NSW GOVERNMENT

GUIDE TO MANAGING RISKS IN WINERIES

SAFEWORK NSW

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NEW SOUTH WALES wine

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1. INTRODUCTION

In consultation with industry, SafeWork NSW and the NSW Wine Industry Association and its members have contributed to the development of this guide. This guide provides practical guidance for persons conducting a business or undertaking and workers on managing health and safety risks within the winery. It should be read in conjunction with other codes of practice relevant to wine production work.

1.1 WHAT ARE WINERY OPERATIONS?

These operations can be grouped into:

- wine production
- bottling
- packaging
- storage
- sales and distribution.

1.2 WHO SHOULD USE THIS GUIDE?

The Guide applies to all businesses or undertakings within the winery. It can be used where any of the activities mentioned above are carried out at a workplace.

It is intended that this guidance document should be read and used in conjunction with the specific work health and safety codes of practice which provide additional practical guidance and information on how you can achieve the standards required under the work health and safety laws. These are available on the SafeWork NSW and Safe Work Australia websites.

Traffic light tables are also used in this guide to indicate which practices are high risks and alert you to what the preferred risk controls are. Reduced risk solutions are indicated where an interim arrangement is necessary or if the preferred solution is assessed as not being reasonably practicable in an individual situation.

HIGH RISK	REDUCED RISK SOLUTION	PREFERRED SOLUTION

It is recognised that equivalent or better ways of achieving the required work health and safety outcomes may be possible. For that reason compliance with Codes of Practice is not mandatory providing that any other method used provides an equivalent or higher standard of work health and safety than suggested by the Code of Practice.

1.3 WHO HAS DUTIES UNDER THE LAW WITHIN THE WINE INDUSTRY?

Everyone in the workplace has a work health and safety duty. The main duties are set out in Table 1.

Table 1 – Duty holders and their obligations

Who	Duties	Provisions
A person who conducts a business or undertaking	• Ensure, so far as is reasonably practicable, workers and other people are not exposed to health and safety risks arising from the business or undertaking. • Eliminate health and safety risks so far as is reasonably practicable, and if this is not reasonably practicable, minimise those risks so far as is reasonably practicable. • This includes risks associated confined space, hot work, hazardous manual tasks, plant and machinery, hazardous chemicals, electricity, noise, risk of falls, hot and cold environments, public safety, etc.	WHS Act s 19 WHS Regulations r 35
Designers, manufacturers, importers, suppliers or installers of plant or substances	Ensure, so far as is reasonably practicable, the plant or substances they design, manufacture, import or supply is without risks to health and safety, including carrying out testing and analysis and providing information about the plant or substances.	WHS Act s 22–26
Officers such as company directors	Exercise due diligence, including by taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to eliminate or minimise risks from work associated with growing, processing, storage, transporting, sales of wine industry products.	WHS Act s 27
Workers	• Take reasonable care for their own health and safety. • Take reasonable care not adversely affect other people's health and safety. • Co-operate with reasonable work health and safety policies or procedures. • Comply, so far as they are reasonably able, with reasonable instructions.	WHS Act s 28
Other persons at the workplace, like visitors	• Take reasonable care for their own health and safety. • Take reasonable care not to adversely affect other people's health and safety. • Comply, so far as they are reasonably able, with reasonable instructions.	WHS Act s 29

2. HOW CAN RISKS WITHIN THE WINE INDUSTRY OPERATIONS BE MANAGED

Use the following steps to ensure, so far as is reasonably practicable, that workers and other people are not exposed to health and safety risks:

Many hazardous activities carried out in the wine industry can result in death or serious injury if not managed correctly.

STEP ONE

Find out what could cause harm. Hazards generally arise from three parts of the wine production industry and their interaction. These are:

- the physical work environment
- machinery, processing and substances used, and
- work practices and systems of work.

Typical hazards found in wine production, these are:

- confined space
- hot work
- hazardous manual tasks
- plant and machinery
- hazardous chemicals
- electrical
- noise
- fatigue
- risks of falls
- exposure to extremes of temperature and cold
- hit by moving objects
- traffic management
- visitor and customer access.

Table 2 overleaf lists some potential types of workplace hazards. Some hazards are part of the work process, such as mechanical hazards, noise or toxic properties of substances. Other hazards result from equipment or machine failures and misuse, chemical spills and structural failures.

A piece of plant, substance or a work process may have many different hazards. Each of these hazards needs to be identified. For example, a production line (packaging/bottling locations) may have dangerous moving parts, noise, hazards associated with manual tasks and psychological hazards due to the pace of work.

Table 2 – Examples of different types of hazards which may exist within wineries

Hazard	Potential harm
Manual tasks	Overexertion or repetitive movement can cause muscular strain
Gravity	Falling objects, falls, slips and trips of people can cause fractures, bruises, lacerations, dislocations, concussion, permanent injuries or death
Electricity	Potential ignition source. Exposure to live electrical conductors may result in electrical shock, burns or death from electrocution
Machinery and equipment	Being hit by moving vehicles, or being caught by moving parts of machinery can cause fractures, bruises, lacerations, dislocations, permanent injuries or death
Hazardous chemicals	Chemicals such as anhydrous ammonia (irritant corrosive) can skin, eyes, respiratory tract; chemical burns, carbon dioxide (Asphyxiant) affects respiratory/nervous system, sulphur dioxide affects and causes irritation of the eyes and the respiratory tract.
Extreme temperatures	Heat can cause burns, heat stroke or fatigue. Cold can cause hypothermia.
Noise	Exposure to hazardous noise can cause noise induced hearing loss
Radiation	Ultra violet, welding arc flashes, micro waves and lasers can cause burns, cancer or blindness
Biological	Micro-organisms can cause hepatitis
Psychosocial hazards	Effects of work related stress, bullying, violence and work related fatigue.
Glass/products	Lacerations from handling of broken glass materials/products

STEP TWO

Assess the risk. In many cases the risks and related control measures will be well known. In other cases you may need to carry out a risk assessment to identify the likelihood of somebody being harmed by the hazard and how serious the harm could be. A risk assessment can help you determine what action you should take to control the risk and how urgently the action needs to be taken.

Table 2. Shows for example, common activities, hazards and risks which may exist within the winery. With each of these risks an assessment of the working conditions should be done to identify ways to eliminate or minimise risks in the high risk zone and ensure the activity is in the medium or lower risk zones.

Table 3 – Assessing risks in the winery

Hazards and activities	Wine production risk profile		
	Higher risk →		Lower risk
Operating machinery	• Workers operate machinery without training or assessment, for example, Operation of Forklift Truck without High Risk Licence	• Workers have some training or training which is not current or relevant to the machinery they are operating. • has only been assessed informally	• Workers have been trained and assessed on the machinery they are operating Workers have been assessed for competence and attained their HRW licence for FLT
Hazardous manual tasks	• Workers manually lifting heavy boxes containing product onto pallets	• Workers have received training in safe manual handling techniques	• Workers utilise the use of fork lift trucks or pallet jacks to load pallets/trucks
Working alone in remote parts of winery	• Working alone without emergency procedures	• Working alone with agreed emergency contact and procedures	• Working alone but within the same area as others in constant communication with established emergency arrangements.
Use of hazardous chemicals	• Handling of caustic or acidic chemicals where there is a potential for splashes onto the skin or eyes	• Safe work practices developed and implemented to avoid skin contact, or select and use appropriate PPE to control exposure	• Consider installing automated systems to dispense or transfer chemicals between containers. Use eye protection. Provide an emergency eyewash facility.
Electrical (risk of electrical shock, or electrical fire)	• No electrical inspection, testing and tagging of electrical plant such as electrical leads, and portable electrical tools such as electrical drills. No records of inspection or testing.	• Inspection and testing of electrical plant undertaken, records of inspection and testing retained.	• Residual current devices installed on electrical switchboard protecting GPOs supplying electrical plant. Electrical plant inspected tested tagged • Records of inspection and testing retained. • Use of extra low voltage equipment
Noise	• Workers using personal hearing protectors	• modify plant and processes to reduce the noise using engineering controls	• isolate the source of noise from people by using distance, barriers, enclosures and sound absorbing surface

STEP THREE

Take action to control the risk. The work health and safety laws require a business or undertaking do all that is reasonably practicable to eliminate or minimise risks.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control. You must work through this hierarchy to manage risks.

The first thing to consider is whether hazards can be completely removed from the workplace. If it is not reasonably practicable to completely eliminate the risk then consider the following options in the order they appear below to minimise risks, so far as is reasonably practicable:

- substitute the hazard for something safer, for example, use a non-caustic cleaner instead of caustic soda
- isolate the hazard, for example, installation of fixed ladders/walkways on top of tanks, install guard rails around exposed edges and holes in floors.

If after implementing the above control measures a risk still remains, consider the following controls in the order below to minimise the remaining risk, so far as is reasonably practicable:

- use administrative controls, for example, rotate jobs and vary tasks to minimise the risks associated with repetitive manual handling tasks, and use personal protective equipment (PPE), for example, safety eyewear, hearing protection, safety helmets, or reflective, high-visibility clothing.

A combination of the controls set out above may be used if a single control is not enough to minimise the risks. You need to consider all possible control measures and make a decision about which are reasonably practicable for your workplace. Deciding what is reasonably practicable includes the availability and suitability of control measures, with a preference for using substitution, isolation or engineering controls to minimise risks before using administrative controls or PPE. Cost may also be relevant, but you can only consider this after all other factors have been taken into account.

STEP FOUR

Check your control measures regularly to ensure they are working as planned. The nature of the work, the work processes and working conditions including the environment means risk control measures may require regular reviewing to deal with changes in working conditions. Control measures need to be regularly reviewed to make sure they remain effective, taking into consideration any changes, the nature and duration of work and that the system is working as planned.

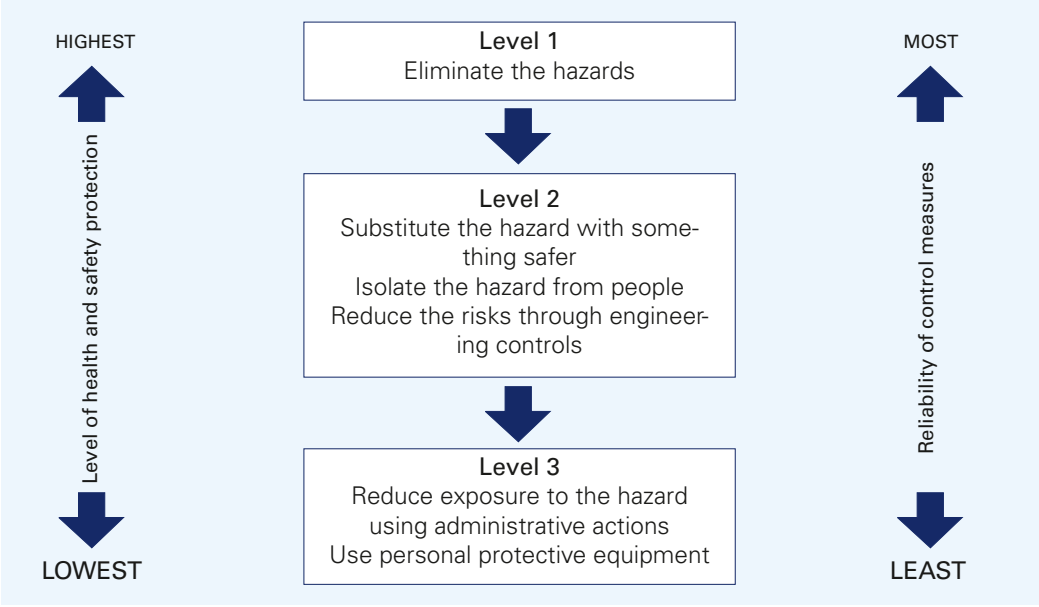
Further information on the risk management process is in the Code of Practice: How to manage work health and safety risks.

2.1 THE HIERARCHY OF RISK CONTROL IN SUMMARY

The most important step in managing risks involves eliminating them so far as is reasonably practicable, or if that is not possible, minimising the risks so far as is reasonably practicable. In deciding how to control risks you must consult your workers and their representatives who will be directly affected by this decision. There are many ways to control risks. Some control measures are more effective than others.

You must consider various control options and choose the control that most effectively eliminates the hazard or minimises the risk in the circumstances. This may involve a single control measure or a combination of different controls that together provide the highest level of protection that is reasonably practicable. Some problems can be fixed easily and should be done straight away, while others will need more effort and planning to resolve. Of those requiring more effort, you should prioritise areas for action, focusing first on those hazards with the highest level of risk. The ways of controlling

Figure 1 – Hierarchy of control taken from How to Manage Work Health and Safety Risks Code of Practice



Example – Controlling the risk of falls whilst accessing the top of tanks to take wine samples. The installation of a fixed ladder (**engineering control**) and/or walkway has reduced the risk of falls. This task could have been **eliminated** by installing test taps at the bottom of the tanks.

You must always aim to eliminate a hazard, which is the most effective control. If this is not reasonably practicable, you must minimise the risk by working through the other alternatives in the hierarchy. The following table summarises the types of controls in the hierarchy as prescribed in the work health and safety legislation.

Photograph shows example of modifications made to large wood tank by installation of a test tap near base.

The following table 4 summarises the types of controls in the hierarchy as prescribed in the work health and safety legislation.

Table 4 – Hierarchy of control

Type of control	Comments
Eliminating	Eliminating the hazard is the most effective means of managing a risk. It must be considered before all other control measures
Substituting Isolating Implementing engineering controls	Where it is not reasonably practicable to eliminate a hazard, risks arising from the hazard must be minimised. Substitution, isolation and engineering controls have the same ranking in the hierarchy. Their effectiveness does not depend on human behaviour
Administrative controls	If a risk remains, the risks must be controlled using administrative controls such as safe work procedures and training personnel. The effectiveness of administrative controls depends on human behaviour
Using Personal Protective Controls (PPE)	If a risk remains, the risks must be controlled using PPE. This is the least effective measure and also depends on human behaviour

Note. A combination of the controls set out in this clause may be used to minimise risks, so far as is reasonably practicable, if a single control is not sufficient for the purpose. This is often the case.

Please refer How to Manage Work Health and Safety Risks Code of Practice

This code provides practical guidance for persons who have duties under the WHS Act and Regulations to manage risks to health and safety.

A rack used to store hoses, prevent trip hazards and damage while not in use.

A result of poor organisation where hoses cause a trip hazard to workers involved in transferring/pumping operations.

Retrofitting of overhead fixed lines helps to reduce trip hazards and improves efficiencies to enable manoeuvrability of other plant and equipment at this location.

3. CONSULTING, CO-OPERATING AND COORDINATING ACTIVITIES WITH OTHER DUTY HOLDERS

Consultation involves sharing information, giving workers a reasonable opportunity to express views and taking those views into account before making decisions about health and safety matters. Consultation with workers and their health and safety representatives is required at each step of the risk management process. By drawing on the experience, knowledge and ideas of your workers you are more likely to identify hazards and choose effective control measures. You should encourage your workers to report hazards and health and safety problems immediately so the risks can be managed before an incident occurs. There is often more than one business or undertaking involved in wine production.

Each has responsibility for health and safety to the extent they influence and control aspects of the winery. If there is more than one business or undertaking involved at your workplace you must consult them to find out who is doing what and work together so risks are eliminated or minimised so far as is reasonably practicable. Because contractors and labour hire workers may be carrying out work at the winery it is necessary to include them in these consultative arrangements. Consultation arrangements should take into account the size of the winery, the way work is arranged, shifts, workgroup locations, mobile workers, etc. Many organisational decisions or actions have health and safety consequences for workers. For example, introducing a new crusher equipment into the workplace may affect the tasks your workers carry out, the timeframes for doing work, how they interact with each other and the environment in which they work.

A person conducting a business or undertaking must consult with workers when:

- identifying hazards and assessing risks arising from the work carried out or to be carried out
- making decisions about ways to eliminate or minimise those risks
- making decisions about the adequacy of facilities for the welfare of workers
- proposing changes that may affect the health or safety of your workers, and
- making decisions about procedures for consulting with workers; resolving health or safety issues; monitoring health of your workers; monitoring the conditions at the workplace and providing information and training for your workers.

For further guidance on consultation requirements is available in the Code of Practice Work health and safety consultation, co-operation and co-ordination.

The development of a Safe Work Procedure, for example, to safely operate the crushing plant, should be done in consultation with the respective parties, such as workers and contractors. This will assist in the identification of the operational hazards, and the associated risks.

Involving and consulting your workers, they will be more likely to follow a safe work procedure if they have been involved in its development, and they will often know the best and safest way toperform a task. Involve those workers who are experienced in performing the tasks.

4. INDUCTION

In addition to task-specific training, workers undertaking work within the winery and associated work operations must be provided with induction training to inform them of site-specific hazards and to familiarise them with winery operations and safe work procedures. Induction training should include but not limited to:

- hazard identification and risk control
- site-specific winery hazards
- site safety rules
- isolation of plant
- hazardous manual tasks and safe lifting techniques
- emergency procedures
- safe work procedures
- communication systems
- first aid and amenities
- fatigue management hazard and incident reporting
- record keeping
- consultation arrangements and issue resolution processes.

5. INFORMATION INSTRUCTION TRAINING AND SUPERVISION

All PCBUs, subcontractors and self-employed persons (for example, sole traders) must provide relevant information, training, instruction and supervision to protect all persons from risks to their health and safety arising from work carried out within the winery. Information relevant to the health and safety of workers should be available in the workplace. This includes information about the safe use of plant, equipment and hazardous chemicals that are used in the workplace. Wineries have a duty to provide information, training and instruction to your workers so that they know how to work safely and without risk to their health.

It is the wineries duty to provide clear information, training and instruction that covers:

- the type of work carried out by the worker
- the type of risks associated with that work
- the safety measures taken to reduce (or manage) risks in the workplace.

Safety signs provide information in the workplace, however the use and reliance on signage does not remove the need to provide safe systems of work or other information and training, nor does it transfer work health and safety responsibility to the worker.

A range of activities can assist in ensuring people have the necessary knowledge and skills to complete the work safely, including general induction training and other training that may be specific to the workplace or the task the person is performing. Information that might be provided includes workplace health and safety arrangements and procedures, such as for emergency evacuations/arrangements. Information can be provided in various forms, including written formats or verbally, for example, during workplace-specific training, pre-start meetings or toolbox talks. Information and instruction are often provided at the same time. In addition, supervisors will provide specific workplace instructions during the work, including for health and safety. Supervisors should be aware of and provide the level of supervision necessary to ensure the health and safety of workers, including checking workers' competency to undertake the work the safely.

Induction training programs provides knowledge of winery operations, the work health and safety laws that apply, common hazards likely to be encountered in the wine industry, and how the associated risks can be controlled. Workers should receive the necessary supervision to ensure work health and safety. A range of factors will determine what is meant by 'necessary'. These may include complexity of the task, associated hazards and level of risk, skills, knowledge and experience of the worker, the workplace and environment and system of work.

6. INJURY AND INCIDENT RECORDING

The WHS Act requires the regulator (SafeWork NSW) to be notified of certain 'notifiable incidents'. Notifying the regulator of 'notifiable incidents' can help identify causes of incidents and prevent similar incidents at your workplace.

The WHS Act, in summary Part 3 of the WHS Act requires:

- immediate notification of a 'notifiable incident' to the regulator after becoming aware of it
- if the regulator asks – written notification with 48 hours of the request, and
- preservation of the incident site until an inspector arrives or directs otherwise (subject to some exceptions).

Failing to notify is a criminal offence and penalties apply.

WHAT IS A 'NOTIFIABLE INCIDENT'

A 'notifiable incident' as outlined in the WHS Act is:

- death of a person
- 'serious injury or illness', or
- 'dangerous incident' arising out of the conduct of a business or undertaking at a workplace.

'Notifiable incidents' may relate to any person – whether an employee, contractor or member of the public.

Ensure that all incidents and injuries are reported to the supervisor and management staff and are recorded on the incident and injury report see page 108.

Record all incidents in the incident and injury report and provide a copy to management Authorities also require that the place of work is 'not to be disturbed' except by actions relating to emergency rescue.

7. HAZARDOUS CHEMICALS

Hazardous chemicals are used extensively within the wine industry. These hazardous chemicals are stored, used and transported within wineries on daily basis. Hazardous chemicals that may be found at a winery include such chemicals as ozone, anhydrous ammonia, copper sulphate, chlorine gas, sodium hydroxide and carbon monoxide. Caustics are used regularly for cleaning tanks, ammonia is used in refrigeration systems, diatomaceous earth is used for filtration purposes. Toxic gases can be found during fermentation, cleaning and bottling such as sulphur dioxide, hydrogen sulphide, and ammonia.

