

2017



# MEAT INDUSTRY STANDARD: CHEMICAL MANAGEMENT

**mia**

## Contents

<b>1</b>	<b>Introduction .....</b>	<b>2</b>
1.1	Hazardous Substances Policy .....	3
1.2	Basic principles .....	4
<b>2</b>	<b>Roles &amp; Responsibilities .....</b>	<b>6</b>
2.1	Duties of the PCBU .....	6
2.2	Responsibilities by role .....	6
2.3	Legal requirements for handling and security .....	9
<b>3</b>	<b>Identify Hazards and Assess the Risk .....</b>	<b>10</b>
3.1	Classification system .....	11
3.2	Assess the Risk .....	12
3.3	Risk Assessments .....	12
3.4	Post Assessment Actions .....	13
3.5	Workplace Exposure Standard (WES) .....	13
3.6	Workplace Exposure Monitoring .....	14
3.7	Important risk considerations .....	15
<b>4</b>	<b>Implement Controls .....</b>	<b>18</b>
4.1	Hazard control programmes .....	18
4.2	Typical controls .....	19
4.3	Documentation Requirements .....	27
4.4	Introduction of a new Hazardous Substance .....	30
4.5	Health Monitoring .....	32
4.6	Planning the Work .....	33
4.7	Emergency Procedures .....	36
4.8	Spill Response .....	38
4.9	Monitor, Maintain and Review Controls .....	39
4.10	Control measures may be reviewed using the same methods as the initial hazard identification step. Training .....	39
4.11	Approved Handlers .....	40
<b>5</b>	<b>Reference Documents .....</b>	<b>41</b>
5.1	Relevant legislation & regulations .....	41
5.2	Codes, Standards & Guidance .....	42
<b>6</b>	<b>Appendix 1: Introduction of new Hazardous Substance (Example only) .....</b>	<b>43</b>
<b>7</b>	<b>Appendix 2: Change Management considerations (Example only) .....</b>	<b>44</b>

## 1 Introduction



### Chemical Management

Chemicals are common in meat processing, including cleaning products such as ammonia, sanitizing agents such as hydrochloric acid, tripe processing chemicals such as hydrogen peroxide, citric acid, pesticides, and chemicals for treating hides and skins. These can cause skin irritation, breathing difficulties, burns, and are toxic. For this reason, safe chemical management is essential for preventing serious harm.

This standard lays out the basic processes for clarifying roles and responsibilities, identifying chemical hazards, assessing risks, and implementing controls to eliminate or minimise chemical hazards.

This standard draws on international experience and merges this with the relevant New Zealand regulations coming into force under the Health and Safety at Work Act 2015.

Please note that these are minimum standards and companies may (and are encouraged to) go beyond any or all of the standards in order to control risks 'so far as is reasonably practicable'.

This is a working document. This document and the subsequent family of documents will evolve over time for example to reflect changes in industry practice and regulation.

**Note:** This document represents **guidance only** for managers and supervisors in managing workplace health and safety in the meat industry. It is not legal advice and does not replace or amend an individual or collective employment agreement or a PCBU health and safety policy. If a member company of MIA cannot achieve a particular standard it is recommended that they conduct a risk assessment outlining their additional controls that will be used to manage the hazard.

Neither the Meat Industry Association Inc or its members, take responsibility for the results or any actions taken on the basis of the information contained in these Standards, or for any error or omissions.



### The Law (Legislation)

While the new Health and Safety at Work Act 2015 and its safety regulations have been integrated into this Standard there are specific requirements to help manage the risks associated with manufacturing, using, handling or storing hazardous substances in the workplace and to protect the health and safety of workers.

Currently, they are set under the [Hazardous Substances and New Organisms \(HSNO\) Act 1996](#). These requirements have been transferred to the [Health and Safety at Work Act 2015](#) and a new set of [Hazardous Substances Regulations](#) that will come into force on **1 December 2017**.

Until 1 December 2017 the current [Hazardous Substances and New Organisms Act](#) remains in force in its current form.

This document is based on the **current** regulatory requirements and may be updated prior to the new regulations coming into force.

## 1.1 Hazardous Substances Policy

As a minimum all handling, storage and transportation of hazardous substances must comply with:

- Health and Safety at Work Act 2015
- Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
- Hazardous Substances and New Organisms Act 1996
- Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
- Hazardous Substances (Classes 6, 8 and 9 Controls) Regulations 2001
- Hazardous Substances Tracking Regulations 2001
- HSNO Code of Practice 16-1 *Hazardous Substances Storage Code*
- HSNO Code of Practice 47 Secondary Containment Systems
- Hazardous Substances Emergency Management Regulations 2001

While this standard is intended to outline policy and procedure for use within meat processing operations, it is not a comprehensive document covering all aspects of hazardous substances. The applicable Regulations, Standards, Approved Codes of Practice and Best Practice Guidance must be adhered to.



### Further information

See Reference Documents listed at the rear of this document in section 4.10 and refer to WorkSafe's website:

<http://www.worksafe.govt.nz/worksafe/information-guidance/guidance-by-industry/hsno>

**1.2 Basic principles**

---

As part of normal operations, meat processing facilities handle and transport many different types of hazardous substances. If this risk is not controlled appropriately, there is potential for a major uncontrolled emission, fire, or explosion, involving one or more hazardous substance that presents serious danger to our workers.

From a personal safety perspective, exposure to hazardous substances can cause immediate harm or may have long term health effects. It is therefore essential that hazardous substances are used, stored and transported correctly to ensure minimum exposure and to prevent adverse events occurring.

There are two broad types of hazards associated with hazardous chemicals which may present an immediate or long-term injury or illness to people. These are:

DRAFT

### 1.2.1 Health hazards

These are properties of a chemical that have the potential to cause adverse health effects. Exposure usually occurs through inhalation, skin contact or ingestion.

Adverse health effects can be acute (short term) or chronic (long term). Typical acute health effects include headaches, nausea or vomiting and skin corrosion, while chronic health effects include asthma, dermatitis, nerve damage or cancer.

### 1.2.2 Physicochemical hazards

These are physical or chemical properties of the substance, mixture or article that pose risks to workers other than health risks, as they do not occur as a consequence of the biological interaction of the chemical with people. They arise through inappropriate handling or use and can often result in injury to people and/or damage to property as a result of the intrinsic physical hazard.

Examples of physicochemical hazards include flammable, corrosive, explosive, chemically reactive and oxidising chemicals.

Many chemicals have both health and physicochemical hazards.



**Figure 1. Examples of a physical hazard warning label: Top - corrosive to skin & eyes, bottom – gases under pressure**



**Figure 2. Examples of health hazard warnings: Top - acute toxicity to humans, bottom - chronic long-term health hazards**

## 2 Roles & Responsibilities

### 2.1 Duties of the PCBU

The PCBU must manage risks to health and safety associated with working with hazardous substances that are reasonably likely to cause injury to the person or any other person if not controlled appropriately.

The PCBU must ensure that any work that involves the potential for harm (risk) related to working with hazardous substances is controlled and made safe, so far as reasonably practicable. This includes:

- a) Provision of training in procedures related to handling hazardous substances; and
- b) Provision of all safety equipment, devices and/or systems to protect safety when handling hazardous substances; and
- c) A system of controlling the work to ensure procedures are followed and the work is completed as planned and authorised; and
- d) A method of ensuring all workers including contractors and subcontractors have access to all the above and are deemed competent to handle hazardous substances prior to commencement.

The company is responsible for assigning someone to ensure the PCBU complies with its health and safety duties towards workers at a site – depending on the company, this can be the senior manager at that site..

