee, person in possession, or person in effective control of the place, location, depot or any part of it. This is a legal definition.</p> <p>Also within the context of this protocol, refers to the individual/s delegated responsibilities for hazardous substances management outside of an exempt laboratory or laboratory facility.</p>
Workplace Exposure Standard (WES)	<p>Workplace Exposure Standard – Time Weighted Average (WES-TWA).</p> <p>The time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.</p> <p>Workplace Exposure Standard – Ceiling (WES-Ceiling).</p> <p>A concentration that should not be exceeded during any part of the working day.</p> <p>Workplace Exposure Standard – Short-Term Exposure Limit (WES-STEL).</p> <p>The 15-minute average exposure standard. Applies to any 15-minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply.</p>
Lower Explosive Limit (LEL)	<p>The level of concentration in percentage by volume in air above which explosion can occur upon ignition in a confined area.</p>

Reporting lines for HSNO



Responsibilities

Manager/ Head

The Head/Manager shall:

- Determine whether to operate as an Exempt Laboratory, Exempt Laboratory Facility or otherwise
 - Appoint Laboratory Facility Directors and Laboratory Managers in the event of exempt labs being opted for
 - Ensure the implementation of the HSNO requirements within their departments
 - Ensure sufficient resources are available for HSNO compliance and facilities provided are compliant with HSNO requirements
 - Ensure appropriate training is provided for those people using hazardous substances
 - Ensure procedures are developed and implemented for the purchase, use, storage and disposal of hazardous substances within their department
 - Ensure Location Test Certificates are obtained where needed, and Approved Handlers trained as required
 - Ensure tracking systems are in place for substances requiring tracking
 - Determine which individuals have the authority to purchase hazardous substances
 - Ensure procedures are developed for dealing with foreseeable emergencies
 - Ensure procedures are in place to notify the Health and Safety Manager of any events involving the use of hazardous substances
 - Ensure procedures and documentation are reviewed on a regular basis.
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Laboratory Manager

The Laboratory Manager shall:

- Be responsible for all hazardous substances contained within the laboratory
- Ensure all the provisions of the HSNO Exempt Laboratories Code of Practice are followed
- Develop and implement procedures for the purchase, storage, use, tracking, and disposal of hazardous substances
- Ensure that unapproved hazardous substances are handled and stored in the same way as a similar approved substance
- Ensure that appropriate Personal Protective Equipment (PPE) is provided and people are aware of how to use and maintain it
- Ensure people wear Personal Protective Equipment (PPE)
- Ensure that any equipment used to handle, or that comes into contact with, hazardous substances is in good working order, does not leak and people have access to information on correct use of the equipment
- Regularly review procedures and Safe Methods of Use.

See Appendix 9 for a full description of the Laboratory Manager role.

Laboratory Facility Manager The Laboratory Facility Manager shall ensure compliance with the provisions of the HSNO Exempt Laboratories Code of Practice.

This largely relates to assigning responsibilities and a management structure around the management and compliance of the laboratories within the exempt laboratory facility.

See Appendix 9 for a full description of the Laboratory Facility Manager role.

Person in Charge The Person in Charge shall comply with the provisions of the HSNO Act and Regulations, and relevant Codes of Practice.

These duties mirror those of the Laboratory Manager, but applied in a non-exempt-laboratory setting.

Individuals Individuals shall:

- Use hazardous substances safely by following existing procedures for the safe use and disposal of substances
- Attend required training
- Alert the Laboratory Manager or Person in Charge to any new substances being introduced into the department or laboratory, and determine whether they are covered by an existing SMOU or a new SMOU needs to be developed
- Use required Personal Protective Equipment
- Ensure exposure to the hazardous substance is kept to the lowest practicable level.

Approved Handler The Approved Handler shall:

- Supervise non-approved handlers handling hazardous substances triggering the Approved Handler requirements
- Ensure their Approved Handler Test Certificate is up to date.

Note: supervision is understood to be that the approved handler is aware of who is accessing the store, has approved access by that individual and is available in the same building.

General safety requirements

HSNO Classification

To find a HSNO Classification on the EPA website:

1. Go to <http://www.epa.govt.nz/Pages/default.aspx>
2. Type in the name of the substance you wish to search for and click **Search**.
3. Your substance or a list of substances should display.
4. Select the substance you are looking for.

Alternatively this information can be found on SDS in Chemwatch, accessed from the University H&S Intranet page.

Declined substances

Declined substances under the HSNO Act cannot be used in exempt laboratories.

Lists & maps of Exempt Labs or Facilities

Lists of exempt laboratories and exempt laboratory facilities shall be developed and kept up to date. Eventually it is intended that all exempt laboratories and laboratory facilities will be marked on the emergency maps.

Laboratory fittings and equipment

Equipment and fittings in the laboratory (e.g. fume cupboards, glassware, laboratory instruments) must comply with relevant standards. The equipment must be suitably maintained and users trained in their use.

Work after Hours

The following practices should be observed when working after hours, i.e. before 8am and after 6pm:

- The laboratory manager should be notified that someone intends to work in the laboratory after hours. Emergency contact details must be made easily accessible within the laboratory.
 - Where highly corrosive, highly reactive, highly toxic or high quantities of flammable substances are being used, the person undertaking the work must discuss with the Laboratory Manager whether it is safe for the work to be conducted after hours. If deemed to be safe, then the Laboratory Manager should issue their permission for the work to go ahead after hours.
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Housekeeping

Each laboratory, laboratory facility or area where hazardous substances are handled, used or stored must have a standard in place outlining expected standards of housekeeping.

Personal Protective Equipment

Each department shall ensure that appropriate protective equipment is available for those that require it for using and handling hazardous substances. This includes putting rules in place for individuals visiting areas where hazardous substances are used or stored, and for students doing coursework.

Specific requirements for personal protective equipment shall be given in the Safe Methods of Use for each substance type, or in specific individual SMOUs for highly hazardous substances/tasks.

Refer to the *Protocol: Personal Protective Equipment* for further information.

Training

Requirements People handling hazardous substances need to have knowledge of:

- the hazardous properties of the substance
- precautions for its use
- where to find more information about the substance
- how to dispose of the substance or its products correctly.