Other common hazardous chemicals used commonly include, nitrogen, ethanol (spirit), which can be in various forms, for example, gas, liquids, solid. Nationally and within NSW a model Code of Practice has been developed to provide practical guidance on how to manage health and safety risks associated with hazardous chemicals for persons conducting a business or undertaking who use chemicals in their workplace.

Safe Work Australia defines a hazardous chemical as any substance, mixture and article that satisfies the criteria of one or more of the Globally Harmonised System of Classification and Labelling of Chemicals hazard classes, including a classification referred to in Schedule 6 of the WHS Regulations. Hazards presented by the hazardous chemicals can be classified broadly into two types health and physicochemical hazards based on the immediate or long term injury or illness to people in the workplace. Health hazards are hazards like skin irritants, carcinogens or respiratory sensitisers that have an adverse effect on a worker's health as a result of direct contact with or exposure to the chemical, usually through inhalation, skin contact or ingestion. Physicochemical hazards generally result from the physical or chemical properties, like flammable, corrosive, oxidising or explosive substances.

The Globally Harmonized System of Classification and Labelling of Chemicals, or GHS, is a United Nations effort to internationally standardise chemical classification, labelling and safety datasheets (SDS) in the workplace. Australia adopted the GHS underwork health and safety laws on 1 January 2012. The GHS replaces the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008 (2004)] for workplaces. It uses a common set of pictograms, signal words and hazard warnings to universalize classifications. Australia adopted the third revised edition of the GHS under work health and safety laws. After 1 January 2017, the SDS and labels must be GHS compliant and all workplace chemicals must be classified according to the new system:

Up to 31 December 2016	From 1 January 2017
Approved Criteria for Classifying Hazardous Substances NOHSC: 1008 (2004) OR the GHS	Workplace chemical classification, labels and SDS under Third Edition GHS ONLY
National Code of Practice for the Preparation of Material Safety DataSheets	Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals
The National Code of Practice for the Labelling of Workplace Substances NOHSC: 2012 (1994)	Code of Practice for the Labelling of Workplace Hazardous Chemicals
ADG Code for chemicals in transit	ADG Code for chemicals in transit

7.1 LABELLING OF WORKPLACE HAZARDOUS CHEMICALS

WHAT IS A LABEL?

A label is the written, printed or graphical information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the container or pipe work of a hazardous chemical. For workplace hazardous chemicals, labels include information on the hazards, plus instructions and information on the safe storage, handling, use and disposal of the chemical. The label and Safety Data Sheets (SDS) are important sources of information that may be used to inform hazard and risk assessments in the workplace, and establish appropriate work practices and processes to control the risks during use.

DUTIES UNDER THE WHS REGULATIONS

Under the Work Health and Safety Regulations, the manufacturer or importer of a hazardous chemical must ensure that it is correctly labelled. Also, a supplier must not supply hazardous chemicals to a workplace if the hazardous chemicals are not correctly labelled.

7.2 CODE OF PRACTICE FOR LABELLING

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals provides detailed guidance on how to label workplace chemicals. This code of practice should be used where the chemical has been classified according to the GHS.

CLASSIFICATIONS AND LABELLING

Signal words – are used to describe their hazard level – 1. Warning and 2. danger.

Hazard statement – The hazard statement communicates the chemical's nature and severity. The language used is straightforward and familiar. For example, 'Causes serious eye irritation'.

Precautionary statement – Precautionary statements recommend measures to avoid or minimise risks of chemical exposure. The precautionary statements relate specifically to prevention, response, storage and disposal.

Label element	Examples
Signal words – these provide an immediate warning to the reader	• Danger or Warning
Hazard statements – these describe the nature and severity of the chemical hazard based on a chemical's classification	• May cause cancer • Fatal if inhaled • Flammable liquid and vapour • Causes severe skin burns and eye damage • May cause respiratory irritation
Pictograms – these provide a pictorial representation of the type of hazard that can be easily recognised at a glance	 Flammable Acute toxicity Warning Human health Corrosive

7.3 SAFETY DATA SHEETS (SDS)

The SDS contains 16 sections or headings in the Australian 16 header format. Language used in the new SDS is simple, clear and precise. You will no longer see 'may be dangerous', 'no health effects', 'safe under most conditions of use' or 'harmless'.

Pictograms – the GHS uses nine standard symbols to show how chemicals are classified. Refer to fact sheet Understanding safety data sheets for hazardous chemicals.

The SDS should be kept in a location near the work area where the substance is used. You must ensure that all workers likely to be exposed to the hazardous chemical know how to find the SDS. In some cases it may be practicable to provide workers with access to SDS via an electronic database, for example, in universities where potentially thousands of chemicals may be used, stored or handled at the site. However, the electronic database should be readily available to workers, workers should know how to use it, and a backup means of providing the SDS should also be provided, for example, as hard copies in a filing system.

PICTOGRAMS

The GHS uses nine standard symbols to show how chemicals are classified.

New symbol	Old symbol
 Flammable	
 Compressed gas	

New symbol	Old symbol	New symbol	Old symbol
 Oxidiser		 Explosive	
 Corrosive		 Acute toxicity	
 Environmental hazard			

New symbol		New symbol	
	Health hazard eg irritant or sensitiser		Chronic health hazard (eg cacinogen, mutagen, reproductive hazard)

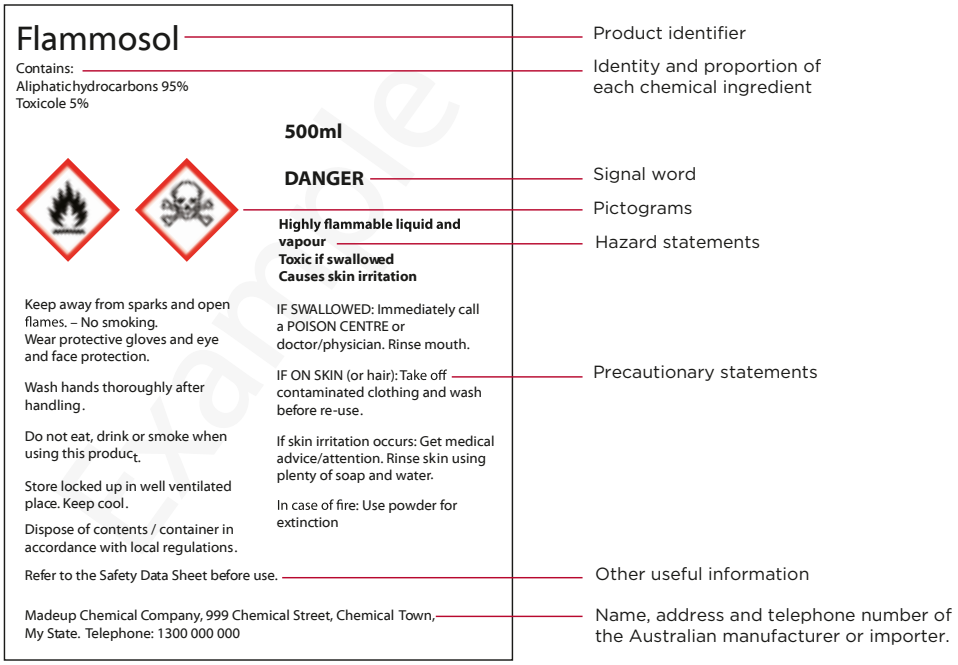
WHICH CHEMICALS ARE INCLUDED?

If a chemical meets the criteria of the GHS, for one or more class, it is a hazardous chemical. Each hazard class is split into categories, divisions and types which are explained through new pictograms, signal words and hazard statements:

Classification		Labelling			
Hazard		Pictogram, code*	Signal word	Hazard Statement	
Class	Category			Code*	Text
Explosives	Unstable explosive		Danger	H200	Unstable explosive
	Division 1.1			H201	Explosive; mass explosion hazard
	Division 1.2			H202	Explosive; severe projection hazard
	Division 1.3			H203	Explosive; fire, blast or projection hazard
	Division 1.4	GHS01	Warning	H204	Fire or projection hazard
	Division 1.5	No GHS Pictogram [1]	Danger	H205	May mass explode in fire
	Division 1.6	No GHS Pictogram [1]	No Signal Word	N/A	No Hazard Statement

[1] 1.6 need to be labelled with their respective Dangerous Goods class label in accordance

GHS COMPLIANT LABEL



GHS COMPLIANT SAFETY DATA SHEET

SAFETY DATA SHEET
Flammosol

1. IDENTIFICATION

Product identifiers

Product name : Flammosol
Product Number : 1000000
Brand : Madeup Chemical Co.
Index-No. : 000-000-00-01
CAS-No. : 001-01-0

Recommended use of the chemical and restriction on use

Company Details
Madeup Chemical Company
999 Chemical Street
Chemical Town, My State
Tel No. : 1300 000 000
Email: info@madeupchemical.gov.au
Website: www.madeupchemicalcompany.com.au

Emergency telephone number
Emergency Tel No. : 1300 000 001

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Flammable liquids (Category 2)
Acute Toxicity – Oral (Category 3)
Skin corrosion / irritation (Category 2)

Label elements
Pictograms:

Signal word: Danger
Hazard statement(s):
H225 Highly flammable liquid and vapour
H301 Toxic if swallowed
H302 Harmful if swallowed
H315 Causes skin irritation

Precautionary statement(s):
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed
P241 Use explosion proof electrical equipment
P242 use only non sparking tools
P243 Take precautionary measures against static discharge
P264 Wash hands thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P281 Use personal protective equipment as required

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Store in a well-ventilated place. Keep cool.

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7.4 WORKPLACES – SAFETY DATA SHEETS AND LABELLING

Any new purchases of hazardous chemicals you make from January 2017 must be GHS compliant (both labels and SDS).

7.5 REGISTER OF HAZARDOUS CHEMICALS

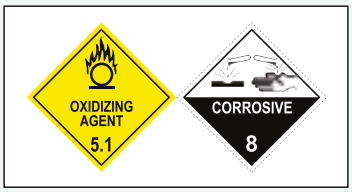
The register is a list of the product names of all hazardous chemicals used, handled or stored at the workplace accompanied by the current SDS (one that is not more than five years old) for each hazardous chemical listed. It must be updated as new hazardous chemicals are introduced to the workplace or when the use of a particular hazardous chemical is discontinued. Refer page 116 work health and safety – hazardous chemical register template.

7.6 DUTIES OF PCBUs RELATING TO HAZARDOUS CHEMICALS

Table 5 – Specific hazards, risks and control measures – hazardous chemicals

Hazards and risks	Control measures
Unlabelled or incorrectly labelled hazardous chemicals	Hazardous chemicals at the workplace that are handled, stored or used at the workplace are correctly labelled
Pipework within the winery containing hazardous chemicals are not labelled on or near the pipework.	Pipework containing hazardous chemicals is labelled on or near pipework
No Safety Data Sheet (SDS) is obtained.	SDS is obtained from manufacturer, supplier
Access not provided to SDS by workers and emergency service workers or persons likely to be exposed to the hazardous chemical	SDS is available and accessible to workers, emergency service workers, or persons likely to be exposed to the hazardous chemical
No Hazardous chemical register prepared and maintained at the workplace, which is accessible to workers and anyone else affected by the hazardous chemical	Hazardous chemical register is prepared and accessible The register must contain a list and current SDS for each chemical listed
No manifest is prepared for quantities of a schedule 11 hazardous chemical or group exceeds manifest quantities.	Manifest prepared
Hazardous chemicals used, handled or stored on site exceeds the manifest quantity without emergency plan developed & implemented at premises	Develop and implement emergency plan
If manifest quantities exceeded in schedule 11 WHS Regulation, requires PCBU to notify regulator (SafeWork NSW)	Manifest quantities exceeded in schedule 11 are notified to SafeWork NSW.
No Manifest – plan of workplace developed	Manifest Site Plan of the workplace developed – in accordance with Schedule 12 WHS Regulation
No emergency plan is prepared for quantities of hazardous chemicals used, handled or stored at a workplace that exceeds the manifest quantity for that hazardous chemical.	An emergency plan has been prepared if the quantity of hazardous chemicals exceeds the manifest quantity for that hazardous chemical.
No placarding is displayed for storage of hazardous chemicals	Placarding is displayed

7.7 PLACARDING FOR STORAGE OF HAZARDOUS CHEMICALS



COMBUSTIBLE LIQUID

HAZCHEM

INTRODUCTION

When emergency services respond to fires and chemical spills at workplaces using, storing or handling hazardous chemicals, the responders need to know the potential hazards involved at such incidents. For effective and efficient emergency action, they need information about the type, quantity and locations of the hazardous chemicals stored at the workplace.

Placards are a means of alerting the emergency services and other persons to the presence of hazardous chemicals and providing information about them. They are an important part of an overall safety management strategy for workplaces using, storing or handling hazardous chemicals.

Workplaces using, storing or handling hazardous chemicals in tanks or in quantities exceeding prescribed quantities are required to be placarded under the Work Health and Safety Regulation 2011 (WHS Regulation). This guide provides information on how to identify when placarding is needed and the types of placards required.

7.8 FUNCTION OF PLACARDS

Placards serve to:

- alert people (workers, contractors, visitors and emergency service personnel) to the presence of hazardous chemicals
- identify hazardous chemicals stored in bulk (for example, tanks)
- identify areas where significant quantities of hazardous chemicals in packages are stored
- identify the hazards of goods present, and
- indicate the required emergency actions for hazardous chemicals in tanks through the use of the HAZCHEM code.

7.9 APPLICATION OF PLACARDS

Placards are applicable to storages of those hazardous chemicals to which Part 7.1 of the WHS Regulation applies. Refer to Part 7.1 Division 1 for further details on the application of the hazardous chemicals provisions.

Essentially the placarding requirements under the WHS Regulation are the same as that required under the former Occupational Health and Safety Regulation 2001 (repealed on 31 December 2011) with some differences as described below:

- Globally Harmonised System (GHS)1 categories are now reflected in the placarding and manifest table (Schedule 11) replacing the references to the ADG Code dangerous goods classes, divisions, and packing groups
- prescribed placarding quantity for flammable gases (for example, LP gas and acetylene in cylinders at a workplace) is reduced from 500 L to 200 L
- prescribed placarding quantity for industrial gases (for example, compressed nitrogen, argon or oxygen in cylinders) is reduced to 1,000 L
- Class 9 dangerous goods are no longer included in Schedule 11 table for placarding.

It should be noted that while the WHS Regulation has introduced the GHS for classification and labelling of hazardous chemicals, the associated GHS pictograms are not referred to for placarding purposes. That is, GHS pictograms are not used for placarding of tanks and storage areas. Class labels from the ADG Code have been retained for the purposes of identifying hazardous chemical storages at workplaces. Appendix 1 shows the ADG Code class labels that will be applicable for the equivalent GHS hazard categories to which the WHS Regulation apply.

7.10 DEFINITIONS

ADG Code means the document known as the Australian Dangerous Goods Code comprising the Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition, available at www.ntc.gov.au.

Aerosol means a non-refillable metal aerosol dispenser, pressurised by liquefied, dissolved or compressed propellant gas.

Bulk means any quantity of a hazardous chemical that is:

- in a container with a capacity exceeding 500 L or net mass of more than 500 kg, or
- if the hazardous chemical is a solid; an undivided quantity exceeding 500 kg.

Class means the hazard class of the dangerous goods as stated in the ADG Code. A class may include divisions and packing groups (PG) where PG I – great danger, PG II – medium danger, and PG III – minor danger.

Goods too dangerous to be transported (GTDTBT) means goods listed in Appendix A of the ADG Code as goods too dangerous to be transported. These goods are inherently unstable but it may be possible to transport the goods after mixing them with diluents, stabilisers, inhibitors, desensitisers, phlegmatizers, solvents, wetting agents or adulterants to overcome the instability.

Hazardous chemical means a substance, mixture or article that satisfies the criteria for a hazard class in the GHS as defined in the WHS Regulation. Hazardous chemicals that are subject to the WHS Regulation covers dangerous goods excluding explosives (Class 1), radioactive materials (Class 7), infectious substances (Division 6.1) and certain miscellaneous dangerous goods (Class 9).

Packaged hazardous chemicals means Schedule 11 hazardous chemicals in a container with:

- a capacity not exceeding 500 L or
- a net mass not exceeding 500 kg.

The term refers to the complete product consisting of the goods and their packaging for transport. Examples of hazardous chemicals in packages are shown overleaf.

PLACARDING REQUIREMENTS

The provision of placards is addressed in clauses 349 and 350 and Schedules 11 and 13 of the WHS Regulation. Placards are required to be made of durable and weather-resistant material and be maintained in good repair and legible condition.

TYPES OF PLACARDS

The types of placards under the WHS Regulation include:

- outer warning placard for the entrance to the workplace
- information placards for hazardous chemicals in bulk (that is, tanks and stockpiles)
- information placards for hazardous chemicals in packages.

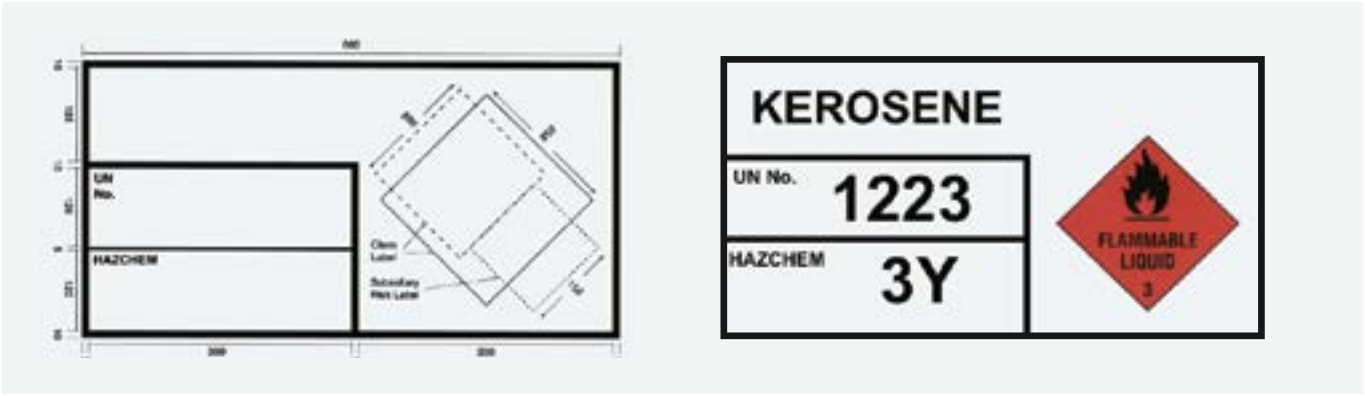
OUTER WARNING PLACARDS

An **outer warning placard,** or HAZCHEM sign, is required at the entrance to the workplace when the workplace exceeds a prescribed placarding quantity in the Schedule 11 table. It must conform to the design in Schedule 13 of the WHS Regulation as shown in figure 1. The word HAZCHEM must be in red lettering, not less than 100 mm high, on a white or silver background.

INFORMATION PLACARDS FOR HAZARDOUS CHEMICALS IN BULK

Bulk containers such as tanks used to contain hazardous chemicals are required to have specific information placards that have the form and dimensions shown in figure.

Figure 1 – Form and dimensions for a hazardous chemicals tank placard



The placard must contain the following information about the goods stored in the tank:

- the proper shipping name
- UN number
- HAZCHEM code
- ADG Code Class label

- subsidiary risk label (if applicable). For more than one subsidiary risk, the width of the area on the right hand side for the subsidiary risk label may be extended. This information is available from the product's SDS and the ADG code.

Information on the placard must meet the following specifications:

- text must be black on white background (or white on a black background for the HAZCHEM Code)
- lettering must be at least 100 mm high, unless two lines are used (50 mm lettering)
- the Class and subsidiary risk label must be in the form and colouring of the ADG Code
- the Class label must have sides of 250 mm in length
- where there is a subsidiary risk, the Class label may have sides 200 mm in length
- subsidiary risk labels must have sides of not less than 150 mm.

Information placards for tanks containing hazardous chemicals are similar to the full-size Emergency Information Placards (EIP) required by the ADG Code for bulk transport, with the emergency contact detail removed. Tanks must be placarded at all times unless they are confirmed to be free of hazardous chemicals.

COMBUSTIBLE LIQUIDS IN TANKS

Figure 2 – Placard for category 4 flammable liquids

Category 4 flammable liquids are equivalent to C1 combustible liquids having a flash point greater than 60 degrees Celsius and <93 degrees Celsius. An example of a hazardous chemical in this category is diesel fuel.

The information placard for a tank of Category 4 flammable liquid must have the words COMBUSTIBLE LIQUID in lettering not less than 100 mm high in black on a white or silver background. Figure 3 overleaf illustrates the form and dimension required.