### 2.2 Responsibilities by role

Role	Responsibilities
PCBU	As above
Officers	Officers must exercise due diligence to make sure that the PCBU complies with its health and safety duties.
General Manager	<p>The General Manager must ensure:</p> <ul style="list-style-type: none"> <li>• This Standard is kept up to date and distributed to all relevant staff</li> <li>• The review of events and control failures in relation to the risk</li> <li>• The review and respond to industry trends and technical developments</li> <li>• That adequate resources are available to ensure the full implementation of this standard.</li> <li>• The requirements of this standard are adhered to.</li> </ul>

Role	Responsibilities
Site Managers	<p>The relevant Site Manager is responsible for ensuring that the hazardous substances under their control are correctly managed and that the environment and health and safety of people are not adversely affected. Specifically, this includes:</p> <ul style="list-style-type: none"> <li>• Keep an up to date hazardous substances register for the site</li> <li>• Make sure that Safety Data Sheets are dated within 5 years of the current year. Copies must be kept in the office and next to where the chemical is used</li> <li>• Provide appropriate PPE for use with chemicals</li> <li>• Check spill kits monthly to make sure that they are full</li> <li>• Check that all chemicals are kept in bunded areas or secure storage at all times</li> <li>• Have approved handlers on the site if required</li> <li>• Have appropriate emergency procedures in place for hazardous substances</li> </ul>
Person in Charge (PIC)	<p>The HSNO Act defines many of the controls for hazardous substances as the responsibility of a Person in Charge (PIC) who is key to ensuring the law is complied with.</p> <p>The PIC is in control of the place where hazardous substances are present.</p> <p>The PIC is responsible for ensuring the hazardous substances under their control are correctly managed and the environment and health and safety of people are not adversely affected. The specific requirements are detailed throughout the hazardous substances regulations. The PIC must ensure the specified controls are in place and are being followed, for example:</p> <ul style="list-style-type: none"> <li>• Hazardous substance locations are established</li> <li>• A Location Test Certificate is obtained where needed</li> <li>• Hazardous atmosphere zones are established and sources of ignition are managed</li> <li>• Incompatible substances are segregated</li> <li>• Approved Handlers are appointed for the substances they handle.</li> </ul> <p>Further information can be found at:  <a href="http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/guidance-docs-epa/guide-to-the-role-of-the-person-in-charge-810kb-pdf">http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/guidance-docs-epa/guide-to-the-role-of-the-person-in-charge-810kb-pdf</a></p>



Role	Responsibilities
Line Managers / Team Leaders	<p>Line Managers and Supervisors are responsible for the immediate actions required to control health and safety risk in their areas of control, in particular:</p> <ul style="list-style-type: none"> <li>• Ensure the requirements of this standard are met within their area of responsibility, including ensuring that recommendations from hazardous substance risk assessments are agreed and implemented.</li> <li>• Ensure all relevant employees are suitably trained and competent in the safe handling and transportation of hazardous substances</li> <li>• Ensure our employees have knowledge of the hazardous substances they are likely to be exposed to.</li> <li>• Ensure that interim controls are implemented and monitored when corrective actions are raised.</li> </ul>
Health and Safety Manager/Advisor	<p>The Health and Safety Manager/Advisor are responsible for:</p> <ul style="list-style-type: none"> <li>• Providing assistance, advice and guidance on hazard and risk management requirements.</li> <li>• Driving a culture of near accident reporting including coaching and mentoring employees and managers on applying this Standard.</li> </ul>
All workers	<p>Employees are responsible for taking all reasonable and necessary precautions for their own health and safety when working with any hazardous substance.</p> <p>All workers (including contractors and subcontractors) are responsible for ensuring:</p> <ul style="list-style-type: none"> <li>• To ensure the requirements of this Standard are applied where relevant to their roles.</li> <li>• To hold the appropriate documentation and competency to be handling or transporting hazardous substances.</li> <li>• To seek further advice when unsure how to handle, store or transport a substance safely.</li> <li>• To identify and report hazards that they encounter not previously identified in a formal risk assessment.</li> <li>• To ensure their own safety and that of the general public when handling or transporting hazardous substances and ensure that company procedures and policies are observed at all times including cleaning and breakdown situations.</li> <li>• To participate in risk assessment teams where appropriate and competent.</li> </ul>

## 2.3 Legal requirements for handling and security



### The Law (Legislation)

There are specific requirements to help manage the risks associated with manufacturing, using, handling or storing hazardous substances in the workplace and to protect the health and safety of workers.

Currently, they are set under the [Hazardous Substances and New Organisms \(HSNO\) Act 1996](#). These requirements have been transferred to the [Health and Safety at Work Act 2015](#) and a new set of [Hazardous Substances Regulations](#) that will come into force on **1 December 2017**.

Until 1 December 2017 the current [Hazardous Substances and New Organisms Act](#) remains in force in its current form.

This document is based on the **current** regulatory requirements and will be updated prior to the new regulations coming into force.

The legal requirements below do not represent the full legislated requirements relevant to meat industry processing operations - references to legislation must be considered in full.

### 2.3.1 Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

#### ***Approved Handler & Security requirements***

**Section 56** Certain class 2, 3, and 4 substances to be under control of approved handlers

Class 2, 3, and 4 substances that are listed in table 2 of Schedule 3 must, when in quantities greater than those listed in that table, be—

- Under the personal control of an approved handler; or
- Unless otherwise provided in these regulations,—
  - Be secured to the standard of security specified in Regulation 74, in the case of class 4.1.2A, 4.1.2B, 4.1.2C, or 4.1.2D substances; or
  - Be able to be secured so that a person cannot gain access to the substances without tools, keys, or any other device used for operating locks, in the case of any other class 2, 3, or 4 substance.

Class 2, 3, and 4 substances required to be under the personal control of an approved handler may however be handled by a person who is not an approved handler if—

- The approved handler has provided guidance to the person in respect of the handling
- The approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.

### 3 Identify Hazards and Assess the Risk

Identifying chemical handling hazards involves finding all of the substances and situations that could potentially cause harm to workers. It is imperative that all hazardous substances are identified to enable the assessment of the risk and appropriate controls to be applied.

**Specifically, the following must be considered:**

- The hazardous properties of the hazardous chemical
- Any potentially hazardous reaction (chemical or physical) between the hazardous chemical and another substance or mixture, including a substance that may be generated by the reaction
- The nature of the work to be carried out with the hazardous chemical
- Any structure, plant or system of work that:
  - Is used in the use, handling, generation or storage of the hazardous chemical
  - Could interact with the hazardous chemical at the workplace.

Always read the label in conjunction with the Safety Data Sheet (SDS) to make sure all chemical hazards are identified. Product specification sheets may provide information of the types of hazardous chemicals generated during a process, or by researching other sources such as codes of practice or guidance documents on the process.



#### Idea

Good advice is to get the manufacturer the chemicals to visit site and explain the correct usage of chemicals and the associated risks directly to your supervisors and workers. They may also be able to provide information about appropriate controls to minimise any risk of harm.

### 3.1 Classification system

The classification system used in the Hazardous Substances and New Organisms Act 1996 (HSNO Act) identifies whether a substance needs additional controls (Table 1):

**Table 1: UN dangerous goods classification system**

Class	Name of class	Description
1	Explosives	Hazardous substances
2	Gases	Dangerous goods
3	Flammable liquids	Dangerous goods
4	Flammable solids and substances	Dangerous goods
5	Oxidising substances and organic peroxides	Dangerous goods
6	Toxic substances	Hazardous substances
7	Radioactive substances	Hazardous substances
8	Corrosives	Hazardous substances

Any substance that falls into one of the UN classifications must be entered into the site Hazardous Substances Register.



#### **Hazard**

If there is any doubt whether a substance is hazardous, it must be treated as hazardous. It must be positively identified before it is used.

### 3.2 Assess the Risk

A risk assessment involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening. When undertaking a risk assessment to determine the risks requiring control the following factors must be considered.

**Consider:**

- The hazardous properties of the hazardous chemical
- Who could be harmed and how serious the injury could be
- How often workers could be harmed
- Anticipated work practices including maintenance, inspection, repair, cleaning
- Infrequent or one-off tasks
- The scheduling of the work
- The layout of the workplace
- The possibility of unauthorised access to the work area
- Arrangements for emergency response
- The physiological and psychological demands of the task and the competency of persons involved in the tasks or emergency response duties
- The training and competency of persons in any required procedure, particularly those that are unusual or non-typical, including the use and limitations of any personal protective equipment and other equipment to be used

### 3.3 Risk Assessments

Risk Assessments must be undertaken:

- For all hazardous substances whether used, stored or transported within the PCBU's operations.
- Where an event has involved hazardous substances
- The process requires modification

The makeup of the risk assessment team should include as a minimum the Site Manager or appropriate manager, Approved Handlers and health and safety resources. Persons undertaking Risk Assessments must have the abilities to interpret the information on the label and SDS of the hazardous chemical.

All Risk Assessments in relation to **hazardous substances** must also consider:

**Consider:**

- The routes of entry by which the chemical can affect health
- The physical form and concentration
- The chemical and physical properties of the substance
- Who could be exposed, and when this could occur
- How often is exposure likely to occur and for how long?
- Workplace Exposure Limits
- Sources of ignition
- Range of uses of the substance - the assessment must consider the entire lifecycle of the substance, from delivery and receipt, to storage, handling, preparation, dilution, mixing, use, and disposal, both under normal and spillage conditions.
- Variety of tasks - the assessment must take into account any unusual activities that are foreseeable or are likely to occur, for example, cleaning up a spill, maintenance, cleaning the chemical storage area, fixing a breakdown.
- Individual susceptibilities – including atopic persons, sensitisations, lifestyle issues including smoking, drug and alcohol use and age. These will usually be identified through pre-employment health screening and health monitoring.

**Hazard**

Specific tasks may be identified to be inherently risky e.g. the use of concentrated chemicals in washing processes, or use of chemicals by night-cleaners (without supervision). These tasks should be carefully risk assessed and appropriate controls implemented to ensure that a safe system of work exists for any workers. This may include training and supervision requirements, PPE and procedures that detail correct usage for example.