In most cases, the SMOU will provide this information.

Approved Handlers

For substances triggering the approved handler requirements, the person handling them must:

- be an approved handler (for some substances), or
- work under the supervision of an approved handler.

Approved Handlers must be trained by a Test Certifier.

See Appendix 1 for the classifications and threshold quantities for substances requiring an approved handler.

Signage

Signage – Exempt Laboratories

All entrances to the exempt laboratory (which may be a building) shall be clearly marked with a sign worded “**Entry for Authorised Persons Only**” or similar wording. Font size at least 20mm but preferably 35mm.

Every entrance to the HSNO Exempt Laboratory Facility shall have signage advising an emergency action code (e.g. HAZCHEM signage) and UN class labels for the hazards within the HSNO laboratory facility. This is to assist and protect emergency services responding to an emergency in the facility.

Signage – hazardous substances locations

Locations of hazardous substances shall be marked with UN Class labels or suitable pictograms. See Appendix 7 for examples.

Security

Locking & supervision

Exempt labs and lab facilities shall be kept locked when unattended to prevent unauthorised access.

Exempt labs and lab facilities shall be supervised at all times when unlocked. Visitors to the laboratory must be supervised at all times.

Authorised access

Personnel authorised to be in an exempt laboratory include (but may not be limited to) the following:

- Laboratory and academic staff with a knowledge of the activities or processes carried out within the laboratory
 - Cleaning and maintenance personnel
 - Students who have completed the laboratory induction.
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Safe Methods of Use (SMOU)

General

A Safe Method of Use (SMOU) should contain information regarding the safe use, storage (including secondary containment), handling and disposal of the substance. This information must comply with the HSNO Exempt Laboratories Code of Practice.

Specific SMOU shall be developed for substances or procedures identified by the University as high risk. The information provided for these substances or procedures must be a higher level of detail than in a generic SMOU.

Safe methods of use should be developed for higher risk substances or procedures. Higher Risk substances means substances classified as any of the following: 6.1A, 6.1B, 6.1C, 6.7A, 3.1A, and 8.2A. Procedures of high risk are those where there is a high inhalation exposure, chronic inhalation exposure, or large quantities of the hazardous substance are involved.

Departments may develop a specific SMOU for any substance or process where they believe sufficient justification exists.

SMOU shall demonstrate that the Lab Manager or Facility Manager has identified the hazardous properties of the substance/s and that appropriate measures have been implemented to minimise any potential risk.

SMOU shall identify the hazardous properties or the likely hazardous properties based on the best information or data available. The SMOU shall reduce the risk to an acceptable level based on experience and prudent laboratory practice.

SMOU shall be kept in the laboratory and be readily available. A centralised database available in the lab or where the substance is used meets this requirement.

**Generic SMOU
– substance
hazard
information
requirements**

Generic Safe Methods of Use shall be developed to cover the main classes of hazardous substances. In addition to safe use, storage, disposal, handling and hazardous properties information, Generic SMOU must contain:

- Information regarding which fume cupboards the substance may be used in
- Procedures to ensure that the exposure to the substance is kept to as far below the Workplace Exposure Standard as possible
- Where applicable, information regarding the maintenance and repair of any equipment or apparatus associated with use of the substance
- Procedures in the event of a spill or other likely adverse effect
- Procedures for the handling of containers of the substance
- Provisions for secure storage of the substance
- Information on the use of personal protective equipment (e.g. gloves, safety glasses) and emergency equipment (e.g. spill kits) provided for use with the substance
- Evaluation of special personnel requirements, e.g. pregnant women, working alone
- Any special emergency procedures required outside the scope of the usual emergency plans.
- Reference to the appropriate Safety Data Sheet and where this can be found.

Specific SMOU

Specific safe methods of use should be developed for highly hazardous substances or substances used in very high quantities.

Highly hazardous substances means substances classified as any of the following: 6.1A, 6.1B, 6.1C, 6.7A, 3.1A, and 8.2A.

Specific SMOU are particularly important where a generic SMOU would not contain sufficient detail to ensure safe handling of the substance.

In preparing a SMOU for substances or procedures of high risk, account must be taken of all the matters required for the generic SMOU. Particular attention must be paid to the following:

- Safe and secure storage of the substance and appropriate containment if the substance is a liquid
- An evaluation of the capabilities of fume cupboards available for use with the substances, and if fume cupboards can be safely used for storage.
- Specific consideration to ensure that the concentration in air does not exceed the WES. Where concentration exceeds 50% of the WES, then an exposure monitoring programme must be implemented.

- For flammable substances, the concentration in air must be maintained below 10% of the LEL.
- Specific procedures for spill response or other likely adverse effect, including medical emergencies.
- Consideration given to substitution with a substance that poses a lower risk.
- Specific instruction on the use of spill equipment, the use of absorbent material and reinstatement of containment.
- Specific instruction on the use of personal protective equipment, including a specific evaluation of the types of glove materials for handling the substance.
- Specific evaluation of special personnel requirements (e.g. work alone, pregnancy) for people working in the lab with the substance or procedure.
- Any special emergency responses required.

In addition, a full Safety Data Sheet should be provided for each highly hazardous substance or high risk procedure.

Substances with Unknown Properties

Inference of the properties of a substance with unknown properties can be made from the chemical structure and the hazardous properties of chemically similar substances. The precautions outlined in the appropriate Safe Method of Use for substances of the inferred properties should be followed. If closely related substances are acutely toxic or carcinogenic, then the unknown compound should also be treated as such.

**General procedures/
Hazard Management**

Areas outside of exempt laboratories or laboratory facilities should have either procedures for managing hazardous substances containing the same information as the SMOU, or have the handling and use of the substances incorporated in the area's hazard management plan.

Purchasing hazardous substances

Authority Only people with the delegated authority to purchase hazardous substances may purchase them. Departments must have a formalised standard operating procedure in place for purchasing of hazardous substances.