HOW TO CALCULATE QUANTITY OF HAZARDOUS CHEMICALS IN TANKS

- For solids, the quantity is to be calculated by the mass in kilograms that the tank is designed to hold.
- For liquids, the quantity is to be calculated by the design capacity of the tank in litres.
- For gases, the quantity is to be calculated by the total water capacity in litres of the tank.

HOW TO CALCULATE QUANTITY OF SOLID HAZARDOUS CHEMICALS NOT IN A TANK OR PACKAGE

The quantity of solid hazardous chemicals not in tanks or packages such as a stockpile is the undivided mass of the goods in kilograms.

INFORMATION PLACARDS FOR HAZARDOUS CHEMICALS IN PACKAGES

Packaged hazardous chemicals are containers of Schedule 11 hazardous chemicals in containers having a capacity of 500 L or less or a net mass not exceeding 500 kg. This includes drums and cylinders. Individual storage areas where hazardous chemicals in packages are kept must display an information placard when the prescribed placarding quantities in Schedule 11 table are exceeded. The form and dimension of placards for hazardous chemicals in packages are shown in figure 5.

Figure 3 – Example placards for a storage location for hazardous chemicals in packages

The placard must have a white or silver background and be large enough to accommodate the number of Class labels required to be displayed on it. The class labels ('diamond') must have sides of at least 100 mm long.

The Class labels required by the WHS Regulation should be grouped together. They need not be placed in the one horizontal line on a shared sign as illustrated in Schedule 13 of the WHS Regulation, provided they are clearly visible against a contrasting background. Vertical or diagonal grouping is equally acceptable.

Note that the information placard for a package store does not require the HAZCHEM code.

COMBUSTIBLE LIQUIDS IN PACKAGES

Placards for Category 4 flammable liquids (that is, C1 combustible liquids having a flash point greater than 60 degrees Celsius and <93 degrees Celsius) must have the words COMBUSTIBLE LIQUID in lettering not less than 100 mm high in black on a white or silver background. Figure 6 below illustrates the form and dimension required.

PLACARD FOR COMBUSTIBLE LIQUIDS

Schedule 13 clause 6(3)(b) requires a Class 3 label to be displayed when packages containing combustible liquids are stored with packages containing flammable liquids. A combustible liquid placard will not be applicable in this case.

LOCATION OF PLACARDS

Requirements for locations of placards are specified in clause 1 of Schedule 13. An outer warning placard must be displayed on every entrance to a workplace where emergency services may enter the workplace so that it is clearly visible from normal approaches.

Information placards must be located within the workplace at the relevant storage location so that they are clearly visible from normal approaches. For hazardous chemicals stored in an indoor area, the information placards must be located:

- at the main point of entry to the building where the goods are stored
- either at every entry to a room or area where the goods are stored or adjacent to them.

For hazardous chemicals stored in an outdoor area, the placard must be located either adjacent to them, or when storage is a tank, on the external surface of the tank or adjacent to the tank. The warning placard must be positioned separately from any other sign or notice so that the placard is not capable of being confused with the other sign or notice. Placards must be kept legible and unobstructed.

For those storage and handling areas where there is regular variation in the types of hazardous chemicals (for example, in transit storage locations and transport storage areas), it may be more convenient to use frames for slip-in/slip-out labels that are commonly used on vehicles for the transport of dangerous goods. In locations where the public may have access to the placards, labels that attach more permanently will be required.

WHEN PLACARDS ARE REQUIRED AND WHICH TYPE FOR PACKAGE STORES

To identify the placarding for a package store, the quantity of hazardous chemicals for each GHS category at the workplace must be determined and compared with the prescribed placarding quantity in column 3 of the Schedule 11 table. For the purposes of this calculation, all hazardous chemical packages should be assumed to be full, even if they are not.

GAS CYLINDER AND A CLOSE-UP VIEW SHOWING WC VALUE

WC: water capacity of a gas cylinder (that is, package).

HOW TO CALCULATE QUANTITY OF ARTICLES OR THINGS

The quantity of hazardous chemicals that are part of an article or thing is the net quantity of that part of the article or thing that is hazardous chemicals. For example, number of litres of acid in a wet-acid battery. Examples for placarding determination Example 1.

Proper shipping name	UN number	Class	Packing group	Quantity (kg or L)	Placard quantity	Exceeded?
sodium dichloroisocyanurate	2465	5.1	II	300	250	Yes
trichloroisocyanuric acid	2468	5.1	II	200	250	No
calcium hypochlorite	2880	5.1	II	300	250	Yes
hydrochloric acid	1789	8	II	200	250	Y for combination of PG II and III (1,000)
hypochlorite solution	1791	8	III	900	1,000	

1. Outer warning placard

2. Information placard for hazardous chemicals stored in packages displaying ADG code class labels for class 5.1 and 8 at the storage area.

HAZARDOUS CHEMICALS NOTIFICATIONS

If you store, handle or process Schedule 11 hazardous chemicals (dangerous goods) that exceed the quantities specified in the legislation, then you must SafeWork NSW.

Notification is crucial to the provision of an effective emergency response by Fire and Rescue NSW. The quantities at which notification, placards and manifests are required are contained in schedule 11 of the Work Health and Safety Regulation 2011.

The table below shows placard and manifest quantities of hazardous chemicals, as specified in the WHS Regulations (Schedule 11). The final column of this table shows the link between the GHS classes and categories and the equivalent classes and categories of dangerous goods under the ADG Code. Note: Where the WHS Regulations (Schedule 13) require a placard, the relevant dangerous goods class label (pictogram) must be displayed on the placard, rather than the corresponding GHS pictogram.

Column 1	Column 2	Column 3	Column 4	Column 5	ADG Code Classification
Item	Description of hazardous chemical		Placard quantity	Manifest quantity	
	Hazard Class	Hazard Category			
1	Flammable gases	Category 1	200 L	5,000 L	2.1
2	Gases under pressure	with acute toxicity, categories 1, 2, 3 or 4 Note – Category 4 only up to LC50 of 5,000 ppmV	50 L	500 L	2.3
3		with skin corrosion categories 1A, 1B or 1C	50 L	500 L	2.3
4		aerosols	5,000 L	10,000 L	2.1 or 2.2
5		not specified elsewhere in this Table	1,000 L	10,000 L	2.2
6	Flammable liquids	Category 1	50 L	500 L	3 (PG I)
7		Category 2	250 L	2,500 L	3 (PG II)
8		Category 3	1,000 L	10,000 L	3 (PG III)
9		Any mix of chemicals from Items 6–8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 L	10,000 L	
10		Category 4	10,000 L	100,000 L	Note 3
11	Self-reactive substances	Type A	5 kg or 5 L	50 kg or 50 L	GTDTBT – Note 4
12		Type B	50 kg or 50 L	500 kg or 500 L	4.1 (Type B)
13		Type C–F	250 kg or 250 L	2,500 kg or 2,500 L	4.1 (Type C–F)
14	Flammable solids	Category 1	250 kg	2,500 kg	4.1 (PG II)
15		Category 2	1,000 kg	10,000 kg	4.1 (PG III)
16		Any mix of chemicals from Items 12–15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
17	Pyrophoric liquids and Pyrophoric solids	Category 1	50 kg or 50 L	500 kg or 500 L	4.2 (PG I)
18	Self heating substances and mixtures	Category 1	250 kg or 250 L	2,500 kg or 2,500 L	4.2 (PG II)
19		Category 2	1,000 kg or 1,000 L	10,000 kg or 10,000 L	4.2 (PG III)

Column 1	Column 2	Column 3	Column 4	Column 5	ADG Code Classification
Item	Description of hazardous chemical		Placard quantity	Manifest quantity	
	Hazard Class	Hazard Category			
20		Any mix of chemicals from Items 17–19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
21	Substances which in contact with water emit flammable gas	Category 1	50 kg or 50 L	500 kg or 500 L	4.3 (PG I)
22		Category 2	250 kg or 250 L	2,500 kg or 2,500 L	4.3 (PG II)
23		Category 3	1,000 kg or 1,000 L	10,000 kg or 10,000 L	4.3 (PG III)
24		Any mix of chemicals from Items 21–23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
25	Oxidising liquids and Oxidising solids	Category 1	50 kg or 50 L	500 kg or 500 L	5.1 (PG I)
26		Category 2	250 kg or 250 L	2,500 kg or 2,500 L	5.1 (PG II)
27		Category 3	1,000 kg or 1,000 L	10,000 kg or 10,000 L	5.1 (PG III)
28		Any mix of chemicals from Items 25–27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
29	Organic peroxides	Type A	5 kg or 5 L	50 kg or 50 L	GTDTBT – Note 4
30		Type B	50 kg or 50 L	500 kg or 500 L	5.2 (Type B)
31		Type C–F	250 kg or 250 L	2,500 kg or 2,500 L	5.2 (Type C–F)
32		Any mix of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250 kg or 250 L	2,500 kg or 2,500 L	
33	Acute Toxicity	Category 1	50 kg or 50 L	500 kg or 500 L	6.1 (PG I) – Note 5

Column 1	Column 2	Column 3	Column 4	Column 5	ADG Code Classification
Item	Description of hazardous chemical		Placard quantity	Manifest quantity	
	Hazard Class	Hazard Category			
34		Category 2	250 kg or 250 L	2,500 kg or 2,500 L	6.1 (PG II)
35		Category 3	1,000 kg or 1,000 L	10,000 kg or 10,000 L	6.1 (PG III)
36		Any mix of chemicals from Items 33–35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
37	Skin corrosion	Category 1A	50 kg or 50 L	500 kg or 500 L	8 (PG I)
38		Category 1B	250 kg or 250 L	2,500 kg or 2,500 L	8 (PG II)
39		Category 1C	1,000 kg or 1,000 L	10,000 kg or 10,000 L	8 (PG III)
40	Corrosive to metals	Category 1	1,000 kg or 1,000 L	10,000 kg or 10,000 L	8 (PG III)
41		Any mix of chemicals from Items 37–40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1,000 kg or 1,000 L	10,000 kg or 10,000 L	
42	Unstable explosives		5 kg or 5 L	50 kg or 50 L	GTDTBT – Note 4
43		Any mix of chemicals from Items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5 kg or 5 L	50 kg or 50 L	

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

7.11 HAZARDOUS CHEMICALS – ASSESSING RISKS

A risk assessment is not mandatory for hazardous chemicals under the WHS Regulations, though it is required for specific situations, for example, when working with asbestos. However, in many circumstances it will be the best way to determine the measures that should be implemented to control risks. It will help to:

- identify which workers are at risk of exposure
- determine what sources and processes are causing that risk
- identify if and what kind of control measures should be implemented
- check the effectiveness of existing control measures.

Where the hazards and associated risks are well-known and have well established and accepted control measures, it may not be necessary to undertake a risk assessment, for example, where there are a small number of chemicals in a workplace and the hazards and risks are well understood.

Your risk assessment should also consider foreseeable failures of plant and equipment, as well as any control measures, for example:

- a power failure may impact on the operation of a mechanical ventilation system at the workplace
- accidental spills have the potential to corrode or impact on nearby plant or equipment.

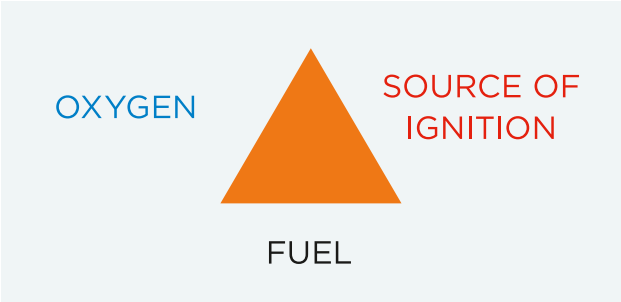
Documenting risk assessments is not mandatory, but may help when reviewing where improvements can be made and risks controlled more effectively.

8. FIRE AND EXPLOSION RISKS

Wine production and associated processes often present with significant risks to health and safety associated with a hazardous atmospheres or an ignition source in a hazardous atmosphere at the workplace. Highly flammable liquids, particularly ethanol (spirit), are stored at wineries with the potential under certain circumstances igniting and causing fire and explosions. Vapours from flammable liquids used for the fortification of wine can be ignited by ignition sources such as welding, grinding and other heat-based work.

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 (commonly referred to as the fire triangle – see figure 1):

- 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).



When identifying hazards you should have identified all of the sources of fuel in your workplace 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 fire risk substances in other hazard classes (for example, pyrophoric liquids and solids that ignite spontaneously in contact with air, substances that react with water to emit flammable gasses) and other materials that are not hazardous chemicals, like wood, paper and leaves, and other combustible materials that contribute to the fire load. You should also identify sources of oxygen, such as oxygen gas and compressed air in cylinders, chemical oxidisers and peroxides. Oxygen is always present in the air.

Note: Chemical reactions and other processes which generate gases can also cause explosions through an increase in the pressure in the container in which the chemical is stored if the gas cannot escape, even if that gas does not itself ignite.

Under the WHS Regulations an atmosphere is a hazardous atmosphere if the concentration of a flammable gas, vapour, mist or fume exceeds five per cent of the lower explosive limit for the gas, vapour, mist or fume. The criteria for classification of hazardous areas are described in AS/NZS 60079: (series) Explosive atmospheres and AS/NZS 61241.10: Electrical apparatus for use in the presence of combustible dust – classification of areas where combustible dusts are or may be present.

9. HOT WORK

Hot work is a term used to describe heat-producing or spark producing operations such as welding (all types), flame cutting, grinding and the use of oxy acetylene equipment during metal fabrication activities. These tasks are regularly carried out at wineries and present two significant hazards; (1) open flames or flying sparks that can ignite flammable gases and vapours and (2) hot work that may produce toxic fumes and gases.

The use of equipment including hand held tools such as electric drills will also generate ignition sources and may ignite flammable gasses if they are present in the atmosphere, that is, hazardous areas. A hazardous area is defined as an area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources. The explosive atmosphere may be caused by the presence of flammable liquid, gas or vapour or by the presence of combustible dusts. Hazardous areas in wineries are usually where flammable goods including ethanol (spirit) or LPG are stored, used or decanted. Another example of a hazardous area would be an area where forklifts are regassed or batteries recharged. The increased level of risk of fire and explosion associated with ignition sources in hazardous areas requires a higher level of risk control. The following are some examples of plant items or operations that can cause an explosion or fire in hazardous areas; forklifts that have not been appropriately modified and approved for use in hazardous areas, hot tapping operations, static electricity generated from the flow of liquids and gasses, some types of clothing, non-flame proof electric appliances (lights, switches, extension cords and tools), batteries and their chargers, matches and cigarettes and even workshop radios, etc.

You may need to develop specific procedures for welding in a hazardous atmosphere or hazardous area. For example, the WHS Regulations requires a ‘confined spaces entry permit’ for work in a confined space. When welding in an area that is not a confined space, you should still document specific procedures which should include the issue of a ‘hot work permit’. Expanded polystyrene (EPS) panels are highly combustible and found frequently within wineries and special consideration be given for any hot work activities undertaken within close proximity to these panels. A thorough investigation must be undertaken to identify and determine what building materials are present when performing hot work. For further guidance about ‘hot work’ or ‘hot work permit’ refer to AS 1674.1: Safety in welding and allied processes – Fire precautions. You should also take into consideration the areas and businesses surrounding the workplace.

CONTROL MEASURES FOR HOT WORK

- Isolate fuel sources from ignition sources.
- Purge all traces of flammable or combustible materials from drums, vessels and tanks which are to be welded prior to welding, and preferably fill with an inert substance such as nitrogen gas or water.
- Use fire resistant barriers to prevent welding sparks accidentally reaching flammable and combustible materials.
- Check work areas are well ventilated to prevent accumulation of flammable vapours in the work area.
- Check work area is free from rubbish, paper or dust that could be potential fuel sources or produce dust explosions.
- Use flash back arrestors on gas hoses to prevent the flames travelling back and igniting the gas in cylinder.
- Drain and purge equipment, such as gas hoses, and lock the gas off at the valve immediately after use.
- Do not store flammable and combustible materials near welding area.
- Keep and maintain fire fighting equipment near welding area.

9.1 IDENTIFYING 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. Some common examples of ignition sources are provided in Table 6.

Table 6 – Common examples of ignition sources

Type of ignition source	Examples
Flames	• Welding flames, gas heaters, pilot lights
Sparks	• Welding arcs, starters for fluorescent lighting, electric motors, electrical equipment like power points, cigarette lighters, switches and telephones • Static electricity including from friction sources • Lightning • Friction from drilling, grinding, scraping of metal on concrete
Heat	• Hot surfaces including light bulbs, ovens, radiators or heaters, flue pipes, vehicle engines and exhaust systems, pumps and generators • Exothermic chemical reactions (those which generate heat)

Some electrical equipment may also be a source of ignition. However, not all electrical equipment is an ignition source if it is specifically designed so that it does not create sparks. This type of equipment is referred to as ‘intrinsically safe’. You must identify any ignition source in your workplace that has the potential to ignite a flammable or combustible material. You should also consider sources of ignition that are adjacent to your workplace or may periodically come into your workplace, for example vehicles (with hot engine and exhaust systems) making deliveries, visitors or other portable items like cordless power tools, radios and fans.

9.2 CONTROL MEASURES TO MINIMISE FIRE AND EXPLOSION RISKS IN THE WINERY

CONTROL MEASURES TO MINIMISE FIRE AND EXPLOSION RISKS IN THE WINERY

- Clearly identifying and enforcing hot work and smoking restriction zones, including zones restricting mechanical grinding, cutting and other ignition sources.
- Ensuring hot work on or near a tank that contained or does contain wine products such as ethanol (spirit) is avoided until the tank is cleaned, purged free from potential hazardous atmospheres.
- Storing flammable liquids in compliant containers and facilities.
- Storing incompatible chemicals in different locations.
- Marking flammable liquid storage areas with warnings and signs clearly and correctly labelling containers and tanks.
- Maintaining adequate natural cross flow ventilation in buildings that involve storage or processing of flammable liquids.
- Ensuring the area around storage and processing is kept free of materials that burn.
- Removing flammable or toxic materials before work is carried out on an empty container.
- Transferring of flammable liquids from storage to the point of use is carried out to avoid spillage.
- Providing and maintaining fire safety equipment such as alarm systems, fire extinguishers, hydrants, hoses and fire blankets.
- Training workers in the storage and handling of hazardous chemicals, an emergency plan and the use of safety equipment.

10. CONFINED SPACE

Confined spaces pose dangers because they are usually not designed to be areas where people work. Confined spaces often have poor ventilation which allows hazardous atmospheres to quickly develop, especially if the space is small. The hazards are not always obvious and may change from one entry into the confined space to the next.

The risks of working in confined spaces include:

- loss of consciousness, impairment, injury or death due to the immediate effects of airborne contaminants
- fire or explosion from the ignition of flammable contaminants
- difficulty rescuing and treating an injured or unconscious person
- asphyxiation resulting from oxygen deficiency or immersion in a free-flowing material, such as liquids, grain, sand, fertiliser or water.

The definition of a confined spaced under the WHS Regulation means an enclosed or partially enclosed space that:

1. is not designed or intended primarily to be occupied by a person, and
2. is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space, and
3. is or is likely to be a risk to health and safety from:
    a. an atmosphere that does not have a safe oxygen level
    b. contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion
    c. harmful concentrations of any airborne contaminants
    d. engulfment

but does not include a mine shaft or the workings of a mine.

A number of confined spaces exist in wineries including stainless steel tanks, oak barrels, open vats, pits, grape presses, rotary fermenters, in ground concrete tanks and hoppers. Work is carried out in, on and around these confined spaces on a regular basis as part of the typical wine making process. This work can include breaking the cap, inserting hoses for draining, filling and sampling purposes as well as general maintenance and repairs.

The dangers of confined spaces not only include risks associated with entering the confined spaces but also working in, on or in the vicinity of the confined space. Confined spaces risks also include the risk of a person inadvertently entering a confined space because the area was not identified as a confined space. The risks associated with working in, on or around confined spaces must be controlled through the implementation of a documented risk management process.

Most presses are confined spaces and entry into these is required for cleaning, repairs and maintenance tasks. Confined spaces entry procedures need to be developed and implemented for presses that require entry for any purpose. Access to some areas of the presses is difficult due to the cylindrical shape especially when cleaning is carried out and surfaces are wet and slippery.

A grape press on rollers to allow for movement under tanks.

10.1 HOW TO DETERMINE WHETHER A SPACE IS A CONFINED SPACE

Is the space **enclosed or partially enclosed?** The risks of confined spaces are associated with how much of the space is enclosed, rather than the size of the space.

NO

YES

Is the space **not designed or intended to be occupied by a person?** Spaces with poor ventilation, inadequate lighting and restricted means of entry or exit are generally not designed for human occupancy. The entry or exit to the space could be restricted if the size of the opening and/or its location makes it physically difficult to get in and out of and difficult to remove an injured or unconscious person from the space.