However, the first step is always to try to eliminate the risk before any risk minimisation controls are considered!

### 3.4 Post Assessment Actions

Where a risk assessment identifies deficiencies, appropriate resources must be deployed in a timely manner to implement corrective actions commensurate with the identified risks.

Where a deficiency has been identified through a risk assessment, appropriate temporary controls are to be implemented in the period prior to the implementation of permanent controls.

### 3.5 Workplace Exposure Standard (WES)

The WES exposure limits for hazardous substances are set by WorkSafe NZ. They are a guide as part of a hazardous substance control programme and are enforceable under the Act for the purpose of protecting persons in a workplace from the adverse effects of hazardous substances.

- The absence of a specific exposure standard for a substance must not be considered an indication that exposure need not be controlled.

- WES always relate to personal air sampling results.
- WES must never be exceeded.



#### Further information

For more information about the Workplace Exposure Standards (WES) refer here:

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/workplace-exposure-standards-and-biological-exposure-indices/workplace-exposure-standards-and-biological-indices-2016.pdf>

### 3.6 Workplace Exposure Monitoring

Workplace exposure monitoring may be carried out where it is necessary:

- To obtain a quantitative estimate of a person's exposure to substances hazardous to health
- To determine the efficiency and effectiveness of control measures introduced

Workplace exposure monitoring may be either:

- **Personal monitoring** — achieved by sampling the air in the breathing zone of the worker, usually with equipment worn by the worker
- **Static monitoring** — using equipment that samples the air at a fixed point in the workplaces.

At all sites, air monitoring and exposure analysis will be undertaken and controls applied to ensure the Workplace Exposure Limits are not exceeded. Industry specialists (Occupational Hygienists) may need to be consulted to undertake air monitoring and interpret the results. Results from air monitoring will indicate how effective current controls are and determine whether the WES are being exceeded in the workplace.

Where exposure levels are above those in the WES, work must cease immediately. Specialist advice will need to be sought to reduce the exposure levels to an acceptable standard and minimise the risk.

Records of air monitoring for airborne contaminants must be retained. The records should contain sufficient detail to determine:

- The substance(s) hazardous to health concerned, what the results were and when the monitoring was undertaken
- What monitoring procedures were adopted, including the duration of sampling
- The locations where samples were taken, the operations in progress at the time and, in the case of personal samples, the names of those individuals concerned
- Whether the results reflected normal operating conditions
- How the results were interpreted
- The effectiveness of control measures in place.

The records of workplace exposure monitoring may be kept in any form, but information should be readily retrievable and in an easily understood form. Records should also be kept in such a way that the results can be compared with any health surveillance monitoring undertaken.

The results of monitoring should be kept for at least 30 years.

The results of workplace environmental monitoring must be provided to those employees with the potential for exposure to the substances monitored. Records of such monitoring, with personal identifiers removed will be readily accessible to all employees.



**Photo 1. Example of personal monitoring equipment to measure exposure to hazardous substance dusts**



**Photo 2. Example of device (colormetric tube and pump) used to measure hazardous substance gases and vapours**

### 3.7 Important risk considerations

The most important step in the risk management process involves controlling risks by eliminating them so far as is reasonably practicable, or if that is not possible, by minimising the risks so far as is reasonably practicable.

#### 3.7.1 Fire and Explosion - Sources of Ignition

Fire and explosion can result in catastrophic consequences, causing serious injuries or death of workers, as well as significant damage to property. They occur when the following three primary elements come together:

- a source of fuel (a flammable or combustible substance)
- a source of oxygen (usually in the air)
- an ignition source (a source of energy sufficient to cause ignition).

#### ***Fuel***



When identifying hazards, ensure all of the sources of fuel have been identified that could contribute to fire and explosion risks. Fuels that present the highest risk are those hazardous chemicals that are flammable (for example, flammable solids, liquids or gases, including their vapours and fumes).

Other materials that are not hazardous chemicals, like wood, paper and leaves, and other combustible materials contribute to the fire load.

### ***Oxygen***

Ensure all sources of oxygen are identified, such as oxygen gas and compressed air in cylinders, chemical oxidisers and peroxides.

### ***Ignition Sources***

Ignition sources can be any energy source that has the potential to ignite a fuel. They can be categorised into three broad types: flames, sparks and heat.

**Table 2. Ignition sources**

Ignition source	Typical Examples
Flames	<ul style="list-style-type: none"> <li>Welding flames, gas heaters, pilot lights</li> </ul>
Sparks	<ul style="list-style-type: none"> <li>Welding arcs, starters for fluorescent lighting, electric motors, electrical equipment like power points, cigarette lighters, switches and telephones</li> <li>Static electricity including from friction sources</li> <li>Lightning</li> <li>Friction from drilling, grinding, scraping of metal on concrete</li> </ul>
Heat	<ul style="list-style-type: none"> <li>Hot surfaces including light bulbs, ovens, radiators or heaters, flue pipes, vehicle engines and exhaust systems, pumps and generators</li> <li>Exothermic chemical reactions (those which generate heat)</li> </ul>

Always ensure:

- Systems are in place to detect leaks of flammable gases or vapours
- Use intrinsically safe equipment
- Substituting flammable materials for ones that are less flammable or combustible
- Ensure incompatible materials are separated or segregated
- Reducing quantities of flammable and combustible materials, including items that contribute to the fire load but that are not hazardous chemicals themselves (example: wooden pallets)
- Eliminate ignition sources from hazardous areas.
- Ensure equipment used in handling hazardous chemicals is maintained in accordance with manufacturer's instructions
- good housekeeping to minimise accumulation of combustible dusts.

### **3.7.2 Physical State of Chemicals**

The form or physical state of chemicals, substances or other materials can have a significant influence on the level of risk of a fire or explosion.

Bulk materials in solid, liquid and gas forms behave differently and present different risks. Liquids spread readily compared to solids and have a greater risk of coming into contact with an ignition source if spilled. Gases present a greater risk as concentrations in air are generally higher than for liquids (and their vapours) and can spread more rapidly. Depending on the vapour density, some gases can flow across surfaces in a similar way to liquids, rather than dissipating quickly.

Changes in temperature and pressure can affect the properties of a chemical. The explosive range of a chemical can change with temperature. At higher temperatures, the lower explosive limit is usually lower, meaning that the substance is more likely to ignite at lower concentrations in air.

It is essential the Risk Assessment process identifies the physical state of chemicals. Where the use of the chemical cannot be eliminated, the physical state of the chemical must be considered and substituted where possible to a state which is less hazardous.

### 3.7.3 Work

Consider the type of work in considering risk. Personnel working at night or alone have a heightened risk if working with chemicals. Additional controls, including competency checks and further training, should be considered.

## 4 Implement Controls

If it is not reasonably practicable for a PCBU to eliminate identified risks, the PCBU must implement risk-control measures.

A manager should use the following hierarchy for managing hazardous substance risks to workers:

- **Eliminate the risks: Good design is essential and provides the most effective opportunity to eliminate risk**, for example by designing the plant so the hazard is eliminated or human interaction is eliminated (e.g. does not require the use or handling of any hazardous substances). Even where this cannot be done the safety of the users should be a foremost consideration and the plant and equipment designed to promote safety (rather than safety systems designed to accommodate the plant and equipment) wherever possible.
- **Minimise the risks:**
  - *Substitute* - Substituting the hazardous substance must be considered where elimination is not possible. Substitution is the replacement of a hazardous chemical with a chemical that is less hazardous and presents lower risks, for example:
    - Substituting a less volatile material to control a vapour hazard may cost less than the installation and maintenance of a mechanical ventilation system
    - Substituting a highly flammable liquid with one that is less flammable or combustible
    - Using hazardous chemicals with a single hazard class rather than those with multiple hazards
    - Substituting high hazard chemicals like carcinogens, mutagen, reproductive toxicants and sensitisers, with less hazardous chemicals
    - Using diluted acids and alkalis rather than concentrates
    - Using a product in either paste or pellet form rather than as dust or powder.
  - *Isolate* - Use work equipment or other measures to prevent hazardous substances being able to contact workers, for example, enclosed processes, automated dosing equipment to remove the need for manual dosing or buying hazardous substances in smaller quantities so they do not need to be decanted at any time; and
  - *Minimise s* - Minimise the risks by ensuring that only the chemicals that are actually needed are at the site, and dispose of chemicals where they are not used for long periods of time. Where the risk of harm from hazardous substances cannot be eliminated the use work equipment or other measures to minimise the risk of harm (i.e. personal protective equipment, pouring devices, ventilation etc). Please note that this is a far lower level of protection and requires a high level of worker competency and must be performed under authorisation only.