Purchasing procedures must cover:

- Delegated authorities
- Individuals/positions entitled to purchase
- What documentation is required
- Sign-off and authorisation process
- A separate approval for high hazard substances (e.g. those requiring tracking)
- Record keeping of purchases.

Supplies may only be purchased from approved suppliers.

Verification of compliance In the event a supplier asks to see evidence of HSNO compliance, the request should be forwarded to the Health and Safety Manager.

Tracking

What is tracking? Tracking is the recording of what happens to hazardous substances throughout their lifecycle, from the point of import or manufacture in New Zealand, through distribution and transport to the point of use and/or disposal.

Purpose of tracking A tracking record ensures that:

- Highly hazardous substances are under the control of appropriate trained people (approved handlers).
- There is a record of the location of the substance.
- Explosives, flammable and oxidising substances (Class 1-5), above a certain quantity, are stored at a site with a Location Test Certificate.
- Information is available for managing emergencies involving the substances.
- Enforcement officers can identify who is responsible for the hazardous substance at any time.

Responsibility The person in charge of the site where the tracked substance is stored is responsible for keeping the requisition and tracking records.

Substances must only be issued to people authorised by the department.

Tracking Record requirements

The tracking record must contain:

- Name and quantity of the substance
- Exact location of the substance
- Name and contact details of the approved handler in control of the substance
- Details of any transfers of the substance to another location
- Details of use, treatment or disposal of the substance, including accidental spills.

Note: a detailed list of substances requiring tracking is provided in Appendix 5: Substances requiring tracking.

Retention of tracking records

The tracking record must be kept for:

- one year from the date of transfer, if the substance is transferred to another location
 - three years, if the substance has been disposed of, or treated, so that it is no longer a tracked substance.
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Transfer

Before a tracked substance is transferred to another location the Person in Charge responsible for the transfer must ensure that the receiving site has the appropriate Approved Handler, Location Test Certificate, if required, and complies with the emergency requirements and transit depot requirements of the hazardous substances regulations.

Sale or trade

Exempt laboratories are not permitted under the HSNO legislation to sell or trade any hazardous substances, unless it is to another exempt laboratory.

Storage

Specific requirements

See Appendix 1 for a table giving the quantities of the various classifications of substance with specific storage provisions.

Segregation

Incompatible substances should be segregated. Please see Appendix 6 for a list of incompatible substances.

Bench top storage

Quantities stored on bench tops should be kept to a minimum.

Bottles and jars of ready-to-use reagents stored on benches or shelves between benches should not exceed:

- 1 litre capacity for Category A hazardous substances
 - 2.5 litres capacity for all other hazardous substance categories.
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Storage cabinets and Refrigerators

Storage cabinets should have secondary containment (e.g. plastic trays for corrosive substances and metal trays for organic solvents) if they are used to store pooling or incompatible substances.

No more than 100 litres should be stored in any one cabinet and secondary containment shall be able to retain at least 50% of the contents of the cabinet.

Storage cabinets and refrigerators should be secured to prevent them from toppling over, and have their doors latched to prevent them from swinging open in a moderate earthquake.

Cabinets storing incompatible substances must be separated by 1 metre horizontally or half a metre if there is secondary containment within each cabinet.

Inventory requirements

A record shall be kept of all primary containers containing chemicals. Each department will have their own way of managing this until a campus wide unified system is adopted.

The contents of working containers and reaction vessels should be identified on the container or vessel (but not necessarily recorded on any inventory document).

Labelling

Reagents

Containers of reagents used in the laboratory, or held in small containers in the laboratory, must be labelled with the following information:

- The identity of the substance
- The concentration (if applicable)
- For unapproved substances, a brief warning about the hazardous properties, if known
- For approved hazardous substances of classifications in the table below, a brief warning of the hazardous properties.

HSNO Classification	Information Requirements
1.1, 1.2, 1.3, or 1.4	Explosive + Hazard Classification
3.1A, 3.2A	Highly flammable liquid, or UN Class 3 label
4.1.2A, 4.1.2B, 4.1.3A, 4.2A, 4.3A	Flammable + physical state + general type of hazard (e.g. flammable solid, dangerous when wet), or conveyed by the UN Class label
5.1.1A	Oxidising or UN Class 5.1 label
5.1.2A	Oxidising gas
5.2A, 5.2B	Oxidiser, Organic Peroxide or UN Class 5.2 label
6.1A, 6.1B, 6.1C	UN Class 6 label
8.2A, 8.3A	Corrosive or UN Class 8 label
9.1A, 9.2A, 9.3A, 9.4A	Ecotoxic

Working containers

Working containers are containers used to contain hazardous substances for 48 hours or more.

Contents of these shall be identified by the concentration and identity of the hazardous substance, or by a code that can be cross referenced to provide information on the identity and concentration of the contents.

Reaction vessels

Contents of reaction vessels should be identifiable. An identification code on the reaction vessel that can be cross referenced to provide information on the reactants and the probable or intended products may be used to identify the contents of the vessel.

The reaction vessel shall be labelled where the reactants remain in the vessel for more than 24 hours.

Transportation

Off Campus

Transportation of hazardous substances off campus must be carried out by an approved company with the required facilities and licences.

An approved company will be an approved University of Canterbury supplier and the drivers will hold the appropriate licenses for transporting hazardous substances, with the vehicles used carrying the appropriate signage.

Within Campus

Carriage of small quantities of hazardous substances must be undertaken safely and according to departmental standard operating procedures. These must be carried personally on foot using an appropriate carrier (e.g. a carrier for Winchesters).

In general, quantities of hazardous substances must not be transported in passenger lifts. If lift transport necessary, a hazard risk assessment must be completed.

Event reporting

Notification

All events (including injury and non-injury events) must be notified to the Health and Safety Manager, as soon as possible. The Health and Safety Manager will then make any external notifications as required. See the Report an Event process on the H&S Toolkit.

Emergency procedures

Spills

Small spills must be cleaned up immediately.