NO

YES

Is the space **designed or intended to be at normal atmospheric pressure while a person is in the space?** Where a space is not normally at atmospheric pressure (for example, a boiler) it must be brought to atmospheric pressure before a person enters the space, as part of the risk control process.

NO

YES

Is the space likely to pose a risk to health and safety from one or more of the following:

- an atmosphere that does not have a safe oxygen level (a safe oxygen level means an oxygen content in air between 19.5 per cent to 23.5 per cent)
- contaminants, for example, airborne gases, vapours and dusts, that may cause injury from fire or explosion
- harmful concentrations of any airborne contaminants (if the contaminants are present at a concentration above the relevant exposure standard or if they are likely to cause impairment, loss of consciousness or asphyxiation)
- engulfment, for example:
  - any liquid including oil or water in which a person can drown, or
  - any solid including fly ash, grain sawdust and sand that can flow and form a temporary cavity or bridge, which may cause collapse and surround a person, cutting off their air supply.

NO

YES

CONFINED SPACE

NOT A CONFINED SPACE

10.2 COMMON RISKS FROM WORKING IN CONFINED SPACES IN WINERIES INCLUDE:

- effects of airborne contaminants such as caustic vapours, carbon dioxide, carbon monoxide, sulphur dioxide or hydrogen sulphide from rotting matter which can cause loss of consciousness, impairment, injury or death
- asphyxiation resulting from oxygen deficient atmospheres with oxygen concentrations lower than 19.5 per cent
- asphyxiation from immersion in stored material, such as juice/wine, ethanol (spirit)
- fire or explosion from the ignition of combustible or flammable gases such as ethanol (spirit),methane, ammonia or hydrogen gas
- fatigue and dehydration from heat stress due to working in cramped/confined areas and the wearing of personal protective equipment such as a respirator and full coveralls
- the temptation of rescuing someone in a confined space without the correct safety equipment which can result in further casualties
- the difficulty of rescuing and treating an injured or unconscious person in a confined space
- risk of persons in a confined space becoming exposed to product or processes involved in the confined space, for example, wine being pumped into a tank while work is being conducted in that tank.

All confined spaces within the winery should be identified with signs warning of the presence of a confined space and prohibiting entry. Signposting alone should not be relied upon to prevent entry. In addition to signs all access points should be locked or fitted with fixed barriers that require an intentional effort to remove. Consideration should always be given to eliminate the need to complete work in a confined space. For example, can the work be completed without entering the confined space? An example would be installing fixed or temporary cleaning devices such as spray balls using high-pressure hoses inserted through an access hatch to clean the inside of a tank.

Winery operators must ensure that relevant workers are provided with suitable and adequate training for confined spaces work. All confined spaces at the winery should be identified and these should be recorded on a site map or register. These confined spaces should be identified with labels at the entry points warning of the presence of a confined space and prohibiting entry. All access points should be locked or secured to prevent unauthorised entry.

Safe work procedures should be developed in consultation with workers who are involved in carrying out work on, in or near a confined space. The safe work procedure should specify the requirement to identify hazards, assess the risks and implement control measures for confined spaces work. The safe work procedure should include safe entry procedures including an entry permit system, a standby person, atmospheric testing and monitoring, isolation of services and processes, emergency and rescue procedures, communication and training for all workers involved in confined spaces work.

There should be a communication system in place so that there is continuous communication between workers inside and outside the confined space. Depending on the conditions in the confined space, communication can be achieved by voice, radio, hand signals or other suitable methods. Conditions within the confined space must be monitored by a standby person who is in the vicinity of the confined space, and if practicable, observing the work being carried out. Workers should be trained and assessed as competent in the safe work procedure and this training recorded on file. A confined spaces entry permit system must be implemented at the winery and no worker should enter a confined space unless a confined space entry permit has been issued.

The confined space entry permit should:

1. be completed by a competent person, and
2. be in writing, and
3. specify the following:
    a. the confined space to which the permit relates
    b. the names of persons permitted to enter the space
    c. the period of time for which the work in the space will be carried out
    d. measures to control risk associated with the proposed work in the space, and
5. contain space for an acknowledgement that work in the confined space has been completed and that all persons have left the confined space.

Workers and their supervisors should have the skills and knowledge to understand the hazards associated with working in the confined space, the contents of any confined space entry permit, and the control measures implemented for their protection.

Appropriate records of entry permits and risk assessments must be kept as per the following:

- a copy of the risk assessment until at least 28 days after the work to which it relates is completed, and
- a copy of the confined space entry permit until the work to which it relates is completed
- If a notifiable incident occurs in connection with the work to which the assessment or permit relates, the copy of the assessment or permit (as the case requires) for at least two years after the incident occurs.

Training should be provided to workers who:

- enter or work in, on or around confined spaces
- undertake hazard identification or risk assessment in relation to a confined space
- implement risk control measures
- issue entry permits
- act as a standby person or communicate with workers in a confined space
- monitor conditions while work is being carried out
- purchase equipment for confined space work, and
- design or lay out a work area that includes a confined space.

The training provided to workers must cover:

- the nature of all hazards associated with a confined space
- the need for and appropriate use of risk control measures
- the selection, use, fit, testing and storage of any personal protective equipment
- the contents of any relevant confined space entry permit, and
- the emergency procedures.

An assessment should be carried out after the training is completed to ensure that all workers are competent.

Refresher training should be provided to workers. The frequency of this training should depend on how often workers are required to carry out tasks associated with entry to or work in confined spaces. The refresher training could be carried out prior to the vintage if this is when the confined spaces work is most often carried out.

Safe work procedures should be developed for cleaning activities in confined spaces including tanks, barrels and hoppers. These should be reviewed in consultation with the workers carrying out the work prior to the work commencing.

A confined spaces entry permit must be completed and authorised prior to confined spaces work commencing. Refer page 111, Example of Confined Space Entry permit template.

When conducting cleaning activities in confined spaces the following practices should be observed:

- cleaning should be conducted from outside the confined space where possible
- each person entering the confined space should be provided with appropriate protective clothing, safety footwear, a safety helmet with face shield, appropriate eye and face protection, protective gloves and, where necessary, an appropriate respiratory protective device
- hose couplings should be of such a design that they are unable to loosened or be accidentally dislodged during operation.

When chemicals and plant are used in confined spaces the safety precautions detailed in the safety data sheets and plant operating manuals should be considered as minimum safe work practices.

In addition to creating toxicity hazards, chemicals used in cleaning activities may also be capable of producing a flammable airborne contaminant. The safety of the atmosphere should be re-evaluated after cleaning and prior to the commencement of any further tasks.

If hot water or steam is used for cleaning then the correct protective clothing should be worn and the temperature of the confined space monitored to prevent heat stress.

When using plant in or near confined spaces the atmosphere inside the confined space should be monitored to ensure that there is no build-up of exhaust gases which contain carbon monoxide or other toxic gases.

Unauthorised access to work areas should be prevented by using signs, barriers, danger tape or witches hats to highlight the exclusion zone which should allow for loose debris being dislodged. The observer will play a role in entry security. If hot work activities or work in explosive atmospheres is required to be undertaken within a confined space, this work should be completed in accordance with the section titled ‘Hot Work’ in this guide and should include:

- an entry permit system, a stand-by person, atmospheric testing and monitoring, emergency and rescue procedures
- all workers involved in confined spaces work should be trained in the confined spaces entry procedures and emergency rescue procedures
- the work must be authorised by a confined space entry permit that takes into account the following
- the concentration of flammable vapours or gases in the atmosphere or piping
- the liquid or solid residues present within the confined space
- utilities or piping that are present within the confined space.

Fire prevention measures should be taken, including:

- removal of all combustibles from the confined space
- a Fire Watch Person should be appointed.

No compressed gas cylinders, other than those used for Self Contained Breathing Apparatus, should be located within the confined space.

Any atmospheric testing and monitoring in a confined space should be carried out by a competent person using a suitable, correctly calibrated gas detector. It may be necessary to test the atmosphere for:

- oxygen content
- airborne concentration of flammable contaminants, and
- airborne concentration of potentially harmful contaminants (for example, hydrogen sulphide and carbon monoxide).

Note: Atmospheric testing is the measurement of oxygen concentration or airborne contaminants that is not continuous.

Atmospheric monitoring is the continuous measurement of oxygen concentration or airborne contaminants over an uninterrupted period of time.

A person's senses should never be relied upon to determine if the air in a confined space is safe. Many toxic or flammable gases and unsafe oxygen levels cannot be detected using one's senses. Initial testing should be done from outside the confined space by inserting a sample probe and/or portable gas detection device at appropriately selected access holes, nozzles and openings.

Contaminants have different densities and can settle at different levels, the top, middle and bottom of the space should all be tested. For example, some gases (such as hydrogen sulphide) are heavier than air and in unventilated areas will settle to the bottom of the space, while other gases (such as methane) are lighter than air and will collect at the top of the space. Testing should be carried out on a sufficient number of points to accurately reflect areas of the space that is likely to be accessed.

Lighter gases may be vented into the breathing zone of the person conducting the tests from on top of the confined space and heavy gases may be vented into the breathing zone of someone at the bottom level of a confined space. (Either inside the confined space or working outside the access hole.) Some gases may be dissolved in liquids and released when the liquid is disturbed or a crust over the liquid is broken and it may therefore be necessary to agitate liquids before monitoring.

If purging is done using an inert gas, such as nitrogen, to clear flammable gases or vapours before work in the confined space begins. Pure oxygen or gas mixtures with oxygen in concentration greater than 21 per cent by volume must never be used for purging or ventilating a confined space because of the risk of increased flammability.

After purging, the confined space needs to be adequately ventilated with sufficient fresh air to ensure that the inert gas is removed. Purging should be done in such a way that ensures any contaminants removed from the confined space is expelled to a location where they present no further risk. Atmospheric testing should be carried out after the atmosphere in the confined space has been given enough time to normalise and before entry to check that the ventilation has been effective.

When work is carried out on top of tanks with lids removed then workers should be prevented from falling into tanks by handrails, a harness or a temporary grate fitted over the access hatch while the lid is removed. When performing work in a confined space that the concentration any flammable gas, vapour or mist in the atmosphere of the space is less than 5 per cent of its LEL, so far as is reasonably practicable.

If it is not reasonably practicable, and the concentration of any flammable gas, vapour or mist in the atmosphere of the confined space:

- is equal to or greater than 5 per cent but less than 10 per cent of its LEL – the person must ensure that any worker is immediately removed from the space unless a suitably calibrated, continuous-monitoring flammable gas detector is used in the space, or
- is equal to or greater than 10 per cent of its LEL – the person must ensure that any worker is immediately removed from the space.

Lower explosive limit (LEL), in relation to a flammable gas, vapour or mist, means the concentration of the gas, vapour or mist in air below which the propagation of a flame does not occur on contact with an ignition source.

Where a flammable atmosphere may exist in a confined space and there is a risk of fire and explosion, all ignition sources in the vicinity must be eliminated.

Examples of potential ignition sources, both inside and outside the space, include:

- open flames and hot surfaces
- electrical equipment
- internal combustion engines
- metal tools striking metal surfaces
- spark-producing equipment, for example, grinding wheels
- static electricity.

An energy isolation procedure should be developed to ensure that potential energy sources, that is, electrically charged capacitors, hydraulic and pneumatic pressure and water pressure are in a zero mechanical state prior to any work being carried out in a confined space.

An isolation procedure should be developed to prevent any task occurring that would adversely affect the workers in the confined space, for example, product being pumped into a wine tank while work is being conducted inside the tank, operation of internal combustion engines outside a confined space which could introduce carbon monoxide into the confined space, other gases being introduced into the confined space, refrigeration of a wine tank while workers are inside.

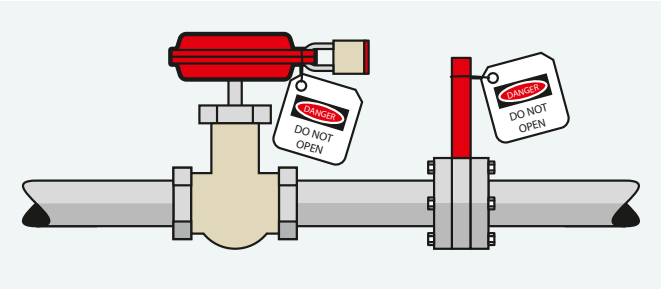
First aid and rescue procedures must be developed for confined spaces work and workers must be trained in these procedures. These procedures should be practiced on a regular basis to ensure that they are efficient and effective.

Workers performing rescues in confined spaces should be provided with and wear air-supplied respiratory protective equipment if they enter a confined space.

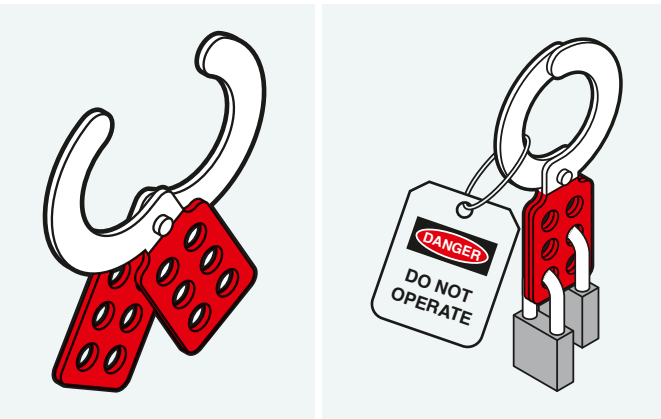
Potential problems with the size of entrances and exits must be identified and assessed during the hazard identification and risk-control process. These problems should be addressed in the development of emergency and rescue procedures.

Where openings are found to be inadequate, their size should be increased, or if this is not practicable alternative safe means of entry and exit should be provided.

Wine tank identified with confined space danger warning sign.



Insertion of full pressure spade or blank. Nearest valve closed, locked and tagged. Spade is also tagged to indicate its purpose.



Example of tag and lockout with the padlocks of two workers.

10.3 EMERGENCY PROCEDURES AND CONFINED SPACE

When establishing emergency procedures, the following factors must be taken into account to manage risks associated with confined spaces:

- whether the work can be carried out without the need to enter the confined space
- the nature of the confined space
- any changes in hazards associated with the concentration of oxygen or the concentration of airborne contaminants in the confined space
- the work to be carried out in the confined space, the range of methods by which the work can be carried out and the proposed method of working
- the type of emergency and rescue procedures required.

Consideration should also be given to the following:

Relevant considerations	Questions
Location of the confined space within winery	What is the geographic location of the space, how accessible is it in an emergency and how far away is it from appropriate medical facilities?
Communications	How can workers working inside the space communicate to people outside in an emergency? Exactly how will the alarm be raised and by whom? Planning needs to ensure that rescue and emergency personnel can access the workplace during night shift, weekends and holiday periods.
Rescue and resuscitation equipment	What kinds of emergencies are contemplated? The provision of suitable rescue and resuscitation equipment will depend on the potential emergencies identified. Selected rescue equipment should be kept in close proximity to the confined space so that it can be used immediately.
Capabilities of rescuers	Are rescuers properly trained, sufficiently fit to carry out their task and capable of using any equipment provided for rescue (for example, breathing apparatus, lifelines and fire-fighting equipment)? How will rescuers be protected during the emergency operation?
First aid	Is appropriate first aid available for immediate use? Are trained first aid personnel available to make proper use of any necessary first aid equipment?
Local emergency services – if they are to be relied on for rescue	How will the local emergency services (for example, fire brigade) be notified of an incident? What information about the particular dangers in the confined space will be given to them on their arrival? Have prior arrangements been made with local emergency services to ensure they are able to respond in a reasonable time and have the specialist confined space retrieval equipment readily available?

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

Rescue should be performed from outside the confined space, if possible. Workers performing rescue must be adequately trained. Rescuers must be provided with and wear appropriate respiratory protective equipment if they enter a confined space in an emergency.

If a person inside a confined space has been overcome by lack of oxygen or airborne contaminants, it should always be assumed that entry for rescue is unsafe unless air-supplied respiratory protective equipment is used.

Potential problems with the size of entrances and exits must be addressed when developing emergency and rescue procedures. Where openings are found to be inadequate, their size should be increased, or an alternative safe means of entry and exit should be provided.

11. ELECTRICAL SAFETY

Electricity is a constant hazard in many workplaces including the wine industry, where workers who work on or near electricity are at risk of shocks, burns, other serious injuries or even death. If you are a business or employer (or other PCBU), you are responsible for ensuring that any risk of injury from electrical equipment, electrical work or electrical installations is eliminated or, if this isn't reasonably practicable, minimised.

There are specific requirements for:

- inspection and testing of electrical equipment
- electrical work on energised electrical equipment
- residual current devices
- overhead and underground power lines.

The managing electrical risks in the workplace code of practice has more detailed information to assist you in meeting these requirements.

Activities conducted during the winemaking process such as washing out wine tanks, grape bins and hoppers results in wet areas and damp working conditions which are an inherent part of wine making. Winery workers are often required to stand on damp ground or be in contact with damp plant which is sometimes made of conductive materials such as stainless steel. The combination of damp working conditions and the extensive use of electricity compound the risk of electrocution or electric shock within wineries.

11.1 INSPECTION AND TESTING OF ELECTRICAL EQUIPMENT

If you are a business or employer (or other PCBU) you must ensure that the electrical equipment is regularly inspected and tested by a competent person if the electrical equipment:

- is supplied with electricity through an electrical socket outlet ('plug in' equipment)
- used in an environment in which its use exposes the equipment to operating conditions that are likely to result in damage to the equipment, or a reduction in its expected lifespan. These conditions can include:
  - exposure to moisture
  - heat
  - vibration
  - mechanical damage
  - corrosive chemicals or dust.

Additional guidance can be found in the Australian New Zealand Standard – AS/NZS 3760: 2013 in service safety inspection and testing of electrical equipment, this provides guidance on inspection, testing and tagging methods. Refer page 115 for Electrical equipment register.

‘COMPETENT PERSON’ FOR INSPECTION AND TESTING

A competent person is someone who has acquired – through training, qualification or experience – the knowledge and skills to carry out inspections and testing of electrical equipment.

Mono pump typically used for transferring juice from tank to tank. Fitted with screwed ring for securing to socket outlets and to prevent water ingress and tag on lead with testing details.

11.2 KEEPING RECORDS

A record of testing must be kept until the electrical equipment is next tested or permanently removed, or disposed of, from the workplace.

The record must specify:

- the name of the person who carried out the testing
- the date of the testing
- the outcome of the testing
- the date on which the next testing must be carried out.

The record may be in the form of a tag attached to the electrical equipment tested.

11.3 ELECTRICAL WORK ON ENERGISED ELECTRICAL EQUIPMENT

Electrical work must not be carried out on electrical equipment when it is energised unless the electrical work is permitted by the Work Health and Safety Regulation 2011.

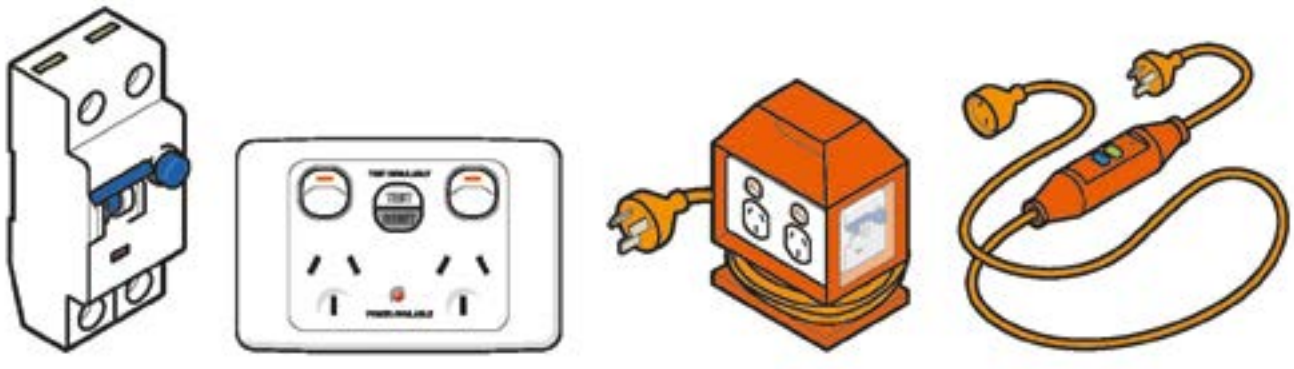
The regulation has specific requirements for electrical work including:

- a duty to determine whether equipment is energised
- de energised equipment must not be inadvertently re energised
- when electrical work on energised electrical equipment is permitted
- preliminary steps including risk assessment
- preventing unauthorised access to equipment when it is being worked on
- contact with equipment whilst being worked on
- how work is to be carried out
- record keeping requirements.