### 4.1 Hazard control programmes

Where it is impossible to eliminate the hazard there must be a comprehensive hazard control programme implemented that includes the following as a minimum:

Typical programme components:
• Hazard identification
• Risk assessment and control
• A permit to work

Typical programme components:
<ul style="list-style-type: none"> <li>• An emergency response plan</li> </ul>
<ul style="list-style-type: none"> <li>• Appointment of a person or persons who is trained to ensure that adequate communication, support, first-aid and rescue services are available where required</li> </ul>
<ul style="list-style-type: none"> <li>• The provision of PPE including appropriate respiratory devices</li> </ul>
<ul style="list-style-type: none"> <li>• Appropriate training and competency standards</li> </ul>


Once control measures are in place, they must be regularly monitored and reviewed. The following must be considered.

Consider:
<ul style="list-style-type: none"> <li>• Have control measures been implemented as planned?</li> </ul>
<ul style="list-style-type: none"> <li>• If control measures have not been implemented, why not, and what is happening in the meantime?</li> </ul>
<ul style="list-style-type: none"> <li>• Are the control measures being used correctly?</li> </ul>
<ul style="list-style-type: none"> <li>• Are the control measures working?</li> </ul>
<ul style="list-style-type: none"> <li>• Have the control measures isolated or minimised the risk from the hazard as intended?</li> </ul>
<ul style="list-style-type: none"> <li>• Have the control measures made any new hazards?</li> </ul>
<ul style="list-style-type: none"> <li>• Have the control measures made any existing hazards worse?</li> </ul>

A PCBU must ensure through effective supervision and monitoring that the control measures are effective and are maintained. There must be regular reviews of the risks and controls.

## 4.2 Typical controls

### 4.2.1 Safety Data Sheets (SDS)



**Duty under the law**

There must be an SDS for every hazardous substance held on site which is accessible by all workers within 10 minutes.

The SDS contains information on the identity of the product and any hazardous ingredients, potential health effects, toxicological properties, physical hazards, safe use, handling and storage, emergency procedures, and disposal requirements specific to the chemical.

**If the SDS for a hazardous chemical is not supplied, the manufacturer, importer or supplier must be contacted to obtain one before the chemical is used at the workplace.**

- The SDS must be kept in a location near the work area where the substance is used
- All workers likely to be exposed to the hazardous substance must know how to find the SDS

- All workers likely to be exposed to the hazardous substance must be trained in and conversant with the SDS
- The SDS must be developed in New Zealand
- The SDS must be less than 5 years old
- If a substance is permanently removed from site, the SDS must also be removed.



**Photo 3. SDS's must be readily available for all hazardous substances**



**Photo 4. SDS's must be current and a copy available near point of use**

#### 4.2.2 Labels

Suppliers must ensure that any container supplied for use in a place of work carries sufficient information for the safe use of the product it contains, and is labelled in a way that allows for positive identification of the product. Packaging of articles that are known to give rise to substances hazardous to health during their use, for example welding rods, should be labelled accordingly.

All labelling should be clearly legible and in a form that is unlikely to become damaged with normal handling. The label must comply with all legal requirements currently applicable in New Zealand.

In order to allow the safe handling of a product in a workplace, the information on a label should contain the following minimum information:

- The product name and product number to link the product with the corresponding SDS
- The name and address of the manufacturer or importer
- A list of all substances hazardous to health contained in the product and their approximate concentrations.
- Warning of any particular handling requirement or incompatibility e.g., "Reacts violently with water"
- First aid procedures.

The SDS should be referred to when reading a label to ensure all chemical hazards are identified.



Photo 5. Typical label



Photo 6. Decanted substances must also be labelled correctly

### ***Unlabelled Containers***

If a container does not have a label or is improperly labelled, action must be taken to correctly label the container. If the contents are unknown, the container must be marked "Caution do not use: unknown substance" until the contents can be identified or suitably disposed of.

### ***Threshold triggers***

All hazardous substances over threshold trigger levels must be labelled according to NZS5807:1980 and AS1345:1995:

- Clearly visible at the entrance to the site
- At all entrances where the substance is used
- On the tank or other storage facility of the substance



Photo 7. HSNO signage at site entrance



#### Further information

For further information about threshold triggers refer here:

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/guidance-docs-epa/hsno-threshold-guidelines-929kb-pdf>



### 4.2.3 Ventilation

Ventilation is a means of maintaining a safe atmosphere by the introduction or recirculation of air; by natural, forced or mechanical means. Maintaining a safe atmosphere in the storage and handling area of hazardous chemicals is an important control measure.

Local exhaust ventilation is designed to capture airborne contaminants close to the source of generation. This prevents them contaminating the working environment. The ventilation should be arranged to prevent contaminants from entering the breathing zone of the operator.

Ventilation systems should be suitable for the types of hazardous chemicals present.

The design of these systems is a specialist area. The PCBU will undertake a survey of all workplaces where risk to workers is present. This survey and the design of ventilation systems required will be undertaken by a suitably qualified person.



**Photo 8. Example of local exhaust ventilation in a workshop area**

### 4.2.4 Quantity in the workplace

The overall quantity stored in the workplace can have a significant impact on the overall risk factor. Quantities of hazardous substances held in workplaces must be kept to a minimum at all times. Chemicals that have not been used for a long time should be disposed of.

### 4.2.5 Concentration

Concentration refers to the units per volume of the harmful agent within a substance. The speed at which a substance may cause harm and the severity is in most cases related to concentration. The concentrations of all hazardous substances within workplaces must be assessed and reduced as far as practicable.



#### 4.2.6 Duration and Frequency of Exposure

The duration of time workers are exposed to hazardous substances together with the repeat exposures to a substance will generally increase both likelihood and severity of harm. In addition, the body's natural defence mechanisms and purification processes will have less time to recover if repeat exposures are more frequent.

Risks to workers health will be minimised to as low as reasonably practicable and below Workplace Exposure Limits.

The PCBU must take all practicable steps to reduce the length of time and frequency of exposures to hazardous substances. Work patterns will be arranged to ensure every worker has periods of nil exposure during the working day. Job rotation and enforced breaks away from exposure will also form part of our strategy to reduce the risk to workers.

It is essential that controls of potentially carcinogenic, mutagenic or sensitising agents are assessed by an external specialist. These substances do not have a direct dose-response relationship, therefore, the strategy to rotate work between workers will expose more workers to risk.

#### 4.2.7 Segregation

Some hazardous substances are incompatible with other hazardous substances and must be stored separately to avoid unintended consequences.

- If possible, separation distances must be applied in a way that would not require additional control measures.
- Hazardous chemicals must never be stored where they could contaminate food, food packaging and other items like personal use products, cosmetics, cigarettes, medication and toiletries.

The HSNO Code of Practice 16-1 *Hazardous Substances Storage Code* summarises what substances are compatible to be stored together as a poster. Copies of this poster **should be**:

- Displayed in all chemical storage areas and operational areas.
- Complied with at all times.



**Photo 9. Example of a segregated hazardous substance storage area.**

#### 4.2.8 Secondary Containment Systems - Bunding

Containment of a liquid hazardous substance is provided by the primary container, e.g. a package, a drum, a bulk tank. It is expected that in everyday storage a substance will be contained in this primary container. To deal with a breach of the primary container, a secondary containment system is required. This must be designed to contain the substance and enable the safe collection of it.

The threshold quantities above which secondary containment is required depend on the hazard classification of the substance and the size of the container. Threshold quantities are outlined in Appendix 1 of the Environmental Protection Authority *HSNO COP47 Secondary Containment Systems*.

All hazardous substances on site must be stored with secondary containment (bunding) for hazardous liquids, as required under the *HSNO COP47 Secondary Containment Systems*.



**Photo 10. Example of a bunded tank**

#### 4.2.9 Dust explosion risk

Dust explosions present a significant risk. Dust explosions usually occur where combustible dusts (or fibres, for example from paper, grain, finely divided organic compounds and metals) have accumulated and are then disturbed and released into the air, coming into contact with an ignition source.

When the dust cloud comes into contact with an ignition source such as a flame, hot surface or spark, ignition can occur causing an explosion. Dust-air mixtures can be classified as hazardous atmospheres in the same way as other flammable materials like vapours from flammable liquids and gases.

The classification of dust hazardous atmospheres is complex and depends on many factors, including the rate of dust dispersion and sedimentation characteristics, and particle size.

At all sites, the provisions of the following Standards will be adhered to at all times:

- AS/NZS 4745: Code of practice for handling combustible dusts
- AS/NZS 60079.10.2: Explosive atmospheres – Classification of areas – Combustible dust atmospheres

Good housekeeping will minimise accumulation of combustible dusts.