Where reasonable quantities of hazardous substances are used, departments must:

- provide spill kits
 - prepare spill procedures
 - have people trained in spill cleanup
 - have Personal Protective Clothing and Equipment available for spill cleanup.
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UC Wide emergency procedures

The University Emergency Procedures flipchart outlines the following emergency procedures:

- Procedure for Hazardous Materials Alert
 - Procedure for Gas Leak
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Emergency signage	Emergency signage (giving instruction on what to do in an emergency) is required for substances in quantities exceeding those stated in Appendix 4.
	Rooms containing hazardous substances equal to or exceeding the quantities in Appendix 4 shall have the signage " Laboratory " or " Hazchem " at every entrance. They shall also have appropriate UN Class labels or suitable pictograms.
Emergency equipment	Fire extinguishers of the appropriate type must be placed in departments in sufficient numbers and be regularly checked. The appendices of the HSNO Emergency regulations dictate quantities that trigger various levels of emergency controls but these should already have been catered for in existing emergency plans.

References and further reading

Acts	Hazardous Substances and New Organism Act 1996
	Biosecurity Act 1993
Regulations	Hazardous Substances (Exempt Laboratories) Regulations 2001
	Hazardous Substances (Classes 1 – 5 Controls) Regulations 2001
	Hazardous Substances (Classes 6, 8 and 9 Controls) Regulations 2001
	Hazardous Substances (Tracking) Regulations 2001
	Hazardous Substances (Emergency Management) Regulations 2001
	Hazardous Substances (Personnel Qualifications) Regulations 2001
Codes of Practice/ Standards	Approved Code of Practice for Exempt Laboratories
	AS/NZS 2243.3:2002 Safety in Laboratories, Pt 3 Microbiology
Guidelines	EPA User Guide to HSNO Thresholds and Classifications
H&S Toolkit	Process: Manage Hazardous Substances
	Process: Conduct Hazardous Substances Management Audit
	Process: Dispose of Hazardous Waste
	Process: Obtain and Use Personal Protective Equipment
Protocols	Protocol: Hazardous Waste Disposal
	Protocol: Personal Protective Equipment

**Safe Methods
of Use
(SMOU)**

Laboratory Work Practices
Personal Protective Equipment
Storage of Chemicals in the Laboratory
HSNO Class 2 Gases
HSNO Class 3.1 – Flammable Liquids
HSNO Class 4 – Reactive Substances
HSNO Class 5.1 – Oxidising Compounds
HSNO Class 5.2 – Organic Peroxides
HSNO Class 6.1 – Acutely toxic compounds
UN Class 8 – Corrosive Chemicals
Mercury Spills
Disposal and Decontamination of Ethidium Bromide
Formaldehyde
Cryogenic Liquids
Workshop and Art Studios
Chronic toxicity
Hazardous Substances of Higher Risk 1 – Picric Acid
Hazardous Substances of Higher Risk 2 – Hydrofluoric Acid
Hazardous Substances of Higher Risk 3 - Concentrated phenol
Hazardous Substances of Higher Risk 4 - Peroxide forming chemicals

Appendices

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Under Review

Appendix 1: Trigger quantities for test certificates, approved handlers and tracking

Applicable for areas NOT designated an Exempt Laboratory.

Note: if the classification is absent from this table, there are no requirements for location test certificates, approved handlers or tracking, regardless of the quantity.

Class	Location Test Certificate	Approved Handler	Tracking
Flammable Gases & Aerosols			
2.1.1 Flammable Gases			
2.1.1A	100 m ³ (perm gas) 100 kg (not perm gas)	100 m ³ (Perm gas) 100 kg (not perm gas)	
2.1.1B	100 kg		
2.1.2 Flammable Aerosols			
2.1.2A	3000 L (aggregate water capacity)	3000 L	
Flammable Liquids			
3.1 Flammable Liquids			
3.1A	20 L	Any quantity	Yes
3.1B	<i>Closed containers</i> 100 L (Containers >5L) 250 L (Containers ≤5L) <i>Open containers</i> 50 L	250 L (containers >5L) 500 L (containers ≤5L)	
3.1C	<i>Closed containers</i> 500 L (Containers >5L) 1500 L (Containers ≤5L) <i>Open containers</i> 250 L		
3.2 Liquid Desensitised Explosives			
3.2A	1 L	Any quantity	Yes
3.2B	1 L	100 L	
3.2C	1 L		
Dangerous Solids			
4.1.1 Readily Combustible Solids			
4.1.1A	1 kg	100 kg	
4.1.1B	100 kg		
4.1.2 Self Reactive Solid			
4.1.2A	1 kg	Any quantity	Yes
4.1.2B	1 kg	Any quantity	Yes
4.1.2C	25 kg	25 kg	
4.1.2D	25 kg	25 kg	

Class	Location Test Certificate	Approved Handler	Tracking
4.1.2E	50 kg	50 kg	
4.1.2F	50 kg	50 kg	
4.1.2G	50 kg		
4.1.3 Desensitised Explosive			
4.1.3A	1 kg	Any quantity	Yes
4.1.3B	1 kg	100 kg	
4.1.3C	1 kg		
4.2 Spontaneously Combustible			
4.2A	1 kg	Any quantity	Yes
4.2B	25 kg	100 kg	
4.2C	25kg		
4.3 Dangerous When Wet			
4.3A	1 kg	Any quantity	Yes
4.3B	25 kg	100 kg	
4.3C	50 kg		
Oxidisers			
5.1.1 Oxidising Liquids and Solids (with class 5 HSL established at thresholds stated but LTC only needed at the closed amounts).			
5.1.1A	<i>Kept closed</i> 50 kg or 50 L <i>Manufactured or Used</i> 5 kg or 5 L	Any quantity	Yes
5.1.1B	<i>Kept closed</i> 500 kg or 500 L <i>Manufactured or Used</i> 50 kg or 50 L	500 kg or 500 L	
5.1.1C	<i>Kept closed</i> 1000 kg or 1000 L <i>Manufactured or Used</i> 100 kg or 100 L	1000 kg or 1000 L	
5.1.2 Oxidising Gases			
5.1.2A	<i>Kept closed</i> 200 m ³ (perm gas) 100 kg (not perm gas) <i>Manufactured or Used</i> 50 m ³ (Perm gas) 50 kg (not perm gas)	200 m ³ (perm gas) 250 kg (not perm gas)	
5.2 Organic Peroxides (HSL is the first amount, LTC the second amount)			
5.2A	Any quantity 10kg	Any quantity	Yes
5.2B	1 kg 10kg	Any quantity	Yes