Where electrical work is carried out by or on behalf of an electricity supply authority on electrical equipment including line associated equipment, controlled or operated by the authority to generate, transform, transmit or supply electricity, then these requirements do not apply. These authorities are covered by separate electrical safety regulations.

11.4 RESIDUAL CURRENT DEVICES

Residual current devices (RCDs), or safety switches, are electrical safety devices designed to immediately switch off the supply of electricity when electricity leaking to earth is detected at harmful levels. RCDs offer high levels of personal protection from electric shock.



RCDs are classified in AS/NZS 3190: 2011 Approval and test specification – Residual current devices (current-operated earth-leakage devices). The two relevant types are:

Type	Description	General guidance – use
Type I	Type I RCDs have a residual current rating not exceeding 10 milliamps and a tripping time within 30 milliseconds.	Type I RCDs are the most sensitive and are required for electrical equipment that is directly connected to people, for example, patients in hospitals or dental practices.
Type II	Type II RCDs have a residual current rating greater than 10 milliamps but not exceeding 30 milliamps and a tripping time within 300 milliseconds.	Type II RCDs are most suitable for personal protection against injury including electric shock.

Workplace fatalities can be prevented by the use of properly installed and maintained RCDs.

11.5 REQUIREMENTS FOR RCDs

Specific requirements for residual current devices (RCDs) apply to workplaces where 'plug in' electrical equipment is used in:

- an environment where its normal use involves operating conditions that are likely to result in damage to the equipment (or a reduction in its expected life span). These conditions can include:
  - exposure to moisture
  - heat
  - vibration
  - mechanical damage
  - corrosive chemicals or dust
- electrical equipment frequently moved during its normal use
- electrical equipment forms part of, or is used with, an amusement device.

If electricity is supplied through a socket outlet that does not exceed 20 amps, then the RCD must have a tripping current that does not exceed 30 milliamps. This does not apply if the supply of electricity to the electrical equipment:

- does not exceed 50 volts alternating current
- is direct current
- is provided through an isolating transformer that provides at least an equivalent level of protection
- is provided from a non-earthed socket outlet supplied by an isolated winding portable generator that provides at least an equivalent level of protection.

You may need to seek technical advice from a competent person about the kinds of RCDs that are appropriate for your workplace.

11.6 TESTING OF RESIDUAL CURRENT DEVICES

PCBUs with management or control of a workplace must take all reasonable steps to ensure that RCDs used at the workplace are tested regularly by a competent person to ensure the devices are working effectively. A record of testing – other than daily push button tests – must be kept until the RCD is next tested or disposed of. RCD testing requirements apply to both portable and non-portable devices. Portable RCDs will also require testing as portable electrical equipment if used in a 'hostile operating environment'. For example, if workers use portable RCDs as part of their work, for example, portable RCDs used by service providers, then the PCBU directing the work must ensure the RCDs are tested regularly.

11.7 SPECIFIC HAZARDS AND RISK CONTROL

There are a number of things you should do to manage the risks to health and safety associated with electrical risks at the workplace including:

- Ensure power circuits are protected by the appropriate rated fuse or circuit breaker to prevent overloading.
- If the circuit keeps overloading, don't increase the fuse rating as this creates a fire risk due to overheating; instead ensure the circuit is not re-energised until the reason for the operation has been determined by a competent person.
- Arrange electrical leads so they will not be damaged. So far as is reasonably practicable, avoid running leads across the floor or ground, through doorways and over sharp edges, and use lead stands or insulated cable hangers to keep leads off the ground. In many heavy industries, cable protection ramps are used to protect cables.
- Don't use leads and tools in damp or wet conditions unless they are specially designed for those conditions.
- Ensure circuits where portable electrical equipment can be connected are protected by appropriate RCDs (as required by the WHS Regulations) that are properly tested and maintained.
- If RCDs, circuit breakers or other over current protective devices including fuses are triggered into operation, ensure circuits are not re-energised until the reason for the operation has been determined by a competent person.
- Ensure RCDs are effective by regular testing.

11.8 OVERHEAD AND UNDERGROUND POWER LINES

Overhead and underground electric power lines are dangerous and specific control measures must be taken. Within the winery there is the risk of workers coming in to close proximity or contact with overhead or underground electrical lines.

If you are a person with management or control of a workplace you must ensure, where reasonably practicable that no person, plant or thing comes within an unsafe distance of any overhead or underground electric line.

If it is not practical to ensure the safe distance of a person, plant or thing from an overhead or underground electric line, you must ensure that:

- a risk assessment is carried out regarding the proposed work
- the control measures applied are consistent with the risk assessment and any requirements of the electricity supply authority responsible for the electric line.

12. MANAGING RISK OF FALLS

Fall means a fall by a person from one level to another.

Risk of a fall means a circumstance that exposes a worker while at work, or other person while at or in the vicinity of a workplace, to a risk of a fall that is reasonably likely to cause injury to the worker or other person.

This includes circumstances in which the worker or other person is:

- in or on plant or a structure that is at an elevated level
- in or on plant that is being used to gain access to an elevated level
- in the vicinity of an opening through which a person could fall
- in the vicinity of an edge over which a person could fall
- on or in the vicinity of a surface through which a person could fall
- on or near the vicinity of a slippery, sloping or unstable surface.

Common work activities in wineries which involve working at heights include accessing barrels to make additions, taking samples or rotating the barrels. The top of wine tanks including fermenters are accessed for a number of reasons including breaking the cap, unclogging marc blockages, removing the marc, cleaning the tanks, obtaining samples, inserting hoses, removing and replacing screens and making additions.

Maintenance and repair work may also be carried out on top of wine storage tanks, for example, repairing damaged lids and carrying out pre-harvest maintenance which is essential in the day to day operations of the winery. There may also be a need to climb onto vehicles or mobile plant when carrying out repairs or maintenance work.

Equipment including tools and spare parts are often carried to the top of the tanks and other elevated work locations to carry out tasks. Access to the top of tanks and other elevated work locations can be gained by a number of methods including portable or fixed ladders, walkways, or elevated work platforms.

There are a number of ways to control the risks of falls. Some control measures are more effective than others. Control measures can be ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of control. You should work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances. This may involve a single control measure or a combination of two or more different controls.

In managing the risks of falls, the following specific control measures to be implemented, where it is reasonably practicable to do so:

1. Can the need to work at height be avoided to eliminate the risk of a fall?
2. Carry out any work that involves the risk of a fall on the ground.
3. Can the fall be prevented by working on solid construction?
4. A building or structure that is used as an existing place of work and includes safe access and egress from which there is no risk of a fall from one level to another, for example, properly constructed stairs with fixed handrails, flat roofs with a parapet or permanently installed guard rails around the edges.

5. Can the risk of a fall be minimised by providing and maintaining a safe system of work, including:
    - providing a fall prevention device (for example, installing guard rails) if it is reasonably practicable to do so, or
    - providing a work positioning system (for example, an industrial rope access system) if it is not reasonably practicable to provide a fall prevention device, or
    - providing a fall-arrest system, so far as is reasonably practicable, if it is not reasonably practicable to provide a fall prevention device or a work positioning system.

In some cases a combination of control measures may be necessary, for example, using a safety harness while working from an elevating work platform. Control measures are needed where there is a risk of injury irrespective of fall height. For low falls, you should assess the risk and provide reasonably practicable measures that reflect the risk. For example, there may be a risk of injury to workers standing on a narrow 1.7 metre high platform next to a production line where they have to work with their back to the open edge or where there is a risk of falling onto an uneven surface with sharp edges or protrusions. In this situation it may be reasonably practicable to install a guard rail along the edge of the platform.

Work of long duration and higher frequency will usually require control measures higher up the hierarchy to provide adequate protection, for example, using a mobile scaffold instead of a ladder. You should also ensure that the control measures you select do not create new hazards, for example, electrical risks from contact with overhead power lines or crushing and entanglement from plant such as elevating work platforms. A rescue plan should be developed and tested to ensure that any workers arrested in a harness after a fall or who become disabled at heights such as on top of a tank can be rescued safely and rapidly. The rescue of a worker who is suspended in a full body harness must occur promptly to prevent suspension trauma.

Examples of platform ladders that provide a stable work platform.

Extension or single ladders should only be used as a means of access to or egress from a work area, not as a working platform.

If portable ladders are used to access heights the following recommendations should be followed.

12.1 PORTABLE LADDERS

- Extension or single ladders should generally only be used as a means of access to or egress from a work area.
- They should only be used as a working platform for light work of short duration that can be carried out safely on the ladder.

12.2 SELECTING LADDERS

If ladders are used they must be selected to suit the task to be undertaken. In doing this, you should consider the:

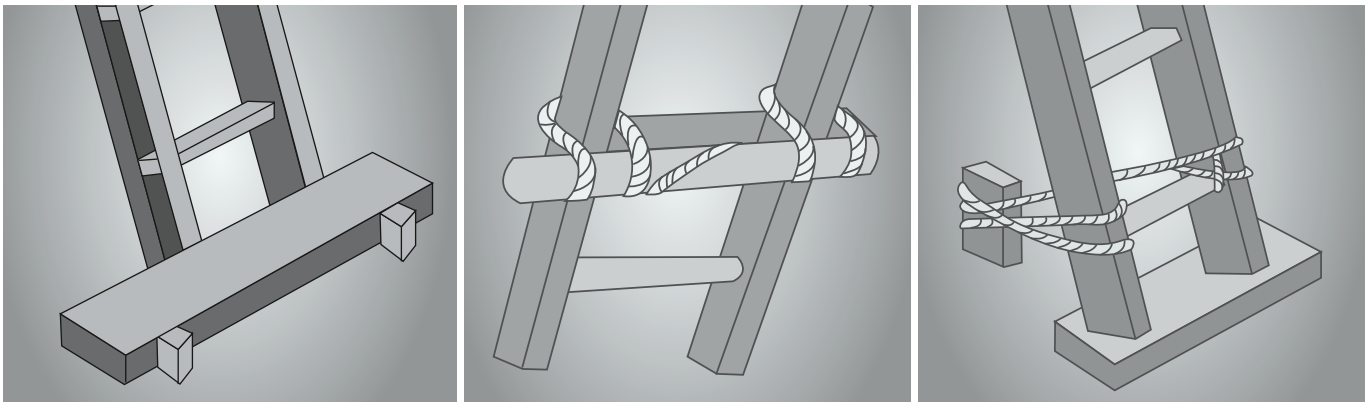
- duration of the task, the physical surroundings of where the task is to be undertaken and the prevailing weather conditions
- ladders should have a load rating of at least 120 kg and be manufactured for industrial use.

12.3 POSITIONING LADDERS

Any ladder used at a workplace must be set up on a solid and stable surface, and set up so as to prevent the ladder from slipping. Single and extension ladders can be prevented from slipping by:

- placing ladders at a slope of 4:1, and setting up stepladders in the fully opened position
- securing ladders at the top or bottom, or if necessary, at both ends (see figure 4 below).

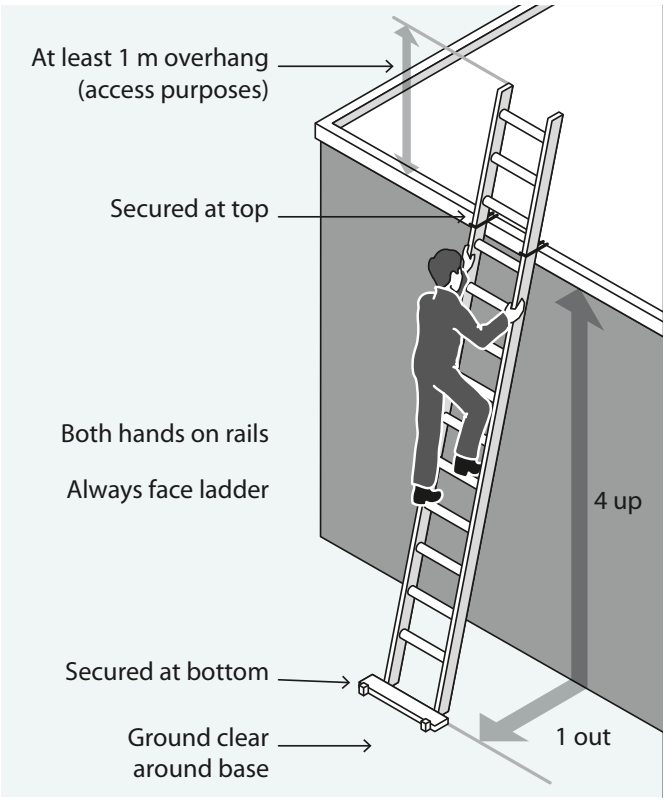
Figure 4



12.4 ACCESS OR EGRESS

Where fixed or extension ladders are used for access or egress, you should check that:

- there is a firm, stable work platform, free from obstructions, to step onto from the ladder
- the ladder extends at least one metre above the stepping-off point on the working platform
- fall protection is provided at the stepping-off point where people access the working platform.



12.5 SAFE USE OF LADDERS

When a ladder is used, you should check that:

- the ladder is in good condition – the ladder should be inspected for faults, such as broken rungs, stiles and footing before it is used
- damaged ladders are removed from service
- the ladder is set up on firm, stable and level ground
- the ladder is the correct height for the task to avoid reaching or stretching
- the ladder is not too close or too far from the support structure – the distance between the ladder base and the supporting structure should be about one metre for every four metres
- of working ladder height (4:1 ratio)
- the ladder is secured against displacement (that is, slipping or sliding) and/or there is another person holding the base of the ladder
- the ladder is not placed so that the weight of the ladder and any person using the ladder
- is supported by the rungs
- all the locking devices on the ladder are secure
- materials or tools are not carried while climbing the ladder – use a tool belt or side pouch
- only light duty work is undertaken while on the ladder, where three points of contact can be maintained and tools can be operated safely with one hand
- slip resistant base, rungs or steps are provided
- slip resistant shoes are worn

- ladders are not used without additional appropriate precautions:
  - in access areas or doorways – if necessary, erect a barrier or lock the door shut
  - on scaffolding or an elevating work platform to get extra height
  - next to power lines unless the worker is trained and authorised and the appropriate ladder is being used in very wet or windy conditions
  - next to traffic areas, unless the working area is barricaded.

When using ladders, it is not safe to:

- use metal or metal reinforced ladders when working on live electrical installations
- carry out work such as arc welding or oxy cutting
- work over other people
- allow anyone else to be on the ladder at the same time.

Except where additional and appropriate fall protection equipment is used in conjunction with the ladder, it is not safe to:

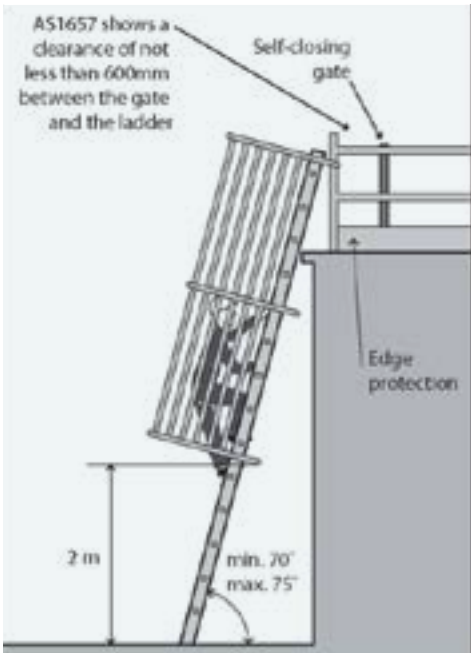
- Use a stepladder near the edge of an open floor, penetration or beside any railing.
- Over-reach (the centre of the torso should be within the ladder stiles throughout the work).
- Use any power or hand tool requiring two hands to operate, such as concrete cutting saws and circular saws.
- Use tools that require a high degree of leverage force which, if released, may cause the user to over-balance or fall from the ladder, such as pinch bars.
- Face away from the ladder when going up or down, or when working from it.
- Stand on a rung closer than 900 mm to the top of a single or extension ladder.
- Stand higher than the second tread below the top plate of any stepladder (with the exception of three-rung step ladders).
- guidance on the selection, safe use and care of portable ladders is set out in AS/NZS 1892 Portable ladders series. The manufacturer's recommendations on safe use should also be followed.

12.6 FIXED LADDERS

Fixed ladders should be installed in accordance with AS 1657 Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation. Ladder cages in fixed ladders do not stop a fall but simply funnel a fall and, in some cases, more injuries can occur from striking the protective backguards on the way down. The cages may also hinder rescues. Therefore, fixed ladders with angles exceeding 75 degrees to the horizontal should be fitted with a permanent or temporary fall-arrest system (anchorage lines or rails).

The angle of slope should not be less than 70 degrees to the horizontal and not greater than 75 degrees to the horizontal. In no case should the ladder overhang the person climbing the ladder. If the angle is more than 75 degrees, a safe system of work to prevent falls should be provided such as a permanent fall-arrest system or a full body harness with double arm lanyard.

A specifically designed rescue procedure should be developed for use in ladder cage situations. Training in rescue procedures should occur before using the fixed ladder.



12.7 FALL ARREST SYSTEMS

A fall-arrest system is intended to safely stop a worker falling an uncontrolled distance and reduce the impact of the fall. This system must only be used if it is not reasonably practicable to use higher level controls or if higher level controls might not be fully effective in preventing a fall on their own.

All equipment used for fall-arrest should be designed, manufactured, selected and used in compliance with the AS1891 series of standards.

Key safety considerations in using fall arrest systems are:

- the correct selection, installation and use of the equipment
- that the equipment and anchorages are designed, manufactured and installed to be capable of withstanding the force applied to them as a result of a person's fall
- that the system is designed and installed so that the person travels the shortest possible distance before having the fall stopped
- that workers using a fall-arrest system wear adequate head protection to protect them in the event of a fall
- that if the equipment has been used to arrest a fall it is not used again until it has been inspected and certified by a competent person as safe to use.

12.8 INDIVIDUAL FALL-ARREST SYSTEMS

Individual fall-arrest systems consist of some or all of the following components:

- anchorages
- lifelines
- inertia reel
- lanyard of fixed length
- retractable lifelines
- rope grabs
- wire grabs
- rail system
- shock absorbers, both personal and industrial
- harness
- snap hooks (double or triple action to prevent rollout)
- karabiners (double or triple action to prevent rollout)
- rescue equipment.

Individual fall-arrest systems rely on workers wearing and using them correctly, and therefore workers who will use such a system must be trained in its safe use. They should only be used where it is not reasonably practicable to use higher level control measures.

Relevant Australian/New Zealand Standards for personal fall-arrest equipment require that they be permanently marked or labelled to indicate their purpose, correct use, limitations and other relevant information aimed at reducing misuse of the equipment.

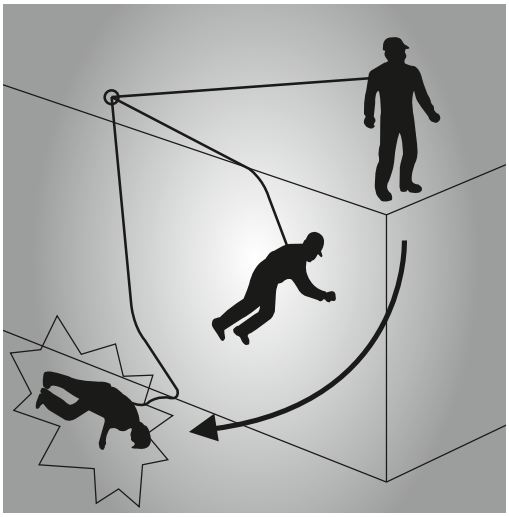
12.9 HAZARDS WITH INDIVIDUAL FALL ARREST SYSTEMS

If a person using an individual fall-arrest system falls, the system may act as a pendulum, and in some situations the user may hit the ground (called 'swing down': see figure 5) or swing back onto the building or structure (which is called 'swing back': see figure 6).

Swing down can occur if the lanyard slides back along the perimeter edge of the roof until it is vertical. When this happens, the person may hit the ground, or the lanyard may break as a result of its contact with the edge of the roof. Measures to address 'swing down' include:

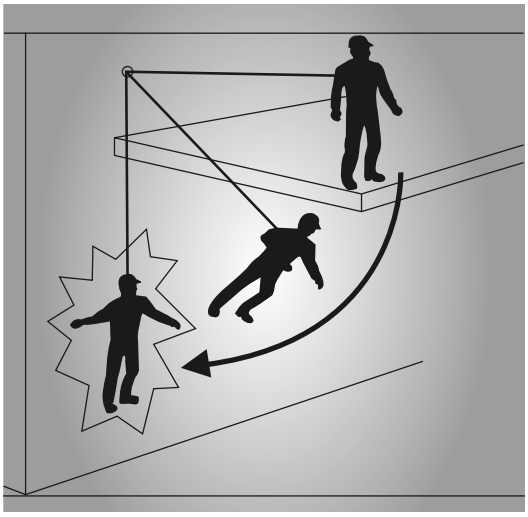
- the installation of guard rails
- placing the anchorage point at a right angle to the position of the lanyard at the perimeter edge (for example, by using a mobile anchorage)
- the installation of a second anchorage point and belay devices (intermediate anchorages).