#### 4.2.10 PPE

An assessment to determine the appropriate PPE must be conducted and training in the use of the PPE provided to staff handling hazardous substances. As a minimum, the PPE as required by SDS and by company policies must be worn. Commonly used PPE includes (but is not limited to):

##### ***Protective Gloves***

Protective gloves appropriate to the task are to be worn where there is the potential for hand injuries. Appropriate chemical-resistant gloves offer the best resistance to the chemical being used. Some gloves may be resistant to some solvents but not others.

##### ***Eye Protection***

Eye protection must be worn at all times when where there is risk of an eye injury. Ensure all eye protection complies with AS/NZS1337 – Personal Eye Protection.

##### ***Respirators***

Respiratory protection which complies with AS/NZS1716 and AS/NZS1715 must be worn while the potential for airborne contaminants is present.

##### ***Protective Clothing***

All high visibility vests and rain-wear must comply with AS/NZS4602.1.

Aprons, overalls and other protective clothing may also be required when handling chemicals – check the SDS for information.

##### ***Protective Safety Footwear (safety boots)***

Footwear should be comfortable, provide maximum grip and give protection from pinching, jamming and crushing. All protective safety footwear must comply with AS/NZS2210.3 - *Safety, protective and occupational footwear - Guide to selection, care and use*.



**Photo 11. A worker in PPE while handling a chemical**

## 4.3 Documentation Requirements

### 4.3.1 Hazardous Substances Register and Manifest

The PCBU must ensure a Hazardous Substances Register is kept on each site and regularly updated as substances are permanently removed from, or new substances are brought to the site.

A Hazardous Substances Manifest (where relevant) of hazardous chemicals will be maintained and notification provided to the regulator of manifest quantities if required.

### 4.3.2 Hazardous Substances Management Plan

A Hazardous Substances Management Plan must be in place for each site which includes the physical position of the hazardous substance location in relation to:

- The site boundaries
- Any other hazardous substance locations
- All hazardous atmosphere and controlled zones

This Plan must:

- Document the management practices required to manage the associated hazards and ensure legislative compliance (e.g. SDS, storage, transport, labelling and signage) for all hazardous substances normally held on the site.
- Include an assessment to determine the extent of the risk to employees and others that arises from the use or presence of a Hazardous Substance. The assessment needs to address the way the substances are encountered not just noting their hazardous nature.
- Include a summary of all Hazardous Substances triggering the major controls including: Location Test Certificates, Approved Handlers, Emergency Response Plans, Control Zones, Hazardous Atmosphere Zones, Signage, Stationary Bulk Tank Test Certificates, Tracking.

### 4.3.3 Approved Handlers

Approved Handler certification qualifies people to handle hazardous substances safely and to provide guidance and assistance to other people handling the substances.

Our Approved Handlers will be trained in the required Unit Standard and hold current Approved Handler Certificates. All sites where hazardous substances are present will ensure an Approved Handler is trained and assessed as competent. Hazardous substances under the control of an approved handler can be handled by other people, provided that the approved handler:

- Is present at the location (for acutely toxic substances)
- Has provided guidance to the person handling the substance
- Is available, at all times, to provide assistance while the substance is being handled.

The approved handler does not need to be present at a location if the substances are flammable or oxidising. All sites will ensure Approved Handlers are 'available at all times' giving consideration to shift work and staff leave. In order to determine when an approved handler is required to be present, use the HSNO calculator located [here](#).

### 4.3.4 Location Test Certificates

A hazardous substance location test certificate may be needed where explosive, flammable or oxidising substances are stored or used and the quantity exceeds the thresholds specified in the legislation. For example, a hazardous substance location exists where we hold more than:

- 100 kg of LPG or
- 50 litres of petrol

PCBUs must check whether a hazardous substance location requirement exists for the substances at each site. The [database of controls for approved hazardous substances](#) should be consulted to determine whether a Location Test Certificate is required.

The Person in Charge of commissioning a new hazardous substance location must notify an enforcement officer before commissioning the location. The notification form can be found [here](#).

If a Location Test Certificate is required, application must be made to Worksafe NZ.

Location test certificates will be kept current.



#### Further information

For more information refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/notifications-forms/hsno-activities-certification-qualifications-licensing/certification-of-sites/location-test-certificates>

### 4.3.5 Stationary Container System Test Certificates

#### ***Stationary containers***

You must have a Stationary Container System Test Certificate for:

- any below ground tank (including tanks that are mounded) of more than 250 litres
- an above ground tank of more than 2,500 litres holding highly flammable substances such as petrol or solvents
- an above ground tank of more than 5,000 litres holding hazardous substances other than those which are highly flammable e.g. diesel, caustic soda and acids
- an above ground tank of more than 500 litres holding a hazardous gas such as chlorine
- a tank that provides fuel to an oil burning installation which does not have a service tank and which has a capacity equal to or greater than:
  - 500 litres for a Class 3.1D substances supplying an internal combustion engine
  - 50 litres for Class 3.1A, 3.1B and 3.1C substances supplying an internal combustion engine
  - 60 litres for Class 3.1 substances supplying a burner

#### ***Process containers***

You must have a stationary container system test certificate for your process container if it is:

- below ground (including process containers that are mounded)
- above ground, greater than 250 litres and used to contain a gas
- above ground, greater than 1,000 litres and used for any hazardous liquid.

PCBUs must check whether a stationary container system test certificate requirement exists for the substances at each site.

If a Stationary Container System Test Certificate is required, application must be made to WorkSafe NZ.

Stationary Container System Test Certificate will be kept current.

**Further information**

For more information refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/notifications-forms/hsno-activities-certification-qualifications-licensing/certification-of-sites/stationary-container-certificates>

DRAFT

#### 4.4 Introduction of a new Hazardous Substance

When a new hazardous substance is introduced, the following process or similar should be followed to reduce risk of harm to workers.

##### Recommended change and risk management process

- An approval process should be implemented. The approval process should include relevant Site Manager or relevant manager and Approved Handler sign off for the introduction of new hazardous substances.
- Company procurement processes must be followed to ensure management of change. This includes assessment of the impact of any hazardous substances.
- A compatibility review should be undertaken of new and or current hazardous substances in the location and any issues documented and controlled.
- Separation distances for incompatible hazardous substance classes must be followed as per legal requirements.
- A hazardous substance risk assessment should be undertaken by the Site Manager, Approved Handler and Health and Safety Representative to determine the risk of the substance being introduced and controls implemented prior to the substance being introduced.
- The Safety Data Sheets (SDS) will be obtained from the supplier relevant for the substance.
- A current record of all hazardous substances is to be maintained at the facility.

##### 4.4.1 Preparation of the area

The area where the HSNO substance is to be used or stored must have:

- Signage for HSNO and HAZCHEM, including the class of substance
- Copies of the SDS readily available in the site main office, and a printed copy be available where the substance is used or stored
- Emergency procedures (e.g. for spills, first aid etc) should be clearly displayed
- The appropriate emergency equipment, including spill kits, eye wash stations, first aid kits, chemical neutralisers, firefighting equipment, and their signage
- Ensure that appropriate methods of disposing of contaminated waste are in place

##### 4.4.2 Preparation of workers

Workers who are going to be using, handling, transporting, or storing the chemical need to be trained in how to do this safely.