Class	Location Test Certificate	Approved Handler	Tracking
5.2C	10 kg 25kg	10 kg or 10 L	
5.2D	10 kg 25kg	10 kg or 10 L	
5.2E	25 kg 100kg	10 kg or 10 L	
5.2 F	25 kg 100kg	10 kg or 10 L	
Toxic			
6.1 Acutely Toxic			
6.1A		Any quantity	Yes
6.1B		Any quantity	Yes
6.1C		Any quantity	Yes
6.7 Carcinogen			
6.7A		10 kg or 10 L	
Corrosives			
8.2 Skin Corrosive			
8.2A		Any quantity	
Ecotoxic			
9.1 Aquatic Ecotoxicity			
9.1A		Any quantity	Yes
9.2 Soil Ecotoxic			
9.2A		Any quantity	Yes
9.3 Vertebrate Ecotoxic			
9.3A		Any quantity	Yes
9.4 Invertebrate Ecotoxic			
9.4A		Any quantity	Yes

N.B Individual substances may have variations e.g. petrol; refer to the EPA controls for approved substances database.

Appendix 2: Quantities allowed in Exempt labs

Substance type	Storage cabinets	Other requirements
3.1 A and 3.1 B	<ul style="list-style-type: none"> Spark proof refrigerators (thermostats externally mounted, light fittings removed) Refrigerator labelled as suitable for use with flammable substances 	<ul style="list-style-type: none"> Flame proof cabinet required Quantities stored in lab to be kept to a minimum No more than 100 litres of flammable substances to be stored in any one cabinet Secondary containment to hold 50% of the cabinets contents
3.1 C and 3.1 D	<ul style="list-style-type: none"> As above Solid timber cabinet with secondary containment is satisfactory 	
Compressed gases	<ul style="list-style-type: none"> No more than 2 cylinders of each formulation of gas should be stored adjacent to each instrument 	<ul style="list-style-type: none"> Quantities stored in lab to be kept to a minimum Cylinders tethered to immovable objects or rendered immobile in gas bottle stands Bulk storage of cylinders to be in well ventilated areas
Class 5 substances	<ul style="list-style-type: none"> Must be segregated from Class 3 and Class 4 substances 	
Waste Hazardous Substances	<ul style="list-style-type: none"> Waste solvents should be kept in a storage cabinet, unless the atmosphere is ventilated, or containers are self closing and have a flash arrestor 	<ul style="list-style-type: none"> In laboratories – these must not exceed 5 litres for category A substances or 20 litres for all other categories Shall not be placed on the floor under or between benches, in walkways or corridors (unless the containers are attached to analytical equipment) If not stored in cabinets, must have secondary containment

Appendix 3 - List of Persistent Organic Pollutants

Containment approval from EPA required

The HSNO Act was amended in 2003 to bring it into line with the legal requirements of the Stockholm Convention. This amendment, which came into force on 23 December 2004, prohibits or restricts the importation and use of certain POPs in New Zealand. One of the effects of this amendment is that a containment approval must now be obtained from EPA New Zealand by any laboratory that currently holds, or wishes to import or manufacture, certain POPs for use as an analytical standard or for research.

The relevant POPs are:

- Aldrin
 - Chlordane
 - DDT (1,1,1-trichloro-2,2-bis(chlorophenyl)ethane)
 - Dieldrin
 - Endrin
 - Heptachlor
 - Hexachlorobenzene
 - Mirex
 - Toxaphene
 - Polychlorinated biphenyl
 - Polychlorinated dibenzodioxins
 - Polychlorinated dibenzofurans
-

Appendix 4: HSNO signage trigger quantities

Note: explosives are not specified in this table due to the low quantities stored and used at UC.

Kinds of Substances	Hazard Classification	Quantity (in total)
Flammable Substances	2.1.1A	250 kg non-permanent gas 100m ³ permanent gas
	2.1.1B	500 kg non-permanent gas 200m ³ permanent gas
	3.1A, 3.2A, 4.1.3A, 4.2A, 4.3A	50 L liquids 50 kg solids
	3.1B, 3.2B, 4.1.3B, 4.2B, 4.3B	250 L liquids 250 kg solids
	3.1C, 3.2C, 4.1.3C, 4.2C, 4.3C	1000 L liquids 1000 kg solids
	3.1D	10 000 L liquids
	4.1.1A	250 kg solids
	4.1.1B	1000 kg solids
	4.1.2A, 4.1.2B	50 kg solids
	4.1.2C, 4.1.2D	250kg solids
	4.1.2E, 4.1.2F, 4.1.2G	1000 kg solids
Oxidising substances	5.1.1A	50 L liquids 50 kg solids
	5.1.1B	500 L liquids 500 kg solids
	5.1.1C	1000 L liquids 1000 kg solids
	5.1.2A	250 kg non-permanent gas 500m ³ permanent gas
	5.2A, 5.2B	1 L liquids 1 kg solids
	5.2C, 5.2D, 5.2E, 5.2F	10 L Liquids 10 kg solids
Toxic Substances	6.1A	50 L liquids 50 kg solids
	6.1B	250 L liquids 250 kg solids
	6.1C	1000 L liquids 1000 kg solids

Kinds of Substances	Hazard Classification	Quantity (in total)
	6.1D	10 000 L liquids 10 000 kg solids
	6.1A, 6.1B, 6.1C	5kg non-permanent gas 2.5m ³ permanent gas
Corrosive Substances	8.1A	1000 L liquids 1000 kg solids
	8.2A	5 kg non-permanent gas 2.5m ³ permanent gas 50 L liquids 50 kg solids
	8.2B	50 kg non-permanent gas 25m ³ permanent gas 250 L liquids 250 kg solids
	8.2C, 8.3A	1000 L liquids 1000 kg solids
Ecotoxic substances	9.1A, 9.2A, 9.3A, 9.4A	100 L liquids 100 kg solids
	9.1B, 9.1C, 9.2B, 9.2C, 9.3B, 9.4B, 9.4C	1000 L liquids 1000 kg solids
	9.1D, 9.2D, 9.3C	10 000 L liquids 10 000 kg solids