Figure 5



During ‘swing down’ the length of the lanyard and positioning of the anchor allow contact with the ground.

Figure 6



During ‘swing back’ the length of the lanyard and positioning of the anchor contact may allow the worker to hit the structure.

12.10 ANCHORAGE LINES OR RAILS

Anchorage lines or rails are temporary or permanent fall-arrest systems, which can be installed to provide continuous fall protection for persons using ladders or climbing towers. These can be used on plant, such as tower cranes, as well as buildings or structures.

Safety considerations include that:

- temporary systems comply with the AS/NZS 1891 series of standards
- the locking device is attached to the frontal attachment point of the harness and the lanyard assembly is a maximum of 300 mm length
- the point of connection onto the ladder by the climber is near the base of the ladder to allow the connection before ascending begins and also to provide continuous connection to the disconnecting point when at a safe higher level
- free fall is limited to a maximum of 600 mm
- permanent systems are of wire or rail construction and are installed according to the manufacturer’s instructions.

After a fall, remove the system from service and have it inspected by a competent person before it is used again.

13. MACHINERY PLANT AND EQUIPMENT

Within the winery you have certain legal responsibilities if you manage or operate machinery, plant and equipment.

Plant includes:

- any machinery, equipment, appliance, container, implement or tool
- any component of any of those things
- anything fitted or connected to any of those things.

Common plant items found within wineries includes items such as:

- Augers
- Barrel racks
- Bottling lines
- Conveyors
- Crushers
- EWPs
- Filters
- Forklifts
- Front end loaders
- Grape presses
- Lifting equipment
- Open fermenters
- Overhead cranes
- Pipes and hoses
- Pumps
- Quad bikes
- Receival bins
- Refrigeration equipment
- Scissor lifts
- Tank cleaning equipment
- Tanks
- Welding equipment

If you design, manufacture, import, supply, install build, commission or control a plant or structure, you have certain responsibilities to:

- identify hazards and control risks
- make sure suitable guarding, operational controls, emergency stop controls and warning devices are in place and in use
- specify and make sure safe work systems and operator competencies are in place
- register plant designs and items of plant
- maintain, repair, test, clean, install, assemble , construct, commission or decommission, use and sell plant appropriately
- provide information to other persons.

If you manage or control plant at work, you must also make sure:

- safe work systems and operator competencies are in place.

13.1 SAFETY GUARDING

Safety guarding on machines and equipment prevent or reduce access to dangerous areas/parts of the machine. All machine guarding must be of a solid construction and securely mounted to the plant, to resist impact or shock from operation.

If you need to remove guarding for maintenance and cleaning, you must take steps to ensure (so far as is reasonably practicable) that the plant cannot be restarted until the guarding is replaced.

If the plant contains moving parts and those parts may break, disintegrate or be ejected, the guard must (so far as is reasonably practicable) effectively contain the broken or ejected parts.

If you manage or control a plant you must make sure the guarding:

1. is a permanently fixed physical barrier or an interlocked physical barrier (if access to the danger area is required during operation, maintenance or cleaning)
2. is a physical barrier that can only be altered or removed by the use of tools (when it is not reasonably practical to use guarding referred to in 1), or
3. is presence sensing safeguarding system (when it is not reasonably practical to use guarding referred to in 1 or 2).

You must also make sure that:

- the guarding makes bypassing or disabling the guarding as difficult as reasonably practical
- any pipe or other part of the plant that is subject to heat or cold is guarded or insulated if there is a risk of injury.

13.2 GUARDING OF GRAPE CRUSHERS

Within wineries crushers are fitted with augers, these crushers are in extensive use within the wine industry. Grape receival bins feeding the internal augers have varying diameters and flute lengths. Some designs are large enough for people to fall into. Others are small hand fed receival bins where a person can easily reach the auger at the bottom of the bin with their hand.

Receival bins must have adequate guarding to prevent people falling into, or becoming entangled in them. The bins can be guarded with appropriate grid or mesh barriers. The barrier must be designed to prevent a person's body parts coming in contact with the auger. The slot or opening dimensions will depend on the safety distance of the auger from the barrier and the accessibility of relevant body parts to the danger zone. For example, a large receival bin which people can fall into must be guarded with guardrailing in accordance with Australian Standard 1657–1992 Fixed platforms, walkways, stairways and ladders – Design, construction and installation, or by a mesh or grid barrier that will prevent a person falling through the openings, or limbs penetrating into the danger zone. A small hand fed bin must be guarded to prevent a person's fingers or hand coming in contact with the auger.

13.3 MAINTENANCE AND INSPECTION OF GRAPE CRUSHERS

Extreme care must be taken when persons access the auger for cleaning. The power supply to the plant must be isolated, locked-out and tagged with a 'personal danger' tag and 'out of service' tag before commencing work.

A fruit receival hopper with handrails and gate to prevent accidental falls into the auger area.

13.4 MAINTENANCE CLEANING AND REPAIR OF PLANT WITHIN THE WINERY

Winery plant must be maintained and repaired according to the manufacturer's specifications or, in the absence of such specifications, in accordance with a competent person's recommendations. Plant should be isolated before maintenance or cleaning commences.

Where plant is isolated and plant shutdown will result, any total or partial shutdown should not allow a hazardous situation to be created.

Isolated or disengaged plant should:

- not hinder or interfere with the operation of any other plant
- have guards in place where a risk of injury is identified, and
- not obstruct access.

A process should be put in place to enable effective communication and consultation with affected workers and other persons conducting a business or undertaking to prevent any risk to health and safety arising from restarting the operation of the plant which has been shut down due to inspection, maintenance or cleaning.

An energy isolation procedure should be developed to ensure that potential energy sources, that is, electrically charged capacitors, hydraulic and pneumatic pressure and water pressure are in a zero mechanical state prior to any maintenance or cleaning work being carried on plant items such on grape presses.

Plant energy sources within the winery could include:

- electricity
- hazardous chemicals
- fuels
- heat
- steam
- pneumatic pressure (compressed air)
- fluids under pressure, such as water or hydraulic oil
- energy storing devices, such as batteries, springs, flywheels, accumulators and capacitors
- gravity, and
- radiation.

Where plant cannot be isolated, methods to prevent accidental operation must be implemented. The work should be carried out under controlled procedures to allow for maintenance and cleaning without risk to the health and safety of the person performing the work.

IDENTIFY ISOLATION POINTS

The plant should be designed with clearly marked and identifiable isolation points. It should be clear what each point is isolating (for example, electrical isolators may only isolate control circuits. This is not an adequate level of isolation).

Note: Emergency stopping devices are not isolation points and must not be used for isolating plant. They bring the plant to a stop but do not isolate or de-energise energy and cannot be locked out.

13.5 STEPS TO ISOLATE PLANT WITHIN THE WINERY

Within the winery you should ensure these steps are included in your isolation of plant procedures. Each step should be completed before work begins.

1. SHUT DOWN PLANT

Shutting down plant may require single or multiple energy sources to be shut down, that is, electrical, air, hydraulic, chemical sometimes in a certain order. Ensure the plant operator is aware work is being conducted. On many occasion workers are typically injured when plant operators are unaware the plant is being worked on.

2. ISOLATE ENERGY SOURCES

All energy sources should be isolated. Some plant will have multiple control stations or independent electricity sources. Many of the machines used in wine production will require electrical circuits, connecting equipment and circuit protection devices to be de-energised.

3. DE-ENERGISE STORED ENERGY

Energy may still be stored, even after energy sources have been isolated. Stored energy includes static, kinetic (for example, rotational motion) and potential (for example, due to the plant's position).

Stored energy can be released by earthing to the ground, allowing the plant to complete its motion (particularly after breakdown). Stored energy can be contained by preventing movement through blocking, wedging or propping the part. Ensure blocks, wedges or props are designed for this task and can only be removed by a deliberate release action.

Consider negative pressure used to activate some types of plant. This pressure will need to be equalised to prevent hazardous chemicals being released into the work area.

4. LOCK OUT ISOLATION POINTS – PERSONAL DANGER LOCKS

Locking out isolation points prevents them being reactivated. Lockouts are designed for use on many different items of plant such as circuit breakers, fuses and valves (see picture 2).

When locking out plant items within the winery, you should ensure:

- There is one lock fitted for each person performing maintenance or non-production tasks. If there is more than one isolation point, each person will require sufficient locks to lock out each isolation point.
- There is a lock for each worker attached to isolation points that need to be isolated by more than one worker. This should be identified in the isolation procedure (see picture 3).
- Locks are kept on until the work is finished or the work is passed on to another worker.
- Multiple locks at each point are avoided by using a lock box (see picture 4). This means each lockout point has one lock and the key for the lock is placed in a box. Each person working on the plant places their lock on the lock box. This prevents access to the key to unlock the plant while the lock is still attached to the lock box.
- There is only one key for each lock, apart from a master key that should be given to a responsible person and stored in a secure location for emergencies only. However, if a worker has multiple locks assigned to them, they can hold one key for all locks.

Picture 2.
Locking out isolation points, such as this valve, prevents the isolation point from being reactivated.

Picture 3.
A lock is attached for each worker performing maintenance or non-production tasks.

Picture 4.
A lock box avoids multiple locks at each point.

5. LOCK OUT ISOLATION POINTS – OUT OF SERVICE LOCKS

An out of service lock should be applied to plant that will be worked on across more than one shift or day. If out of service locks are used, a supervisor or a nominated worker should be responsible for placing and removing them onto all required isolation points.

These locks should be clearly identifiable as out of service locks and remain on until it is safe to remove them or the work is complete. This should be included in the isolation procedure.

6. TAG OUT

If you can tag out, you can lock out first. Tagging is not a lock or a form of isolation. It is a warning identifying who to contact.

Two types of tags are used – personal danger tags and out of service tags.

Personal danger tags are red and white. They warn workers that someone is working on the plant. These tags should only be attached after the plant has been locked out and must be in clearly visible areas.

Out of service tags are yellow and black. They are used when plant is out of operation. If these tags are placed on plant with isolated energy sources, they should only be done when it is locked in the safe (off) position.

Example of out of service tag.

7. CONFIRM ISOLATION

Confirm all isolation steps have been carried out effectively and all energy is prevented from entering, removed or restrained. PCBUs should ensure:

- identification errors are avoided (for example, correct isolator is selected)
- the isolator is in the safe position
- all stored energy is dissipated or restrained.

8. TEST FOR ZERO ENERGY

Test that isolation of energy sources has been successful. A combination of tests can be applied to each situation. This should include different ways of operating the plant such as control stations or remote computers.

Testing should be done using appropriate equipment and by someone who is suitably qualified and understands the plant, energy sources, energy principles and isolation procedures.

9. CHANGING SHIFTS OR CREWS

If work is being taken over by the next shift or another crew, a handover should occur. This involves discussing the stage the work is at and changing over locks and personal danger tags.

10. A WORKER SHOULD NOT REMOVE ANOTHER WORKER'S LOCKS AND TAGS

The only worker who should remove personal danger locks and tags is the person who put them in place.

A procedure should be available which first considers all options to allow the person who placed the lock and tag to personally remove them, consider emergencies and/or if the worker is unable to remove the lock.

If the worker cannot remove the lock and tag, the employer should ensure:

- a senior person is accountable for the lock and tag
- the situation is assessed to be safe before removing the lock and tag
- ensure the removal is validated and signed off by two or more people.

11. REACTIVATE ISOLATED PLANT

Isolation procedures should include tasks for reactivating plant.

PCBUs should ensure reactivating procedures include at least the following steps:

1. all workers have finished their work and are aware the plant is being prepared for reactivation
2. all workers are a safe distance away from any hazardous area of the plant
3. blocks, wedges and props used to prevent parts from moving are safely removed (this will release energy)

4. guarding is replaced
5. locks and tags have been removed by the workers who placed them
6. sensory guarding is reactivated and tested to ensure it is functional
7. emergency devices are reactivated and tested (for example, stop buttons and pedals)
8. workers understand the method and order energy will be restored to each isolated point.

Plant can be safely used again only after all these tasks have been performed.

EMERGENCY STOPS

If the design of plant at a workplace includes an emergency stop control, the person with management or control of the plant must ensure that:

- the stop control is prominent, clearly and durably marked and immediately accessible to each operator of the plant
- any handle, bar or push button associated with the stop control are coloured red, and
- the stop control cannot be adversely affected by electrical or electronic circuit malfunction.

Where plant is designed to be operated or attended by more than one person and more than one control is fitted, the multiple controls must be of the 'stop and lock-off' type so that the plant cannot be restarted after a stop control has been used unless each activated stop control is reset. Emergency stop devices should not be the only method of controlling risks. They should be designed as a back-up to other control measures.

Once engaged, the emergency stop controls should remain that way. It should only be possible to disengage the emergency stop controls by a deliberate action. Disengaging the emergency stop control should not restart the plant. It should only allow the normal starting sequence to be activated. In the case of plant or parts of plant designed to work together, stop controls (including the emergency stop control) should be capable of stopping the plant itself as well as all the equipment interrelated to its operation, where continued operation of this related equipment may be dangerous.

13.6 REGISTERING PLANT

Certain items of plant and types of plant designs must be registered. With SafeWork NSW Registrable plant must be:

- design registered before it is supplied, and
- item registered before it is used.

Types of plant that must be registered include:

- tower cranes including self erecting tower cranes
- mobile cranes with a safe working load of more than 10 tonnes
- concrete placement units with delivery booms
- lifts, escalators and moving walkways
- building maintenance units
- boilers with a hazard level of A, B or C
- pressure vessels with hazard level of A, B, or C (except LP gas fuel vessels for automotive use; serially produced pressure vessels; or pressure vessels that do not require periodic internal inspection)
- amusement devices covered by Section 2.1 of Australian Standard (AS) 3533.1: 2009.

13.7 DESIGN REGISTRATION

Design registration is the registering of a completed design, from which any number of individual items can be manufactured. The person applying for design registration may be either the original designer or a person with management or control of the item of plant.

13.8 ITEM REGISTRATION

Plant item registration applies to a specific item of plant and each item requires registration.
The purpose of registering an item of plant is to ensure that it is inspected by a competent person and is safe to operate. It is the responsibility of the person with management or control of plant to ensure that all registrable plant items are registered.

14. HAZARDOUS MANUAL TASKS

Most jobs within the winery involve carrying out some type of manual task using the body to move or hold an object, piece of plant, tools, pipes and hoses during pumping operations, handling bulk materials, pressure cleaning plant equipment, moving and stacking barrels and finished product, loading materials onto the bottling line, for example, bottles and boxes.

Manual tasks cover a wide range of activities including stacking shelves, working on a conveyor line and entering data into a computer. Other hazardous manual tasks within the winery may include repetitive work conducted at the end of packing lines. Here the potential for highly repetitive tasks conducted with a sustained awkward posture may also lead to musculoskeletal disorders (MSD). Some manual tasks are hazardous and may cause musculoskeletal disorders. These are the most common workplace injury across Australia within the winery.

14.1 WHAT IS A MUSCULOSKELETAL DISORDER (MSD)?

A musculoskeletal disorder, as defined in the WHS Regulations, means an injury to, or a disease of, the musculoskeletal system, whether occurring suddenly or over time.

It does not include an injury caused by crushing, entrapment (such as fractures and dislocations) or cutting resulting from the mechanical operation of plant.

MSDs may include conditions such as:

- sprains and strains of muscles, ligaments and tendons
- back injuries, including damage to the muscles, tendons, ligaments, spinal discs, nerves, joints and bones
- joint and bone injuries or degeneration, including injuries to the shoulder, elbow, wrist, hip, knee, ankle, hands and feet
- nerve injuries or compression (for example, carpal tunnel syndrome)
- muscular and vascular disorders as a result of hand-arm vibration
- soft tissue hernias
- chronic pain.

MSDs occur in two ways:

- gradual wear and tear to joints, ligaments, muscles and inter-vertebral discs caused by repeated or continuous use of the same body parts, including static body positions
- sudden damage caused by strenuous activity, or unexpected movements such as when loads being handled move or change position suddenly.

Injuries can also occur due to a combination of these mechanisms, for example, body tissue that has been weakened by cumulative damage may be vulnerable to sudden injury by lower forces.

14.2 WHAT IS A HAZARDOUS MANUAL TASK?

A hazardous manual task, as defined in the WHS Regulations, means a task that requires a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any person, animal or thing involving one or more of the following:

- repetitive or sustained force
- high or sudden force
- repetitive movement
- sustained or awkward posture
- exposure to vibration.

These factors (known as characteristics of a hazardous manual task) directly stress the body and can lead to injury.

14.3 HOW TO IDENTIFY HAZARDOUS MANUAL TASKS

CONSULT YOUR WORKERS

Workers who perform manual tasks can provide valuable information about discomfort, muscular aches and pains that can signal potential hazards. For example, you could ask workers to identify tasks that:

- are difficult to do (or appear harder than they should be)
- are very tiring (muscle fatigue reduces work capacity)
- are awkward or dangerous (for example, difficulty controlling loads)
- cause discomfort.

REVIEW AVAILABLE INFORMATION

Records of workplace injuries and incidents, inspection reports and any workers compensation claims made for MSDs should be reviewed to help identify which manual tasks may cause harm. However, not all hazardous manual tasks will be associated with reported incidents, therefore it is important to gather additional information.

Information and advice about hazardous manual tasks and risks relevant to particular industries and work activities is available from regulators, industry associations, unions, technical specialists and safety consultants.

LOOK FOR TRENDS

You may be able to identify trends or common problems from the information you collect. Trends may show that certain tasks have more characteristics that make them hazardous or that some characteristics are more common in certain jobs. Trends may also show that workers in a particular location are exposed to more hazardous manual tasks than in other areas and this could indicate a problem with the design and layout of that work area or the way work is carried out there. These trends may help in deciding which manual tasks should be addressed as a priority.

OBSERVE MANUAL TASKS

Hazardous manual tasks can also be identified by looking at how people actually work and focussing on their postures and movements. A manual task is hazardous if it involves any of the following characteristics

- repetitive or sustained force
- high or sudden force
- repetitive movement
- sustained and/or awkward posture
- exposure to vibration.

Things to look out for include:

- any changes that have resulted in new manual tasks or a changed environment
- tasks involving tools, machinery or equipment that do not work properly or are difficult to use, and
- if workers have made improvisations to tasks to avoid discomfort (such as stacking mats or flattened cartons to stand on).

14.4 ASSESSING THE RISKS

A risk assessment involves examining the characteristics of the hazardous manual task in more detail to assess whether the forces, movements and postures are undertaken in such a way that they give rise to the risk of MSDs.

WHEN SHOULD A RISK ASSESSMENT BE CONDUCTED?

You should carry out a risk assessment for any manual tasks that you have identified as being hazardous, unless the risk is well-known and you know how to control it. A risk assessment can help you determine:

- which postures, movements and forces of the task pose a risk
- where during the task they pose a risk
- why they are occurring
- what needs to be fixed.

HOW TO DO A RISK ASSESSMENT FOR HAZARDOUS MANUAL TASKS

Identify who should participate in the risk assessment, for example, those workers who do the task or their health and safety representative, and management who have control over how the task is done. Describe the task and area where the manual task is performed. Note which body parts are likely to be at risk of injury, and then work through the assessment together to determine which risk factors pose a risk and why the risk exists.

The whole task should be examined, although it may help to look at the task in stages to identify all of the risk factors.

Looking at each of the steps identifies the different sources of risk, which are the things that should be changed to control the risks.

For some complex situations, expert or specialist advice may be useful when conducting a risk assessment. There are a range of risk assessment tools that may be used.

ASSESSING SIMILAR TASKS

If a number of your workers carry out very similar hazardous manual tasks, you may assess these tasks together as a group instead of assessing each task individually. However, you should only do a group risk assessment if all the tasks are sufficiently similar and do not expose a worker to a different risk than if individual assessments were carried out.

WHAT ARE THE RISK FACTORS?

Working through the following questions will assist in determining which postures, movements and forces of the task pose a risk.

Question	Answer
Question 1 – Does the task involve any of the following: • repetitive movement? • sustained or awkward postures? • repetitive or sustained forces?	As a general guideline, 'repetitive' means that a movement or force is performed more than twice a minute and 'sustained' means a posture or force is held for more than 30 seconds at a time. The risk increases as the degree of bending and twisting increases. The risk is greatest when the postures and movements are extreme, that is, toward the end of the movement range, and when they feel uncomfortable for the worker.
Question 2: Does the task involve long duration?	If you have assessed a task as involving postures, movements or forces that are also repetitive (more than two per minute) and/or sustained (held for more than 30 seconds), you should determine the duration of the task. The duration of the task is how long the task is carried out over a whole shift or continually at any time during a shift. Tasks that continue over a long period or are repeated over the work day increase the risk of injury. As a general guideline, long duration means the task is done for more than a total of two hours over a whole shift or continuously for more than 30 minutes at a time. Keep in mind that workers may use the same parts of the body to repeat similar movements when carrying out various tasks that are similar in nature over time.