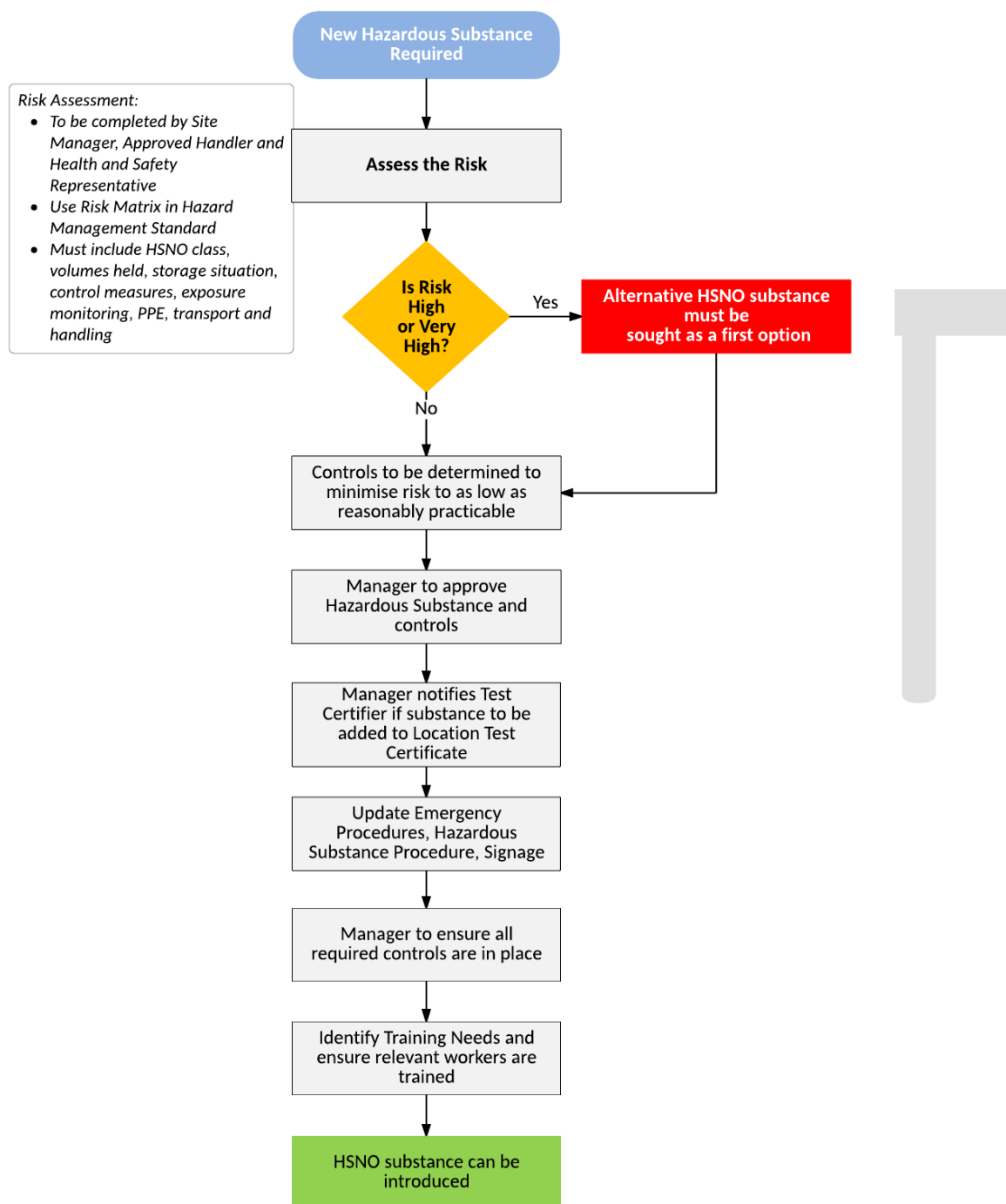
- Signoff of the Procedure for all employees involved with the substance
- Approved Handlers are allocated as required



The following procedure is recommended to be adhered to at all times.

**Figure 3. Introduction of new hazardous substance flowchart**

### Introduction of new hazardous substance





## 4.5 Health Monitoring

Health monitoring of a person means monitoring the person 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 to confirm that the absorbed dose is within safe levels. This allows decisions to be made about implementing ways to eliminate or minimise the worker's risk of exposure, for example, reassigning to other duties that involve less exposure or improving control measures.

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 measure must be reviewed and if necessary revised.

Biological monitoring may be a helpful means of assessing a workers' overall exposure to a hazardous chemical that can be absorbed through the skin as well as inhaled.

The provisions of the Company's Health Monitoring Standard will be complied with.



### Further information

For more information refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hswa-fact-sheets/health-monitoring-hswa/health-monitoring-hswa.pdf>

## 4.6 Planning the Work

Working with hazardous substances must be planned. The planning stage should be used to identify the hazards and consider the precautions to be taken. Safety, planned at the start of the process, will always be more cost-effective than safety introduced midway during the work.

Management (including Officers of PCBUs) must lay a solid foundation for safety by adopting safe systems of work and employees must co-operate to ensure that their actions do not compromise safety. When planning the work consider the following:

### Consider:

- The physical properties of all hazardous substances
- The work and the work method
- The duration and frequency of exposure and the number of workers exposed
- Competency of all workers associated with the work

### 4.6.1 The Work and Work Method – Standard Operating Procedures

Where the hazard cannot be eliminated a Safe System of Work will be developed to minimise the risk of injury. The Company shall maintain a suite of Standard Operating Procedures (SOP). These SOPs must be adhered to at all times.

- Where an SOP is not documented for a process, an SOP will be developed at the earliest opportunity and within one month of identification or development of the process.
- Consideration must be given to whether the proposed work or work process will introduce any new hazards or contribute to the risks of undertaking demolition work.
- Work processes must reduce the time spent undertaking the task, where practicable.

### 4.6.2 Consultation and Co-ordination

It is a legislative requirement that there is consultation with all stakeholders when undertaking a risk assessment. This requirement entails involvement of key stakeholders at the identify, assess, control and review stages of the risk assessment process. The consultation process is important as it allows workers to provide input and raise potential safety concerns about the work they undertake and the hazards they may be exposed to.

Persons with overlapping duties should exchange information about the risks associated with the work and work together in a co-operative and co-ordinated way so that all risks are eliminated or minimised so far as is reasonably practicable.

The PCBU will consult, co-ordinate and communicate with all relevant stakeholders.




#### Further information

For more information about engagement with workers refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hswa-good-practice-guides/worker-engagement-guide/worker-engagement-guide.pdf>

## 4.6.3 Permit to Work

	<p><b>Best practice advice</b></p> <p>Some jobs involving hazardous substances are particularly hazardous.</p> <p>This includes entry into vessels which hold or have held hazardous substances or maintenance or repair activities such as welding on any vessel that holds or has held hazardous substances.</p> <p>For these types of high risk work the Permit to Work (PTW) system should be used.</p>
---	---

**The Permit should cover:**

- The location and description of the task to be carried out
- Hazards that may be encountered
- Isolation requirements
- Work procedures and conditions
- Communication requirements
- Risk control measures
- PPE
- Emergency response

The Permit to Work should be signed by:

- The individuals undertaking the work
- Their immediate supervisor
- The standby personnel (if applicable)

The Permit to Work shall not be granted until:

- A JSA has been completed
- Measures to control the identified risks have been established
- The competency of workers has been verified
- Emergency procedures have been determined and are in place
- There is provision of standby person/s (standby person/s must be able to initiate emergency procedures) if applicable.
- All potentially hazardous services have been isolated.
- A Certificate has been issued.

A copy of the Permit to Work should remain on-site for the duration of the work. Before return to business as usual following completion of works the person in direct control of the work must sign the Permit to Work indicate the work has been completed.

The Permit to Work shall be kept on record at the site along with the JSA for a period no less than 1 year.



### Best practice advice

The Permit to Work must be provided to the person responsible for direct control of the work and kept on prominent display to facilitate signing and clearance.

The information and risk control measures listed on the Permit to Work must be reconfirmed whenever it becomes evident that the duration of the task will involve a change of the person to whom the Permit to Work was issued or a break in continuity of the tasks that may have changed the conditions under which the Permit to Work was issued.



**Photo 12. A typical Permit station**

#### 4.6.4 Job Safety Analysis (JSA)

Where a Permit to Work is required, a JSA must be developed by a competent person in consultation with all participating employees to identify, assess and control the hazards prior to work commencing. In addition to the JSA a Permit to Work must be issued to the person who will have direct control of the work to be carried out.

#### The JSA should take into account the following as a minimum:

- If the work can be carried out without removal or disabling of a safeguard
- The range of methods by which the work can be conducted
- The hazards and risks involved with the actual method selected and the plant and equipment proposed to be used
- Emergency response procedures/plan
- The competence of the persons to undertake the work

The JSA should be retained for at least 5 years from the last date that any changes were made.

## 4.7 Emergency Procedures



### Duty under the law

If you store hazardous substances at your site you need to put measures in place so that if an incident or emergency occurs, the effects are minimised or controlled. The quantity and hazard classifications of the substances you hold will dictate the level of emergency management you require.

Prior to work commencing, emergency procedures must be developed and discussed with all workers. These procedures should include a list of contact names and telephone numbers to use in the event of an emergency.

The extent of emergency procedures required will depend on the size and complexity of the workplace, types and quantities of hazardous chemicals and the processes involved when the hazardous substances are in use. Hazardous Substances triggering Emergency Management must be included in the site Emergency Management Plan and drills held as per the regulation requirements.

The emergency plan must deal with unexpected incidents and the rescue of workers. Appropriate emergency response procedures and provisions shall be identified, planned, established and rehearsed. Supervisors must ensure that the types of emergencies likely to occur during work are identified as part of a Job Safety Analysis and rescue procedures are communicated prior to work commencing.

### A comprehensive emergency plan must include:

- A site map that indicates where hazardous chemicals are stored
- Responsibilities of key persons in managing emergencies
- Circumstances to activate the plan
- Systems for raising the alarm
- Estimating the extent of the emergency
- Alerting emergency services to the emergency
- Procedures that account for all people at the workplace
- Isolation of the emergency area to prevent entry by non-essential personnel
- Roles of on-site emergency response teams (including First Aid Officers, Emergency Wardens)
- Containment of any spillage
- Prevention of hazardous chemicals or contaminated material of any kind from entering drains or waterways
- Provision of relevant information and assistance to the emergency services authority, both in anticipation of emergencies and when they occur

First aid and rescue procedures must be rehearsed with relevant workers to ensure they are efficient and effective.