Appendix 5: Substances requiring tracking

Classification	Description (Threshold)	Examples
3.1 A	Flammable liquid Flashpoint (closed cup) < 23°C and initial boiling point ≤ 35°C	Tetramethylsilane 1-Pentene Methyl vinyl ketones
3.2 A	Liquid desensitised explosive (equivalent to UN PG I)	
4.1.2 A	Self reactive flammable solid	
4.1.2 B	Self reactive flammable solid	
4.1.3 A	Solid desensitised explosive	Phenol, 3,4-dinitro- Urea nitrate, wetted with not less than 20 water, by mass
4.2 A	Spontaneously combustible substances	Lithium lactate Strontium Triethylaluminum Trimethylaluminum
4.3 A	Substances dangerous when wet	Lithium lactate Triethylaluminum Trimethylaluminum
5.1.1 A	Oxidising substances (not organic peroxides)	Hydrogen peroxide, > 60% aqueous solution Potassium superoxide
5.2 A, 5.2 B	Organic peroxides	Bis(4-methylbenzoyl) peroxide, >26% in a non hazardous diluents
6.1 A	Acutely toxic	Beryllium/ Bromine/ Copper (I) cyanide, Potassium cyanide
6.1 B		Furfuraldehyde/ Glutaraldehyde, >5 - 20% in a non hazardous diluent/ Hydroquinone
6.1 C	≤300 mg/kg	

Classification	Description (Threshold)	Examples
9.1 A	Aquatic Ecotoxicity	Mercury/ Mercury (I) chloride/ Methylaniline/ Potassium cyanide/ Abamectin/ Ivermectin
9.2 A	Soil toxicity	Potassium cyanide Abamectin Ivermectin
9.3 A	Terrestrial vertebrate toxicity	Selenium oxide Tetraethyl lead Trichloroethylsilane Abamectin Ivermectin
9.4 A	Terrestrial invertebrate toxicity	Abamectin Carbofuran Ivermectin

Class 9's are generally not tracked, most of the examples above fall under 6.1 A, B or C. Although, most 6.1 C's aren't tracked either.

Appendix 6: Incompatible substances

Hazard Classification	Incompatible Substances and Materials
2.1.1	All class 1 substances Class 2.1.2 substances All class 3 substances All class 4 substances
2.1.2	All class 1 substances All class 3 substances All class 4 substances All class 5 substances
3.1	All class 1 substances All class 2 substances Class 3.2 substances All class 4 substances All class 5 substances
3.2	All class 1 substances All class 2 substances Class 3.1 substances Class 4.1.2, 4.2, and 4.3 substances All class 5 substances
4.1.1 (readily combustible solids)	All class 1 substances All class 2 substances Class 4.1.2, 4.1.3, 4.2, and 4.3 substances All class 5 substances
4.1.1 (those solids which cause fire through friction only)	Any substances likely to cause a spark when struck against a class 4.1.1 substance
4.1.2	All class 1 substances All class 2 substances Class 3.1 and 3.2 substances Class 4.1.3 and 4.2 substances All class 5 substances Catalytic impurities having a detrimental influence on the thermal stability and hazard presented by class 4.1.2 substances

Hazard Classification	Incompatible Substances and Materials
4.1.3	All class 1 substances All class 2 substances Class 3.1 substances Class 4.2 substances All class 5 substances
4.2	All class 1 substances All class 2 substances All class 3 substances Class 4.1.1, 4.1.2, 4.1.3, and 4.3 substances All class 5 substances Air Oxygen
4.3	All class 1 substances All class 2 substances All class 3 substances Class 4.1.1, 4.1.2, 4.1.3, and 4.2 substances All class 5 substances All class 8 substances Water

Under Review

Table of Incompatible Substances under the HSNO Act

From the Hazardous Substances (Classes 1 to 5) Regulations [Sch 3, Table 1; Part 5 §87; Part 6 §105]

The HSNO regulations specify the following incompatibilities for the purposes of the segregation requirements of the regulations. Other incompatibilities between specific substances may exist, and a Safety Data Sheet should be consulted to determine these.



		Class 1		Class 2		Class 3		Class 4					Class 5		Where an [x] is marked the intersecting substances are classed as incompatible.			
		2.1.1	2.1.2	3.1	3.2	4.1.1	4.1.2	4.1.3	4.2	4.3								
	2.1.1	x		x		x			x						For each class read across from the left hand column to determine its incompatibilities.			
	2.1.2	x				x			x									
	3.1	x		x			x			x					These tables were checked against the regulations in June 2007, we can take no responsibility for any errors within or subsequent changes.			
	3.2	x		x		x				x		x	x	x				
	4.1.1 (readily combustible)	x		x					x	x	x	x	x	x	Any substance likely to cause a spark when struck against such a class 4.1.1 substance			
	4.1.1 (fire via friction)	x		x					x	x			x					
	4.1.2	Catalytic impurities having a detrimental influence on the thermal stability and hazard presented by class 4.1.2 substances																
	4.1.3	x		x		x						x				x		
															Class 8	Air	Oxygen	Water
	4.2	x		x		x		x	x	x	x		x	x		x	x	
	4.3	x		x		x		x	x	x	x			x				x

		Class 1	Class 2	Class 3	Class 4	Class 5.1.1 & 5.1.2	Class 5.2	Class 6.1A, B, C	Class 8	Organic Matter*	Zn or Mg Powdered metals†	Air combustibles‡
	5.1.1	x	x	x	x		x	x	x	x	x	x
	5.1.2	x	x	x	x		x	x	x	x	x	x
	5.2	x	x	x	x	x		x	x		x	x

Also ... any substance or material with which the Class 5 substance may react causing combustion, generate an explosion, steam, hot vapours or class 6, 8, or 9 substances.