Question	Answer
Question 3: Does the task involve high or sudden force?	High forces can cause MSDs even if they are not repetitive or sustained. This means that any task involving high force may be a risk, even if it is only done occasionally or for short periods. The longer and more often force is applied and the higher the force, the greater the risk. The risk in tasks involving high force is related to: the intensity of the force needed – forceful muscular exertions place high stress on the muscles, tendons, joints, ligaments and vertebral discs. the speed involved – fast movements (particularly if repeated) can injure muscles, tendons and ligaments. The rapid or sudden speed changes caused by sudden or unexpected movements are high risk. whether the force is jerky or sudden – forces suddenly applied or stopped can overload the muscles, tendons, joints, ligaments and vertebral discs. This can occur when throwing or catching loads, or when the load or item worked on moves unexpectedly High and sudden forces are commonly associated with the handling of live persons or animals and loads that are unstable, unbalanced or difficult to hold.
Question 4: Does the task involve vibration?	Prolonged exposure to whole-body or hand-arm vibration increases the risk of MSDs and other health problems. The degree of risk increases as the duration of exposure increases and when the amplitude of vibration is high. Some examples of sources of vibration are: driving, particularly on rough roads frequent or prolonged use of hand powered tools use of machines or tools where the manufacturer's handbook warns of vibration workers being jolted or continuously shaken use of a vehicle or tool not suitable for the environment or task.
Question 5: Is there a risk?	The task involves a risk of MSD if you have answered 'yes' to either: Questions 1 and 2 The task involves repetitive or sustained postures, movements or forces, and it involves long duration. Question 3 The task involves high force or sudden force. Question 4 The task involves vibration A task may involve more than one risk factor. Where a number of risk factors are present and interact within a task, the risk of MSD increases significantly.

WHAT ARE THE SOURCES OF THE RISK?

When conducting the assessment, think about the sources of any risks that are present in the task. These will be the things that you may be able to change to eliminate or reduce the risk of MSD. For example, poor postures and movements may be due to the layout of the workplace, high forces may be due to the loads being handled, and the frequency and duration of the task may be due to the work organisation, limited staff numbers or increased work pace to meet tight deadlines.

The main sources of risk are: work area design and layout the nature, size, weight or number of things handled in performing the manual task, systems of work the environment in which the manual task is performed.

These sources of risk can also make the task more difficult to perform and therefore increase the risk of MSD.

For each risk factor, you should ask: where in the task are they occurring why each of these actions is occurring (source of the risk).

The answers to these questions will provide the information on how to fix the source of the risk and hence control the risk of MSD.

CONSIDER THE WORK AREA DESIGN AND LAYOUT

A work area includes work benches, conveyors, bottling plant, cellar door, storage locations and the equipment used by workers doing that job. The positioning and relationship of the different elements in a work area to each other and to the worker are important because of the effect on working postures.

A work area that is designed without consideration of the risks that arise from hazardous manual tasks may impose awkward postures on workers undertaking manual tasks, for example, bent and twisted positions with shoulders raised and the need to reach for items or carry loads over long distances.

Consider the nature, size, weight or number of persons, or things handled.

LOADS

Loads can be a source of risk due to the amount of muscular effort needed to handle them. The harder to grip and control a person, animal or thing, the greater the force required to handle them.

The risk can arise from:

- size, shape and weight of load – loads that are large, bulky, or heavy and cannot be held close to the body or are asymmetric and put uneven forces on the spine
- loads that are difficult to grip through unsuitable handles, handholds or surface textures
- unstable or unwieldy loads can create sudden high muscle forces and result in overloading of muscles, tendons or discs.

TOOLS

Tools that are unsuitable for the task can be a source of risk by increasing the force required, or by promoting sustained or awkward postures. Risks can arise from:

- Weight – heavy hand tools, particularly if held for long periods of time, increase the force and effort required to perform a task, for example, a 3 kg power drill used on an assembly line.
- Balance – if the heaviest part of the tool is in front of the wrist, the force required to grip the tool and stop it tilting forward is increased.
- Handle design – if the handle diameter is too large or too small, the grip span of the hand will create awkward postures and greater force will be required to control the tool. A handle that is too short or has prominent edges, can result in damaging compression of the palm.
- Handle orientation – if the handle design does not place the wrist in a handshake position, the worker will need to use an awkward posture to operate the tool. Tools that cannot be adapted for use by both hands or are designed for right-handed use only can result in awkward postures and increased force.

- Shock loading and impact – tools that deliver impacts such as hammers, hammer drills, and nail guns transmit impact forces to various ligaments and can require the use of a firmer grip to maintain control. They are a particular source of risk if used repetitively and for long periods.
- Prolonged use – continued use of any hand tool (even tools that are well suited to the user and designed for the task) without adequate time to recover will increase risk of injury due to the sustained force to support it. In particular, vibrating tools increase risk.
- Maintenance – poorly maintained or irregular service of tools and equipment may increase the effort needed to use them.

CONSIDER THE SYSTEMS OF WORK

Systems of work, or the way work is organised, can influence the physical and mental demands that a manual task places on a worker. The fatigue and strain (physical and mental) that may arise from the aspects of work (task demands, task control and resources and support provided) bring on physiological responses such as increased muscular tension and affect the function of muscles, nerves and blood vessels, increasing the risk of the worker developing an MSD.

The sources of risk include: time constraints pace and flow of work across the working day or shift ability for workers to influence workload or work methods and changes in the workplace the level of resources and guidance consultation processes work roles and performance requirements or processes for dealing with conflicts staffing levels, skill mix and shift arrangements.

Remember that workers will also have different physical and psychological characteristics and these individual factors may increase the risk, for example: Skills and experience – being inexperienced in a job may increase the risk Physical characteristics – an overload situation may result from a mismatch between the worker and the task Unaccustomed work – workers who are new, have transferred from another job or are returning from extended leave and whose muscles are not conditioned to the work.

CONSIDER THE WORKPLACE ENVIRONMENT

The sources of risk in the work environment include:

- Cold environments such as in cool rooms, freezers, cold stores or working outside in cold and/or wet weather can lower body and hand temperature and make handling and gripping objects more difficult. Increased grip force can also result from reduced sensitivity in cold hands or from wearing gloves. Cold can also significantly increase the risk of hand-arm vibration. Working in a cold environment requires thick or heavy protective clothing that restricts movement which can increase the risk of MSD. It can also cause overheating of the body as the clothing does not allow heat or sweat to dissipate and may decrease the blood flow to muscles, increasing fatigue.
- High temperatures (including radiant heat), or working in hot weather can make handling and gripping objects more difficult. Workers may have difficulty grasping objects due to perspiration on the hands or there may be sudden or unexpected forces due to loads slipping.
- Humid environments – caused by processes such as steam cleaning, or the weather can also increase the risk of developing MSD. Handling wet or damp objects may require increased force. Humidity may also increase discomfort and fatigue.
- Wind – may increase the force required to handle items and reduce control while handling large objects, especially those that are flexible and have a large surface area. When working in windy conditions and in low temperatures that are also windy, the resultant wind chill may lower the body temperature further.

- Slippery and uneven floor surfaces – may increase the exertion required to perform manual tasks due to difficulty maintaining stability.
- Obstructions – caused by poor housekeeping and cleaning can lead to awkward postures such as reaching or bending over obstacles. Hose configuration and placement may significantly increase the risk of sustaining MSDs.
- Lighting – low or high levels of lighting, as well as glare and reflection, may lead to awkward or sustained postures to either improve vision or to avoid glare.

CONTROLLING THE RISKS

Now we know which risk factors are present, where they are present and why they are present (sources of the risk), you are in a position to know what must be controlled and work how to do it. The ways of controlling risks of MSDs are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the *hierarchy of risk control.* The WHS Regulations require duty holders to work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances. This may involve a single control measure or a combination of two or more controls.

ELIMINATE THE RISK

The most effective control measure involves eliminating the hazardous manual task and its associated risk. Eliminating hazards and risks is usually easier and cheaper to achieve in the planning or design stage of an item, process or place used for work.

MINIMISE THE RISK

If it is not reasonably practicable to eliminate the risk, then you must minimise the risks so far as reasonably practicable by:

- substituting the hazard with something that gives rise to a lesser risk
- isolating the hazard from any person exposed to it
- implementing engineering controls.

If there is remaining risk, it must be minimised so far as is reasonably practicable by implementing administrative controls, and if a risk stills remains, then suitable personal protective equipment must be provided and used.

These two types of control measures, when used on their own, tend to be the least effective in minimising risks because they rely on human behaviour and supervision. Control measures should be aimed at eliminating or minimising the frequency, magnitude and duration of movements, forces and postures by changing the source of risk: the work area, tools, load, environment, method of handling and/or the way work is organised.

Hierarchy of control		Examples of control measures
Level 1	Elimination	• Automate the manual task. • Deliver products directly to the point of use to eliminate multiple handling.
Level 2	Substitution	• Replace product size and weight of powdered products. • Replace heavy items with those that are lighter, smaller and/or easier to handle, that is, use smaller wine barrel rather than 300 or 400 L capacity barrel. • Replace hands tools with power tools, robotics, etc.
	Isolation	• Isolate vibrating machinery from the user, for example, by providing fully independent seating on mobile plant.
	Engineering	• Use mechanical aids, conveyors, FLTs, pallet jacks • Provide workstations that are height adjustable.
Level 3	Administrative	• Job rotation between tasks. • Train workers to use control measures implemented when carrying out manual tasks • Information, training and instruction, for example, safe work procedures.
	Personal protective equipment	• Heat resistant gloves for handling hot items. • Shock absorbent shoes for work on hard concrete floors. • Non slip foot wear when working in damp environments.

CONTROL OPTION CONSIDERATIONS

- Is the task necessary?
- Can the source of risk (workstation layout, system of work, environment, etc) be changed?
- Can mechanical aids be used to perform the task?
- What training is needed to support the control measures?

Examples of spring loaded tables.

These devices keep loads at an ideal height for building or breaking down pallet loads, these can dramatically reduce the risk of MSD. The built-in turntable allows simple load rotation and access to all sides of the pallet/product.

Barrel racks are used here so barrels can be moved around by forklift truck instead of manually moving them.

In this example, the winery was previously using recycled plastic 200 L drums and manually conveying a large mixer to various drums as required to mix up large wine additions like Bentonite, Isinglass or Tartaric Acid. The winery following consultation with winery staff introduced a mobile stainless steel mixing vessel. This mixing vessel was fitted with:

- wheels to move it easily into the best location
- a measuring device for ensuring correct volumes
- a bottom valve for connecting Venturi hose, which will aided cellar hands in ensuring that the hose does not fall out, and that all additive is easily picked up
- the mixer is also attached to the tub, so the manual handling involved in carrying the mixer around is removed from the operation
- a fabricated mesh grate across the top of the vessel removes risk of persons coming into contact with rotating machine parts.

Installation of barrel washers with an overhead gantry can eliminate the requirement to roll barrels while also reducing MSDs associated with supporting the barrel washer head.

Use of an automated scissor lifts table and manual conveyor for pick, pack and dispatch tasks.

TRAINING

Training provided in relation to manual tasks should include information on:

- manual task risk management, including the characteristics of hazardous manual tasks
- specific manual task risks and the measures in place to control them
- how to perform manual tasks safely, including the use of mechanical aids, tools, equipment and safe operating procedures
- how to report problems or maintenance issues
- training records for work in relation to manual tasks.

REVIEWING CONTROL MEASURES

Control measures that have been implemented must be reviewed and, if necessary, revised to make sure they work as planned and to maintain a work environment that is without risks to health and safety.

This should be undertaken when:

- the control measure is no longer effective
- a change at a workplace that is likely to give rise to a new or different health and safety risk that the control may not effectively control
- a new hazard or risk is identified
- the results of consultation indicate that a review is necessary
- a health and safety representative at the workplace requests a review.

15. EMERGENCY ARRANGEMENTS WITHIN THE WINERY

Within the winery you must have and maintain an emergency plan that covers major incidents in the workplace. You must have plans in place to respond effectively to health and safety incidents and other emergencies that might occur in the workplace.

Your plan must include:

- emergency procedures (including evacuation, notification of emergency services and medical treatment)
- testing of the emergency procedures
- information, training and instruction for workers involved in emergency planning and response.

Emergency situations can include:

- fire or explosion
- dangerous chemical release
- chemical, medical emergence
- natural disasters
- bomb threats
- violence.

WHAT YOU NEED TO DO WITHIN THE WINERY

To prepare and maintain an emergency plan, you must consider:

- the particular work being carried out at the workplace
- the specific hazards at a workplace
- the size and location of a workplace
- the number and composition of the workers and other people at a workplace.

The plan must be based on an assessment of the hazards at the workplace, including the possible consequences of an incident occurring as a result of those hazards.

For example, an office worker working by themselves in the administration building will be subject to different hazards to a worker involved with barrel work and racking or bottling, corking and general cleaning. The varying nature of the hazards requires the risks of the particular job to be assessed, and an appropriate emergency procedure put in place.

Workers and their health and safety representatives must be consulted when reviewing, and if necessary revising, the emergency plan by the person responsible for preparing it.

A plan must be developed if there is no emergency plan at the workplace. If the workplace:

- presents a significant hazard in an emergency, consultation with the local emergency
- services when developing the plan should occur.

The emergency procedures in the emergency plan must clearly explain how to respond in various types of emergency, including how to evacuate people from the workplace in a controlled manner.

The procedures should be written clearly and simple to understand. Where relevant, the emergency procedures should address:

- allocation of roles and responsibilities for specific actions in an emergency to persons with appropriate skills, for example, appointment of area wardens
- clear lines of communication between the person authorised to co-ordinate the emergency response and all persons at the workplace
- the activation of alarms and alerting staff and other people at the workplace
- the safety of all the people who may be at the workplace in an emergency, including visitors, shift workers and tradespeople
- workers or other persons who will require special assistance to evacuate
- specific procedures for critical functions such as a power shut-off
- identification of safe places
- potential traffic restrictions
- distribution and display of a site plan within the winery that illustrates the location of fire protection equipment, emergency exits and assembly points
- the distribution of emergency phone numbers, including out-of-hours contact numbers
- access for emergency services (such as ambulances) and their ability to get close to the work area
- regular evacuation practice drills (at least every 12 months)
- the use and maintenance of equipment required to deal with specific types of emergencies (for example, spill kits, fire extinguishers, early warning systems such as fixed gas monitors or smoke detectors and automatic response systems such as sprinklers)
- regular review of procedures and training.

Emergency procedures must be tested in accordance with the emergency plan in which they are contained.

Evacuation procedures should be displayed in prominent places throughout the winery, for example, on a noticeboard. Workers must be instructed and trained in the procedures.

A more comprehensive plan may be needed to address high risk situations such as:

- large numbers of people at the site at the same time, for example, during harvest
- high risk chemical processes within the winery
- major shutdowns/upgrades within the winery where numbers of service providers are undertaking maintenance/construction work activities
- major events organised at the winery such as concerts, harvest lunches, etc.

Further guidance on emergency plans and procedures is available in AS 3745: 2010 – Planning for Emergencies in Facilities.

An emergency plan checklist can be found on page 105, Checklist for emergency plans.

16. FIRST AID

Employers and businesses (and other PCBUs) must make first-aid arrangements for their workplace so workers can get immediate help if they are injured at work.

They must insure they:

- provide first aid equipment and access to first aid facilities
- make sure all workers have access to the first aid equipment
- appoint an adequate number of workers who are trained to give first aid, or make sure that workers have access to a suitable number of first aiders.

First aid requirements will vary from one workplace to the next. To assess what a particular workplace's requirements are, they must consider the:

- type of work being carried out at the workplace
- type of hazards at the workplace
- size and location of the workplace
- number and makeup of workers and others at the workplace.

The first aid in the workplace code of practice provides practical guidance for the provision of appropriate first aid in the workplace including first aid training, first aid kits, procedures and facilities.

First aid signs
Displaying well-recognised, standardised first aid signs will assist in easily locating first aid equipment and facilities. First aid signs may be constructed to suit individual requirements but should comply with AS 1319: 1994 – Safety Signs for the Occupational Environment.

EYE WASH AND SHOWER EQUIPMENT

Within wineries quantities of hazardous chemicals may be stored, handled or used on a regular basis.

Immediate access should be provided to shower equipment in workplaces where there is a risk of:

- exposure to hazardous chemicals resulting in skin absorption or contamination from infectious substances
- serious burns to a large area of the face or body (including chemical or electrical burns
- or burns that are deep, in sensitive areas or greater than a 20 cent piece).

Shower facilities can consist of:

- an appropriate deluge facility
- a permanently rigged hand-held shower hose
- a portable plastic or rubber shower hose that is designed to be easily attached to a tap spout – for small, relatively low risk workplaces where a fixed deluge facility would not be reasonably practicable but the risk of serious burns is still foreseeable.

Portable, self-contained eye wash or shower units have their own flushing fluid which needs to be refilled or replaced after use. Further guidance is available in AS 4775 – Emergency eyewash and shower equipment.

17. WORKING IN HEAT

There are no work health and safety legislation requirements specified for maximum or minimum temperatures for a workplace. However within the winery PCBUs have a primary duty of care to ensure, so far as is reasonably practicable, workers and others under their control in the workplace are not subjected to health and safety risks where workers carrying out work in extremes of heat or cold.

On certain occasions throughout the summer period, workers may on certain days experience extreme high temperatures, therefore within the winery you must implement work practices for workers to ensure they are not placed at risk of heat stress or related health and safety problems. Heat stress is a dangerous medical condition that arises when the body is unable to cope with working in heat.

BACKGROUND

Heat illness occurs when the body cannot sufficiently cool itself. Factors that contribute to this include:

- temperature
- humidity
- amount of air movement
- radiant temperature of surroundings
- clothing
- physical activity (metabolic heat load).

Heat illness covers a range of medical conditions that can arise when the body is unable to properly cope with working in heat. These conditions include:

- heat stroke – a life threatening condition that requires immediate first aid and medical attention
- fainting
- heat exhaustion
- heat cramps
- rashes (also called prickly heat)
- heat fatigue
- worsening of pre-existing illnesses and conditions.

Signs and symptoms of heat illness include feeling sick, nauseous, dizzy or weak. Clumsiness, collapse and convulsions may also be experienced as a result of heat illness.

WHAT IS THE RISK OF HEAT ILLNESS OCCURRING?

There are several factors that need to be considered when determining if there is a risk of heat illness to workers and ways to protect them. When identifying heat hazards and controlling heat risks, workers likely to be exposed to heat as well as with their health and safety representatives (HSRs), if any, must be consulted.

- Identifying heat illness hazards.

Air temperature alone cannot be used to determine whether there is a risk of heat illness. The key risk factors that need to be taken into account are:

- air temperature
- humidity
- radiant heat (from the sun)
- air movement or wind speed
- workload (nature of the work and duration)
- physical fitness of the worker (including acclimatisation and any pre-existing conditions, for example, overweight, heart/circulatory diseases, skin diseases or use of certain medicines)
- clothing (including protective clothing such as overalls, coveralls and suits worn during tank cleaning).

IS THERE A RISK OF HEAT ILLNESS?

If there is a risk of heat illness at work, it must be controlled. Advice may be sought from a person competent in heat assessment. They can provide recommendations about how the risk can be controlled. Any assessment should include an appropriate heat stress index. A commonly used and recognised index is the Wet Bulb Globe Temperature (WBGT). The WBGT takes into account air temperature, radiant heat, humidity and air movement.

Adjustments are also made to take into account things such as physical workload, clothing and work organisation. If a risk of heat illness is identified, control measures need to be put in place. Workers considered at risk due to factors such as pre-existing conditions should be assessed by a doctor.

PREVENTING HEAT ILLNESS

The risk can also be minimised by modifying workload. This may include:

- rescheduling work so the hot tasks are performed during the cooler part of the day
- doing the work at a different location
- wearing light clothing that still provides adequate protection
- reducing the time spent doing hot tasks (for example, job rotation)
- arranging for more workers to do the job
- providing extra rest breaks in a cool area
- using mechanical aids to reduce physical exertion.