When creating emergency response plans or procedures consideration must be given to the following:

- Evacuation or self-rescue situations
- Incidents with moderate injury where the person is evacuated but requires first aid or medical treatment
- Identification and control of hazards generated by the rescue process



#### Further information

For more information refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/hsno-guidance-pages/emergency-management>



Photo 13. First aid equipment



Photo 14. Fire extinguisher



Photo 15. Emergency equipment storage

## 4.8 Spill Response

When a spill, leak or accidental release of hazardous chemicals occurs, appropriate actions must be taken to contain the hazardous chemicals within the workplace.

The spill containment procedure must describe how to contain, clean-up and dispose of the spill or leak. 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 create flammable, toxic or corrosive vapour. The spill containment system must be large enough to ensure that all spills can be held safely until cleaned up.

Any spillages must be cleaned up and disposed of immediately following the procedure set out on the relevant SDS. Approved disposal companies will be used where required by the SDS.

As a minimum, spill kits must be maintained where required.

Spill kits should be inspected monthly.

### Spill kits should include (where relevant):

- Absorbent material suitable for the chemical likely to be spilled
- Booms, plates and/or flexible sheeting for preventing spillage from entering drains and waterways
- Fire extinguishers
- First aid kits appropriate to the risk posed by the spill of a hazardous substance
- Emergency showers and eye wash stations
- Hand tools such as mops, buckets, squeegees and bins
- Suitable protective clothing and equipment to protect the safety and health of personnel involved in the clean-up.



**Photo 16. Spill kit in place outside hazardous substances compound**



#### 4.9 Monitor, Maintain and Review Controls

All control measures must be monitored, maintained and reviewed, in consultation with the relevant stakeholders, to ensure that they are effective, relevant and compliant.

Monitoring and review processes must be performed on a regular basis as deemed appropriate to the nature of the hazard. The frequency of such will be dictated by the level of exposure, the sensitivity and reliability of the control strategies employed and as per their position in the 'Hierarchy of Controls'.

As a minimum, the following must trigger a review of controls:

- When control measures do not minimise the risk so far as is reasonably practicable
- Before a change at the workplace that is likely to introduce a new or modified risk that the control measures may not be effective
- Where a new hazard or risk is identified

#### 4.10 Control measures may be reviewed using the same methods as the initial hazard identification step. Training

Workers and their supervisors must have the skills and knowledge to understand the hazards associated with their work and the control measures implemented for their protection. Where relevant, external training must be undertaken by a nationally accredited training provider. Specific training for persons working with hazardous substances should include the following as a minimum.

##### **Workers should be trained and have the competency to understand and manage:**

- The nature of the hazardous chemicals involved and the risks to the worker
- The control measures implemented, how to use and maintain them correctly
- The arrangements in place to deal with emergencies, including evacuation procedures, containing and cleaning up spills and first aid instructions
- The selection, use, maintenance and storage of any personal protective equipment (PPE) required to control risks and the limitations of the PPE
- Any health monitoring which may be required and the worker's rights and obligations
- The labelling of containers of hazardous chemicals, the information that each part of the label provides and why the information is being provided
- The availability of SDS for all hazardous chemicals, how to access the SDS, and the information that each part of the SDS provides
- The work practices and procedures to be followed in the use, handling, processing, storage, transportation, cleaning up and disposal of hazardous chemicals.
- The use of any other equipment provided for the work
- Legislative requirements and safe procedures

Appropriate training must be provided to workers who:

- Use, storage, transfer hazardous substances
- Undertake hazard identification or risk assessment
- Implement risk control measures



- Issue permits
- Monitor conditions while work is being carried out

All persons shall be trained and assessed as competent to perform work with hazardous substances. They must be trained in, and conversant with this Hazardous Substances Standard, the Company's hazardous substance procedures and have undertaken the training required.

All trained persons shall have their competency reassessed every two years as a minimum to ensure their ongoing competency to perform the activities relevant to the work. Records of training must be kept for at least five years from the date of the training.

Unless the operator has been assessed as competent to undertake the work safely, the operator will be closely supervised by a person deemed competent in the required discipline by the PCBU.

#### 4.11 Approved Handlers

Approved Handlers are required to hold specific qualifications and an Approved Handler Test Certificate.



##### Further information

For more information refer to WorkSafe's guide:

<http://www.worksafe.govt.nz/worksafe/notifications-forms/hsno-activities-certification-qualifications-licensing/certification-of-people/approved-handlers>

## 5 Reference Documents



### Further information

- New Zealand's key work health and safety legislation is the Health and Safety at Work Act 2015 (HSWA) and regulations made under that Act. Compliance with all statutory requirements with the HSWA Act 2015 and other applicable acts and/or regulations is mandatory.
- New Zealand 'Codes of practice' (CoP or ACoP) are documents that offer an approved method of achieving compliance with regulatory requirements. A code of practice will tell you how to meet the Act or regulation requirements and controls in a way that is legally defensible. They are not mandatory and you can adopt other ways of meeting the requirements instead.
- 'Good Practice Guidelines' (GPG) are a guide to what WorkSafe New Zealand considers good practice. Health and safety inspectors may use these guidelines when visiting workplaces or conducting investigations.
- Other types of guidance including webpages, fact sheets or brochures is provided for information only. Compliance to these forms of guidance may have **limited** bearing under the law.

### 5.1 Relevant legislation & regulations

Compliance with all statutory requirements is mandatory. This includes requirements associated with contracting work, equipment and system design, supply, testing and installation.

#### 5.1.1 Hazardous Substances

Hazardous Substances and New Organisms Act 1996 (HSNO Act) and regulations

<http://www.legislation.govt.nz/act/public/1996/0030/latest/DLM381222.html>

- [Hazardous Substances \(Classes 1 to 5 Controls\) Regulations 2001](#)
- [Hazardous Substances \(Classes 6, 8, and 9 Controls\) Regulations 2001](#)
- [Hazardous Substances \(Classification\) Regulations 2001](#)
- [Hazardous Substances \(Tank Wagons and Transportable Containers\) Regulations 2004](#)
- [Hazardous Substances \(Identification\) Regulations 2001](#)
- [Hazardous Substances \(Compressed Gases\) Regulations 2004](#)
- [Hazardous Substances \(Emergency Management\) Regulations 2001](#)
- [Hazardous Substances \(Minimum Degrees of Hazard\) Regulations 2001](#)
- [Hazardous Substances \(Packaging\) Regulations 2001](#)
- [Hazardous Substances \(Disposal\) Regulations 2001](#)
- [Hazardous Substances \(Exempt Laboratories\) Regulations 2001](#)
- [Hazardous Substances and New Organisms \(Personnel Qualifications\) Regulations 2001](#)

Health and Safety at Work (Hazardous Substances) Regulations 2017

**NOT IN EFFECT UNTIL 1 DECEMBER 2017**

<http://www.legislation.govt.nz/regulation/public/2017/0131/latest/DLM7309401.html>

Health and Safety at Work (Major Hazard Facilities) Regulations 2016

<http://www.legislation.govt.nz/regulation/public/2016/0014/latest/DLM6243901.html>

### 5.1.2 Safety general

Health and Safety At Work Act 2015 (HSAW Act 2015)

<http://www.legislation.govt.nz/act/public/2015/0070/latest/DLM5976660.html>

Health and Safety at Work (General Risk and Workplace Management) Regulations 2016

<http://www.legislation.govt.nz/regulation/public/2016/0013/latest/DLM6727530.html>

## 5.2 Codes, Standards & Guidance

### 5.2.1 New Zealand

Management of Substances Hazardous to Health (MOSHH) in the Place of Work (Code of Practice) 1997

<http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/acop-moshh/moshh-ac.pdf>

EPA Website

<http://www.epa.govt.nz/Pages/default.aspx>

### 5.2.2 Other countries

Managing Risks of Hazardous Chemicals in the Workplace Code of Practice, Safe Work Australia 2012

[https://www.safeworkaustralia.gov.au/system/files/documents/1702/managing\\_risks\\_of\\_hazardous\\_chemicals2.pdf](https://www.safeworkaustralia.gov.au/system/files/documents/1702/managing_risks_of_hazardous_chemicals2.pdf)

## 6 Appendix 1: Introduction of new Hazardous Substance (Example only)

NOTE: This form must be completed before any new hazardous substance is introduced to any site. When completed, **attach the Safety Data Sheet** and forward it to the Safety Department at least 3 days prior to the intended use of the substance.