* any organic matter, or substance that contains carbon, in a form that will combust with the class 5.1.1 or 5.1.2 substance

† zinc or magnesium in any form, any powdered metal

‡ any substance or material that will combust with air or will combust with or catalyse the decomposition of a class 5.1.1 or 5.1.2 or 5.2 substance



Appendix 7: UN pictograms and HSNO equivalents

Explosives	UN Class 1 – Explosives			HSNO Class 1
Gases	UN Class 2.1 – Flammable Gas			UN Class 2
	UN Class 2.2 – Compressed Gases			No HSNO equivalent
	UN Class 2.3 – Toxic Gases			HSNO Class 6.1A, 6.1B or 6.1C
Flammable Liquids	UN Class 3.1 – Flammable Liquid			UN Class 3.1A, 3.1B and 3.1C 3.2A, 3.2B, 3.2C
Reactive Solids	UN Class 4.1 – Reactive Solid			HSNO Class 4.1.1, 4.1.2, and 4.1.3

	UN Class 4.2			HSNO class 4.2
	UN Class 4.3 – Dangerous when wet			HSNO Class 4.3
Oxidising Substances	UN Class 5.1 – Oxidising Substances			HSNO Class 5.1.1, and 5.1.2
	UN Class 5.2 – Organic Peroxide			HSNO Class 5.2
Toxic Substances	UN Class 6.1 – Toxic and harmful		6.1 A-C  6.1 D  6.1 E 	HSNO Class 6.1A, 6.1B and 6.1C
	UN Class 6.2 – Infectious			No HSNO equivalent

Corrosive Substances	UN Class 8 - Corrosives			HSNO Class 8
Ecotoxic				HSNO Class 9

Under Review

Appendix 8: Overview of hazardous property classification system

Class 2 - Flammable Gases and Aerosols, and Class 3 Flammable Liquids

HSNO Category	Flammable Gases	Flammable Aerosols	Flammable Liquids	Liquid desensitised explosive
-	2.1.1	2.1.2	3.1	3.2
A	2.1.1A	2.1.2A	3.1A	3.2A
B	2.1.1B	-	3.1B	3.2B
C	-	-	3.1C	3.2C
D	-	-	3.1D	-

Class 4 – Flammable solids

HSNO Category	Readily Combustible	Self Reactive Solid	Solid desensitised explosive	Spontaneous Combustible	Dangerous when wet
-	4.1.1	4.1.2	4.1.3	4.2	4.3
A	4.1.1A	4.1.2A	4.1.3A	4.2A	4.3A
B	4.1.1B	4.1.2B	4.1.3B	4.2B	4.3B
C	-	4.1.2C	4.1.3C	4.2C	4.3C
D	-	4.1.2D	-	-	-
E	-	4.1.2E	-	-	-
F	-	4.1.2F	-	-	-
G	-	4.1.2G	-	-	-

Class 5 substances – Oxidisers and Organic Peroxides

HSNO Category	Oxidising Liquids/Solids	Oxidising Gases	Organic peroxides
	5.1.1	5.1.2	5.2
A	5.1.1A	5.1.2A	5.2A
B	5.1.1B	-	5.2B
C	5.1.1C	-	5.2C
D	-	-	5.2D
E	-	-	5.2E
F	-	-	5.2F
G	-	-	5.2G

Class 6 – Toxic Substances

HSNO Category	Acutely Toxic	Skin irritant	Eye irritant	Sensitisation	Mutagen	Carcinogen	Reproductive/ Developmental	Target Organ
	6.1	6.3	6.4	6.5	6.6	6.7	6.8	6.9
A	6.1A	6.3A	6.4A	6.5A	6.6A	6.7A	6.8A	6.9A
B	6.1B	6.3B	-	6.5B	6.6B	6.7B	6.8B	6.9B
C	6.1C	-	-	-	-	-	6.8C	-
D	6.1D	-	-	-	-	-	-	-
E	6.1E	-	-	-	-	-	-	-

Thresholds for each category of **Class 6.1** are as follows:

	Category A	Category B	Category C	Category D	Category E
Oral LD50 (mg/kg)	5	50	300	2000	5000
Dermal LD50 (mg/kg)	50	200	1000	2000	-
Gases LC50 (ppm)	100	500	2500	5000	-
Vapours	0.05	0.5	1	5	-

Class 8 (Corrosive) and Class 9 (Ecotoxic) classifications

HSNO Category	Metallic Corrosive	Skin Corrosive	Eye Corrosive	Aquatic Toxicity	Soil Toxicity	Terrestrial Vertebrate Toxicity	Terrestrial Invertebrate Toxicity
	8.1	8.2	8.3	9.1	9.2	9.3	9.4
A	8.1A	8.2A	8.3A	9.1A	9.2A	9.3A	9.4A
B	-	8.2B	-	9.1B	9.2B	9.3B	9.4B
C	-	8.2C	-	9.1C	9.2C	9.3C	9.4C
D	-	-	-	9.1D	9.2D	-	-

Note that thresholds for each category of Class 9 are as follows:

	9.1	9.2	9.3	9.4
	Acute Aquatic Toxicity (mg/l) LC50	Soil ecotoxicity (mg/kg soil)	Terrestrial vertebrates (LD50 mg/kg) LC50 ppm in diet	Terrestrial invertebrates (LD50 value – contact or oral) (microgram substance/terrestrial invertebrate)
Category A	1	1	50 500	2
Category B	10 and bioaccumulative and persistent in envr	10	500 1000	11
Category C	100 and bioaccumulative and persistent in envr	100 DT50>30 days	2000 50000	25
Category D	100 and special conditions	100 DT50<30 days	-	-

Appendix 9: Position overviews

Laboratory Manager

[Extract from the HSNO Exempt Laboratories Code of Practice]

Designation and Functions of Laboratory Manager

- a) At least 1 person shall be designated as Laboratory Manager.
- b) If more than 1 person is designated as a Laboratory Manager:
 - i) The terms and conditions of the designation shall be recorded in writing; and
 - ii) A method to clearly identify who is in charge shall be established to ensure that only 1 person is in charge of the Laboratory, at any given time.
- c) A Laboratory Manager:
 - i) Is in charge of all Hazardous Substances contained within the Laboratory.
 - ii) May nominate any other appropriate person to be in charge in his or her absence.
 - iii) Shall ensure that the provisions of this Code of Practice are adhered to.
 - iv) May delegate some of their functions but cannot delegate their responsibility.
 - v) Shall ensure that an unapproved hazardous substance is handled and stored in the same way as a similar approved substance (ie similar chemical, physical, or biological properties).
 - vi) Shall ensure that the requirements for information on the use and maintenance of Protective Equipment, as required in Section 4.5, are available.
 - vii) Shall ensure that the requirements for information on the use and maintenance of equipment, as required in Section 4.5.1, are available.
 - viii) Shall ensure that procedures for the disposal of Hazardous Substances are included in the Laboratory Safety/Procedures manual or other appropriate documentation. The procedures shall comply with requirements specified in Appendix 6 of this code.

Functions of Laboratory Manager(s)

- a) Laboratory Managers shall be responsible for a specified Laboratory room (s) (or part thereof); and
 - i) are in charge of all Hazardous Substances contained within the specified part of the HSNO Laboratory Facility; and
 - ii) may nominate any other appropriate person to be in charge in his or her significant absence.
 - iii) shall ensure that an unapproved hazardous substance is handled and stored in the same way as a similar approved substance (ie similar chemical, physical, or biological properties).
 - iv) shall ensure that the requirements for information on the use and maintenance of Protective Equipment (as required in Section 4.5) are available.
 - v) shall ensure that the requirements for information on the use and maintenance of Equipment (as required in Section 4.5.1) are available.
 - vi) shall ensure that procedures for the disposal of Hazardous Substances are included in the Laboratory Safety/Procedures manual or other appropriate documentation. The procedures shall comply with requirements specified in Section 4.10 and Appendix 6
 - vii) Procedures developed in a Safe Method of Use shall meet the information requirements of 2.3.5 (iv) – (vi) above

- b) As the Laboratory Manager is not required to be present at all times, significant absence (section (ii) above) is taken to be longer than 3 days. An alternative shall be nominated when the Laboratory Manager's absence would cause noncompliance with this Code of Practice.
- c) Laboratory Managers shall ensure that the provisions of this Code of Practice are adhered to in the area they are responsible for.
- d) If more than 1 person is designated as the Laboratory Manager:
- i) The terms and conditions of the designation shall be recorded in writing; and
 - ii) A method to clearly identify who is in charge shall be established to ensure that only 1 person is in charge of the HSNO Laboratory Facility, at any given time.

Person in Charge

A person who is nominated to be in charge by a Laboratory Facility Manager or HSNO Laboratory Facility Director shall assume the responsibilities associated with those positions during the period they are in charge.

Skill and Knowledge Requirements for Laboratory Manager

A person designated as a Laboratory Manager shall have---

- a) a general technical knowledge of the physical and chemical properties of all substances managed or used in the portion of the Laboratory that they are responsible for, including the likely hazardous properties of substances being synthesised, in order to prevent or manage the adverse effects of those substances; and a general knowledge of---
 - i) precautions for handling the Hazardous Substances managed or used in the specified portion of the laboratory; and
 - ii) disposal of those substances in accordance with this Code of Practice; and
- b) the most recent version of any relevant code of practice approved by EPA New Zealand under section 78 of the Act; and
- c) any specific knowledge and skill requirements contained in the Laboratory Emergency Response Plan relevant to the area they are responsible for; and
- d) the ability to demonstrate the correct operation and maintenance of equipment, including personal protective equipment, necessary to manage the substances used in the specified area of laboratory throughout their life cycle; and
- e) access to the detailed knowledge supporting the general knowledge requirements of paragraphs (a) to (d) above, within 10 minutes.

Note: New Zealand Certificate in Science Level 5, National Diploma in Science Level 6, Science Degree, or equivalent qualification where the course of study has included papers on physical, chemical, and toxic properties of chemicals would satisfy the requirement for "a general technical knowledge of the physical and chemical properties of all substances. At least 5 years laboratory experience would also satisfy this requirement.

Laboratory Facility Director/Manager

Designation and Functions of HSNO Laboratory Facility Director

a) A HSNO Laboratory Facility Director (or similar designation):

- i) may nominate, in writing, any other appropriate person to be in charge in his or her absence.
- ii) where one or more person is nominated, a method of clearly identifying who is in charge shall be established to ensure that only one person is in charge of the HSNO Laboratory Facility, at any given time.
- iii) shall ensure that the provisions of this Code of Practice are adhered to.

b) The HSNO Laboratory Facility Director (or similar designation) should be a senior person (such as Head of Department, Research Manager, or Research Director) with authority to ensure that the provisions of the Act and Regulations are implemented and enforced within their area of responsibility.

Note: It is unlikely that the HSNO Laboratory Facility Director (or similar designation) shall have a detailed knowledge of all the requirements or means of compliance. However, they can ensure compliance by delegating specified functions to members of their management team.

c) This Code of Practice does not preclude additional tiers of management being implemented by specific organisations.

Delegations to be Published

a) The HSNO Laboratory Facility Director (or similar designation) shall ensure that:

- i) The delegated HSNO responsibilities within the HSNO Laboratory Facility are in writing and are made available to all staff, and
- ii) Delegated responsibilities shall be specified in the Emergency Plan.
- iii) All staff is aware of the delegated responsibilities and the people fulfilling the specified roles.
- iv) The provisions of this Code of Practice are adhered to in the HSNO Laboratory Facility
- v) The published delegations remain current.

Skill and Knowledge Requirements for HSNO Laboratory Facility Director

A person designated as a HSNO Laboratory Facility Director (or similar designation) shall have--

- a) a general knowledge of the hazardous properties of all substances managed or used in the laboratory, including a general knowledge of the likely hazardous properties of substances being synthesised, in order to prevent or manage the adverse effects of those substances; and
- b) general knowledge of---
 - i) precautions for handling the Hazardous Substances managed or used in the laboratory; and
 - ii) disposal of those substances in accordance with this Code of Practice; and
 - iii) the most recent version of any relevant code of practice approved by EPA New Zealand under section 78 of the Act.