### THIS SECTION IS TO BE COMPLETED BY THE PERSON REQUESTING THE NEW SUBSTANCE.

Full name (requester): \_\_\_\_\_ Department: \_\_\_\_\_

Location of intended use: \_\_\_\_\_

**Name of new substance:** \_\_\_\_\_

Manufacturer: \_\_\_\_\_

UN Number \_\_\_\_\_ CAS Number: \_\_\_\_\_

Quantity to be brought on site: \_\_\_\_\_

Quantity to be stored on site: \_\_\_\_\_

Intended use of new substance: \_\_\_\_\_

Is there a similar product on site? (Could it be used instead?) \_\_\_\_\_

Type of packaging: \_\_\_\_\_

Proposed storage location: \_\_\_\_\_

### THE FOLLOWING SECTIONS ARE TO BE COMPLETED BY THE SAFETY, QUALITY AND ENVIRONMENTAL DEPARTMENTS

#### Safety, Quality and Environmental Requirements

Safety Requirements: ☐ Read SDS Report before using substance

☐ Approved Handler certification required

☐

☐

Hygiene/Food safety requirements: ☐

☐

☐

Environmental Requirements: ☐

☐

#### Minimum PPE required when using this substance

Gloves: ☐ PVC ☐ Rubber ☐ Other

Eye protection: ☐ Safety Glasses ☐ Face Shield ☐ Splash Proof Goggles

Respiratory protection: ☐ Full Mask ☐ Half Mask ☐ Air supplied

Other PPE Req's: ☐ Coveralls ☐ Other: \_\_\_\_\_

☐

☐

#### Specific Requirements

#### APPROVALS

Safety Department approval: Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Quality Department approval: Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Environmental Dept approval: Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Plant Manager Approval: Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Store person sign off: Name: \_\_\_\_\_ Signature: \_\_\_\_\_

**REMEMBER TO ATTACH SDS. One form required per substance.**

## 7 Appendix 2: Change Management considerations (Example only)

Risk to be considered	Risk Mitigation Activity
1. Food safety and regulatory MPI approvals required	<p>Ensure the product will meet all requirements if used in hygiene areas.</p> <ul style="list-style-type: none"> <li>• Perform food safety risk assessment</li> <li>• Get MPI regulatory approvals</li> </ul> <p>If hazardous substance does not receive an MPI Approval no further activity until risk assessment and management plan in place. Once an Approval has been granted continue as per steps below.</p>
2. SDS requirements not known <ul style="list-style-type: none"> <li>• PPE requirements</li> <li>• First aid</li> <li>• Emergency procedures</li> <li>• Classifications (consider site threshold)</li> <li>• Storage not available</li> <li>• Segregation requirements</li> <li>• Separation requirements</li> </ul>	<ul style="list-style-type: none"> <li>• SDS to be requested from the actual supplier. All stages of the product lifecycle to be reviewed and considerations noted and queries answered.</li> <li>• UN number and classes to be identified.</li> <li>• Electronic copy of current SDS supplied with change documentation</li> </ul>
3. Instructions for use (for the application) not known	<ul style="list-style-type: none"> <li>• Ensure instructions for use (Product Information Sheet) are provided by the manufacturer for the intended use</li> <li>• Request dilution requirements and instructions from the manufacturer (e.g. cleaning products) such as containers</li> <li>• Only to be used as per the Approval requirements as per item 1</li> </ul>
4. Use not known	<ul style="list-style-type: none"> <li>• Clearly define intended use of substance (e.g. if use is to be expanded)</li> <li>• If not clear and agreed, repeat step 3</li> </ul>
5. Quantity not known	<ul style="list-style-type: none"> <li>• Clearly define maximum that would be on site at any one time</li> <li>• What size containers is this supplied in? Which holds least risk?</li> <li>• Ensure the maximum volume is within Resource Consent Limits</li> <li>• Ensure the maximum volume is within test certificate/location certificate limits? Does it trigger the requirement for another certificate?</li> </ul>
6. Risks to health identified from SDS	<p>Consider hierarchy of control:</p> <ul style="list-style-type: none"> <li>• Can this product be eliminated (not used)</li> <li>• Can another product be substituted that is less harmful</li> <li>• Can the chemical be fully isolated from personnel so they are not exposed</li> <li>• Are there further engineering controls that could be put in place before the substance is introduced</li> <li>• Are there further administrative controls e.g. SOPS that will reduce risk</li> <li>• What PPE must be worn in order to reduce risk to SFAIRP?</li> </ul>

Risk to be considered	Risk Mitigation Activity
7. Risks to environment identified from SDS	Consider hierarchy of control: <ul style="list-style-type: none"> <li>• Can this product be eliminated (not used)</li> <li>• Can another product be substituted that is less harmful to the environment (including those already on site)?</li> <li>• Can the chemical be fully isolated from ground, waterways so they are not exposed?</li> <li>• Are there further engineering controls that could be put in place before the substance is introduced</li> <li>• Are there further administrative controls e.g. SOPS that will reduce risk</li> <li>• How will this chemical impact the waste water treatment?</li> <li>• Has disposal been considered and plan in place?</li> </ul>
8. Container/tank size or details not known	<ul style="list-style-type: none"> <li>• Clearly define container size</li> <li>• Number of containers to be on site</li> <li>• Procedure for changeover, removal, transport to Stores/site</li> <li>• Further legal compliance or certification requirements triggered e.g. approved handler, DG, test certificate, fire protection?</li> </ul>
9. Emergency equipment or procedures not in place	<ul style="list-style-type: none"> <li>• Ensure emergency measures are sourced and available from Engineering stores e.g. spill kits, supply of PPE equipment</li> <li>• Check Regulations for requirements based on quantity</li> </ul>
10. Transportation of products on site	<ul style="list-style-type: none"> <li>• How are containers to be transported?</li> <li>• Are appropriate controls in place e.g. forklift transport (training, approved handler), manual transport (containers, PPE)?</li> <li>• Mechanical delivery (hard piping etc) appropriate?</li> </ul>
11. End user (plant) SOP's don't exist or require updating	<ul style="list-style-type: none"> <li>• Identify and develop SOP's as required for point of use and handling at storage areas</li> </ul>
12. End user (on-site external of plant) SOP's don't exist or require updating	<ul style="list-style-type: none"> <li>• Identify and develop SOP's as required for point of use and handling at storage areas</li> </ul>
13. End user (off-site) SOP's don't exist or require updating	<ul style="list-style-type: none"> <li>• Identify and develop SOP's as required for point of use and handling at storage areas</li> </ul>
14. Workers don't have correct skills or training	<ul style="list-style-type: none"> <li>• Check approved handler requirements for the substance</li> <li>• Practical training specific to use required against SOP for task</li> <li>• Training records to be maintained</li> </ul>
15. Signage not in place, insufficient, incorrect	<ul style="list-style-type: none"> <li>• Check signage requirements against regulations</li> <li>• Add required signage</li> </ul>
16. Storage area for replacement product not defined/acceptable	<ul style="list-style-type: none"> <li>• Define proposed location of extra product storage?</li> <li>• What legal certificates are required?</li> <li>• What additional bunding is required</li> <li>• Does this trigger maximum limits?</li> <li>• When fire suppression is required</li> </ul>
17. Delivery/removal requirements not known	Determine: <ul style="list-style-type: none"> <li>• How is waste disposed of?</li> <li>• How are empty containers disposed of?</li> <li>• How is this transported to from site?</li> <li>• By whom?</li> <li>• Licenses required?</li> <li>• Is there any other packaging to be disposed of?</li> </ul>

Risk to be considered	Risk Mitigation Activity
18. Supplies not available on site	<ul style="list-style-type: none"> <li>What is the reorder process?</li> <li>What spare PPE needs to be kept on site?</li> </ul>
19. Product details not added to site Hazardous Substances register	<ul style="list-style-type: none"> <li>Once change approved ensure that any of the substance coming to site is added to the site hazardous substances register</li> <li>Maximum volume that could be on site at any time is to be advised</li> <li>Quantity ordered initially to be advised</li> </ul>
20. SDS not available	<ul style="list-style-type: none"> <li>Electronic copy of the <u>full</u> manufacturer's SDS to be supplied to all stakeholders and must be retrievable within minutes</li> <li>Full copy displayed at point of use wherever possible</li> <li>Full copy of SDS kept in a folder with the work area</li> <li>One page summary SDS displayed at point of use is acceptable (if full version retrievable within minutes)</li> </ul>
21. Emergency requirements unknown	<ul style="list-style-type: none"> <li>Review SDS and ensure all emergency requirements are in place including spills, training for recovery etc</li> <li>Ensure regulatory emergency requirements are met</li> </ul>
22. Quantity of chemical now significantly raises risk level and may initiate Major-Hazard Facility status	<p>In the first instance, refer to:</p> <ul style="list-style-type: none"> <li>Schedule 2 in Health and Safety at Work (Major Hazard Facilities) Regulations 2016</li> </ul>