OTHER MEASURES FOR PREVENTING HEAT ILLNESS

- Keeping people away from hot processes.
- Allowing workers to acclimatise.
- Providing cool drinking water near the work site. During hot weather, workers should be encouraged to drink a cup of water (about 200 mL) every 15 to 20 minutes and not rely solely on soft drinks or caffeinated drinks.
- Providing personal protective equipment (PPE) such as reflective aprons and face shields for reducing exposure to radiant heat. Outdoor workers should be provided with protection against ultraviolet exposure, such as wide brim hat, loose fitting, long-sleeved collared (preferably cotton) shirt and long pants, sunglasses and sunscreen.
- Providing workers with information, instruction and training on recognising heat-related illness and on first aid. Adequate supervision of workers is also required.
- Providing first aid facilities and access to medical help.

USE ENGINEERING CONTROLS TO PREVENT OR MINIMISE HEAT ILLNESS

Examples include:

- increasing air movement using fans
- installing shade cloth to reduce radiant heat from the sun
- installing shields or barriers to reduce radiant heat from sources
- removing heated air or steam from hot processes using local exhaust ventilation
- installing air conditioners or coolers to reduce air temperature and generate air movement
- locating hot processes away from people
- insulating/enclosing hot processes or plant
- isolating workers from the hot process by locating them in air conditioned control rooms.

If symptoms occur, workers need to rest in a cool, well-ventilated area and drink cool fluids.
If symptoms do not improve quickly, or skin is very hot and dry to touch, seek urgent medical help.
Plan ahead and ensure all necessary measures for preventing heat illness can be implemented when hot weather is predicted.

RELATED HEALTH AND SAFETY PROBLEMS

Apart from heat illness, hot working conditions may either contribute to or cause other health and safety problems, for example:

- loss of grip while handling tools, objects and controls due to sweaty hands
- slips, trips and falls due to fainting or fatigue
- errors/mistakes due to heat fatigue
- not following safe work procedures or cutting corners due to fatigue and/or discomfort
- not using PPE due to discomfort
- burns from contact with hot surfaces or substances.

HEAT DISCOMFORT

Heat discomfort is what many people feel when it is hot. It is not a medical condition like heat illness and therefore is not considered a risk to health.

People who work in office type environments and who do very little physical work are unlikely to be at risk of suffering heat illness. What they experience as a result of higher temperature and increased humidity is likely to be heat discomfort.

Heat discomfort can generally be managed by:

- increasing air movement
- providing air conditioning (if practical)
- providing access to cool water
- wearing suitable light, loose fitting clothing.

Thermal comfort is subjective, but generally, conditions considered comfortable for people working indoors and doing light work are:

- air temperature (dry bulb temperature) 23 to 26 degrees Celsius
- relative humidity 30 to 60 per cent.

18. CELLAR DOOR WORK HEALTH AND SAFETY

The cellar door is the access point of the winery to the general public. It can be seen as the point where the hospitality, retail and the wine industry combine as one. The cellar door is the interface between the general public and the winery. Wineries are unique manufacturing workplaces because they are frequently visited by members of the public. Members of the public who visit wineries may include children on school excursions, holidaymakers on small and large bus tours, individual visitors and their families and friends who may attend for a wining and dining or picnic experiences.

The cellar door may also be visited by tourist groups from overseas who are culturally and linguistically diverse (CALD) and may require extra supervision or methods of communicating issues related to health and safety and whilst at the winery. The cellar door will present risks that do not exist in any other parts of the winery, for example, cash handling, persons potentially affected by alcohol and children.

Cellar door managers and workers need to be aware that children or persons affected by alcohol may not act safely or be cooperative in following site specific rules and may attempt to access other work areas of the winery. Activities associated with the cellar door at wineries may include wine tasting, winery and garden tours, picnics, dining, cooking, grape crushing as well as special events and functions.

Common risks differ from the manufacturing environment and are typically the same as a licensed premises, restaurant or retail outlet and may include but are not limited to:

- access roads to the winery
- safe access (that is, walkways, steps) particularly during tour activities and potential evacuations
- cash handling
- picnic area/play area equipment/amenities (refer Australian Standard AS 4685.1 1–6 for guidance on Playground Equipment)
- manual tasks for carrying products,
- glass breakages and spillages
- spills, slips trips and falls
- visitor behaviour and violence,
- animals on site
- water features, ponds, dams and bird baths
- access restricted to public to high risk production locations.

Ensure all workers involved with the service and sale of alcohol are qualified (Responsible Service of Alcohol course) and trained in the safe operating procedures for the cellar door/restaurant. The winery has an obligation to ensure that all reasonably practical measures have been taken to identify foreseeable hazards that could give rise to risks to health and safety and to eliminate those risks so far as is reasonably practicable, and if it is not reasonably practicable to eliminate risks to health and safety – minimise those risks so far as is reasonably practicable. Personnel protective equipment should be made available to visitors where necessary. When hazardous work activities are being undertaken the public must be kept away and that visitors should not be permitted to enter any work area without close supervision. All doors, fencing, guards, covers; security of plant and hazardous chemicals is maintained to prevent authorised access. Tour guides should point out hazards such as forklifts in use; hazard and warning signs, emergency arrangements established; and any other health and safety precautions.

Layering of palletised loads and restricting height of boxes to no higher than shoulder height helps with manual handling of stock. Use of manual rollers helps with stock rotation. Tilting of boxes at front of cellar door display also helps with stock access.

There are dishwashers available which can wash and polish glasses. If polishing must be done by hand, the correct technique is required to prevent breaking of glass stems and potential lacerations.

19. TRAFFIC MANAGEMENT AT THE WINERY

Many different types of vehicles operate in wineries including trucks, forklifts, front-end loaders, multi-purpose cranes, quad bikes and passenger vehicles. There is also pedestrian activity such as winery workers moving around the winery to carry out everyday tasks including transferring product, cleaning tanks, obtaining samples for testing, maintenance tasks, etc. The consequence of being hit by plant/vehicles can be serious, resulting in injury or even death.

During the vintage period vehicular and pedestrian movements are greatly increased and so is the risk of vehicles coming into contact with other vehicles or pedestrians.

Grapes can be received at night, therefore adequate lighting must be provided to illuminate work areas to ensure the safety of all persons on site. Listed below are traffic control options.

TRAFFIC MANAGEMENT CONTROL OPTIONS

- Separate entries and exits for mobile equipment (for example, forklifts or trucks) and pedestrians should be provided to minimise the risk of persons being hit by moving vehicles.
- If people and vehicles have to share a traffic route, use kerbs, barriers or clear markings to designate a safe walkway.
- Create exclusion zones, for example, forklift-only areas in loading bays or pedestrian-only areas around, amenities, cellar doors and entrances.
- Have pedestrian routes within the winery which represent paths people would naturally follow to encourage pedestrians to stay on designated safe routes and avoid taking potentially hazardous shortcuts.
- Ensure that adequate lighting is provided for areas where work is carried out at night including weigh bridges.
- Clear instructions should be given to drivers on procedures for weigh bridges including the need to remain in the cab at all times unless instructed to leave the cab by weigh bridge workers.
- A traffic light system, beeping notification system or loudspeaker system could be implemented to control the movement of traffic around high risk areas such as the weigh bridge or crushers.
- Time scheduling of truck deliveries and pick-ups during peak activity periods should be implemented to reduce queues of vehicles and traffic movement on site.
- Marshalling areas could be used to organise trucks into lanes, which align with the allocated crusher identification number.
- Ensure that the cellar door/restaurant areas are signposted with clear directions to parking areas and then clear directions to the cellar door and restaurant without going into areas where there is winery traffic.
- Areas that are out of bounds to the general public should be signposted or cordoned off.
- Prominently display clear warning signs in relevant well lit areas to warn persons of the traffic management hazards and requirements.

- Ensure that the cellar door/restaurant areas are signposted with clear directions to parking areas and then clear directions to the cellar door and restaurant without going into areas where there is winery traffic.
- Develop a site safety plan clearly identifying pedestrian walkways and traffic directions.
- Workers/Visitors are provided with high visibility clothing in traffic areas.
- Use a combination of audio and visual warning devices like alarms, horns and flashing lights fitted to plant and ensuring these are working when the plant is operating.

20. NOISE AT WORK

EXPOSURE TO HAZARDOUS NOISE AT WORK IS A MAJOR CAUSE OF HEARING LOSS

Hazardous noise is sound that may damage your hearing and cause other health effects such as stress, hypersensitivity to noise, increased blood pressure and increased heart rate. It can also interfere with communication at work, which could lead to accidents. Within the winery hazardous noise will be emanated from production processes such bottling, packaging equipment, work activities, plant operations. Noise can emanate from pumps, chillers, crushers and other winery equipment, as well as vehicle noise, particularly during vintage.

The single greatest cause of permanent hearing loss in Australia is industrial deafness, caused from prolonged exposure to loud noise at work. When you are first exposed to excessive noise you may experience 'Temporary Threshold Shift' for a time after the noise exposure. This is temporary damage to your hearing that will repair after a few days. Many of us may have experienced this after attending a concert or similar noisy event. When the noise exposure continues on a more regular basis, it can lead to Noise Induced Hearing Loss.

Fortunately, noise induced hearing loss is preventable, however once acquired the damage is irreversible and increases in severity with continued exposure, with devastating consequences for the personal, career and financial futures of the injured person AND their family. At first, noise-induced hearing loss affects a person's ability to hear higher frequency sounds, but since normal speech does not use these high frequencies, little hearing change is noticed.

With continued exposure, hearing deteriorates and eventually the loss spreads into those lower frequencies involved in speech. Affected individuals tend to automatically compensate by getting clues from reading lips without realising it. Significant hearing loss is often experienced before it is even noticed. The body's reaction to noise is similar to its response when under stress.

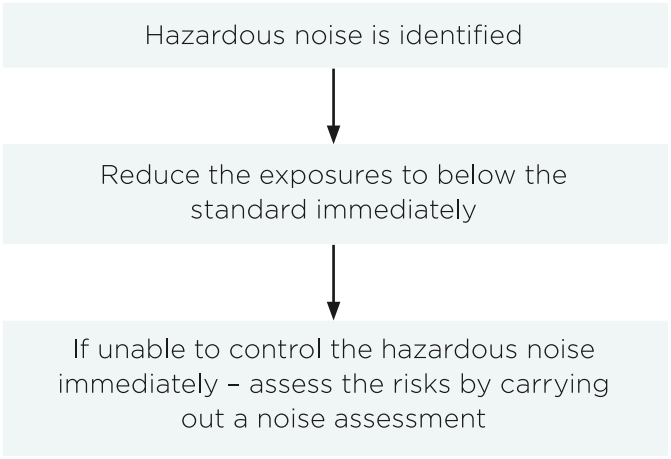
Blood pressure and heart rate can increase, and hormone and blood cholesterol levels can change. Exposure to too much noise can have hidden consequences, such as high blood pressure, increased stomach acid content, nervousness, irritability, insomnia and tiredness which increases the likelihood of accidents, not to mention the social effects.

The health effects of noise are not immediately apparent. There is nothing visible and mostly very little pain. Hearing loss may not be the only problem. Some people get mild and sometimes severe tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition which can lead to depression, despair, disturbed sleep, stress and can reduce a person's enjoyment of life. It is incurable, and sufferers have to 'learn to live with it'.

Noise is measured in decibels (dB). An 'A-weighting' sometimes written as 'dB(A)', is used to measure time based noise equivalents, usually over eight hours. The 'A' weighting is intended to simulate the response of a human ear. A 'C-weighting' or 'dB(C)', is known as a linear measurement, that is, not weighted, and represents the actual sound level. It is used to measure peak, impact or explosive noises such as fireworks, where an 8 hour equivalent noise level would not be appropriate.

A PCBU must ensure that workers aren't exposed to noise that exceeds the exposure standard. The exposure standard is:

- the equivalent of eight hours continuous exposure to 85 dB(A), or
- a peak of 140 dB(C).



This means a worker cannot be exposed to more than the equivalent of eight hours of constant noise of 85 dB. What's more, workers cannot be exposed to a sudden impulse noise peak of more than 140 dB such as firearms or fireworks. This is the same as under the old OHS Regulation.

If you have identified any noisy activities within the winery that may expose your workers or other people at your workplace to hazardous noise then, unless you can reduce the exposures to below the exposure standard immediately, you should assess the risks by carrying out a noise assessment.

A noise assessment will help you:

- identify which workers are at risk of hearing loss
- determine what noise sources and processes are causing that risk
- identify if and what kind of noise control measures could be implemented
- check the effectiveness of existing control measures.

Complex situations may require measurement to accurately determine a worker's exposure to noise, such as workplaces with variable noise levels over a shift and jobs where workers move in and out of noisy areas.

A noise assessment should be done by a competent person in accordance with the procedures in Australian and New Zealand Standard 1269.1. The more complex the situation, the more knowledgeable and experienced the person needs to be.

The way a noise assessment is done will depend upon:

- the type of workplace
- the number of people potentially at risk from exposure to hazardous noise
- the information already available on noise at the workplace.

The Work Health and Safety Regulation says a PCBU must:

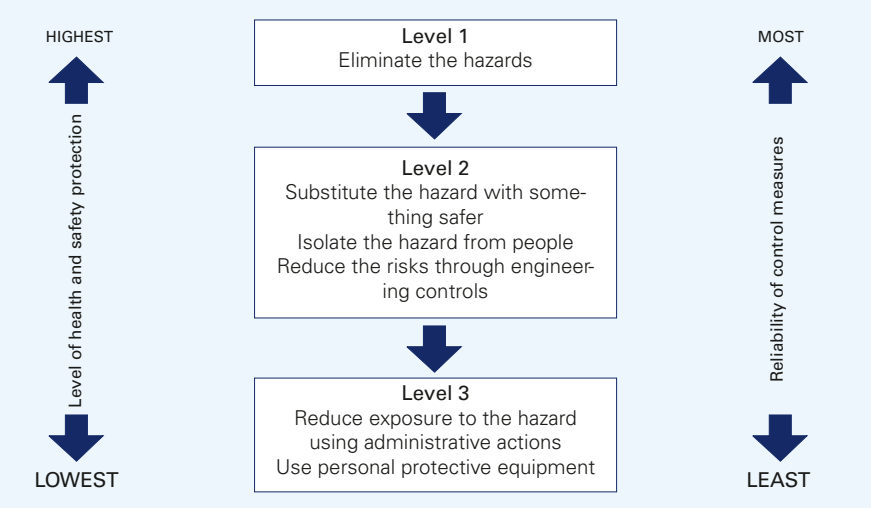
- manage the risk of hearing loss associated with noise
- ensure that workers aren't exposed to noise levels above the exposure standard.

A person conducting a business or undertaking must provide audiometric testing for workers required to frequently use personal hearing protectors as a control measure for noise that exceeds the exposure standard.

CONTROLLING NOISE HAZARDS

- Eliminate the hazard if reasonably practicable
- Use the hierarchy of control measures to choose
- Involve and consult your workers.

Once you have identified noise hazards within the winery you will need to control these risks. Some ways of controlling risks work better than others. The hierarchy of risk control ranks the types of controls from the highest level of protection and reliability to the lowest. In controlling noise hazards in your workplace you must use the hierarchy of controls when deciding how to control a risk and you must involve and consult with your workers.



The most effective control measure is to eliminate the source of noise completely, for example:

- by not using a noisy machine
- changing the way work is carried out so hazardous noise is not produced, or
- by not introducing noise hazards in the first place.

If it is not reasonably practicable to eliminate the hazard then you can look at control measures.

By firstly **substituting** the hazard with something safer, for example:

- developing programs and policies that encourage buying quieter machinery and work equipment such powered hand tools, air compressors
- change the way of doing the job... A different way of doing the job may provide the same result with a lot less noise.

Isolating the source of the noise from workers.

For example, you could place barriers between the noise source and workers or locate the noise source away from workers. Cooling systems may be serious sources of noise as a result of intense pressure shocks in the liquid from compressors. Compressors may be vibration isolated with steel springs.

Introduce engineering controls to:

- avoid metal-on-metal impacts
- reduce vibration
- isolate vibrating machinery
- eliminating impacts between hard objects or surfaces
- minimising the drop height of products or the angle that they fall onto hard surfaces
- using absorbent lining on surfaces to cushion the fall or impact of objects
- fitting exhaust mufflers on internal combustion engines
- fitting silencers to compressed air exhausts and blowing nozzles
- isolating a vibrating noise source to separate it from the surface on which it is mounted using rubber mounts and flexible connections
- ensuring gears mesh together better
- fixing damping materials (such as rubber) or stiffening to panels to reduce vibration
- fitting sound-absorbing materials to hard reflective surfaces
- turning down volume controls
- changing fan speeds or the speeds of particular components
- changing the material the equipment or its parts are made of (change metal components to plastic components).

USE ADMINISTRATIVE CONTROLS

If you can't change the equipment or processes, try to change the way the work is done.

Example: Position noise sources further away from employees, minimise the number of employees working in noisy areas or do noisy work out of normal working hours. Job rotation can also help to limit employees' exposure to noise.

PROVIDE HEARING PROTECTORS

If the above measures do not totally solve the problem, and they have been applied as far as reasonably practicable, then hearing protectors must be used to ensure that employees' exposure to noise does not exceed the standard.

21. CHECKLIST FOR EMERGENCY PLANS

		Yes	No
Responsibilities	Has someone within the winery have the appropriate skills been made responsible for specific actions in an emergency, for example, managing an evacuation or assigning area wardens?	☐	☐
	Is someone responsible for making sure all workers and others in the workplace, for example, contractors, customers and visitors are accounted for in an evacuation?	☐	☐
	Do workers working alone within the winery know what to do in an emergency?	☐	☐
	Are specific procedures in place for critical functions, for example, power shut-downs?	☐	☐
Emergency contact details	Are emergency contact details relevant to the types of possible threats, for example, fire brigade, police and poison information centre?	☐	☐
	Are the emergency contact details displayed at the workplace in an easily accessible location?	☐	☐
	Are contact details updated regularly?	☐	☐
Evacuations	Have all emergencies requiring an evacuation at the workplace been identified?	☐	☐
	Has an evacuation procedure been prepared (if applicable)?	☐	☐
	Does the procedure:	☐	☐
	• Address all types of situations and hazards which may arise at the workplace?	☐	☐
	• Cover everyone who may be present at the workplace?	☐	☐
	• Allow for quick and safe evacuation when needed?	☐	☐
	• Clearly identify routes to safe assembly areas consider special assistance for hearing, vision or mobility-impaired people, and include a process for accounting for persons?	☐	☐
Evacuations for a fixed workplace	Is the evacuation procedure clearly and prominently displayed at the workplace, where practicable?	☐	☐
	Is there a mechanism, for example, a siren or bell alarm for alerting staff of an emergency?	☐	☐
	If yes, is it regularly tested to ensure its effectiveness?	☐	☐
	Is there a documented site plan that illustrates the location of fire protection equipment, emergency exits and assembly points?	☐	☐
	If yes, is it posted in key locations throughout the workplace?	☐	☐
	Are all exits, corridors and aisles readily accessible and kept clear of obstructions?	☐	☐
	Does the workplace have illuminated exit signs?	☐	☐

		Yes	No
Fire protection equipment	Does the workplace have appropriate fire protection equipment?	☐	☐
	Is it suitable for the types of risks at the workplace, for example, foam or dry powder type extinguishers for fires that involve flammable liquids?	☐	☐
	Is it properly maintained and regularly checked and tested by the local fire authority or fire equipment supplier?	☐	☐
	Is the area where the equipment is stored kept clear of obstructions?	☐	☐
	Are adequate numbers of workers trained to use fire extinguishers?	☐	☐
	Do they know what type of extinguisher to use for different types of fires?	☐	☐
Extreme weather conditions	If there is a risk of extreme or dangerous weather conditions, for example, bushfire, floods or storms?	☐	☐
	Will the control measures be effective in these conditions?	☐	☐
	Do emergency procedures accommodate declarations of extreme weather warnings? Examples of extreme weather warnings may include warnings such as a code red in the case of extreme bushfires or categories 3, 4 or 5 for cyclone warnings.	☐	☐
	Do declarations of extreme weather warnings in the emergency plan include matters such as safe exit routes? For example, the process for identifying and communicating roads that may be closed.	☐	☐
	Do procedures identify the closest designated 'safe place'?	☐	☐
	Do procedures accommodate evacuation procedures of the relevant local authorities, for example, the fire services, SES and police?	☐	☐
	Do workers have access to reliable communications equipment?	☐	☐
	Are workers trained in emergency evacuation and related procedures?	☐	☐
	If workers travel into areas where extreme weather warnings may be declared, have appropriate policies and procedures been developed for when such declarations are made?	☐	☐
Chemical safety	Are current safety data sheets available for all hazardous chemicals on site?	☐	☐
	Are all hazardous chemicals labelled and stored in a safe manner?	☐	☐
	Is appropriate equipment available to initially respond to a chemical incident, for example, absorbent material to contain a liquid spill?	☐	☐
	Is appropriate personal protective equipment and training provided to protect workers who are called on to deal with an unplanned chemical release?	☐	☐
First aid	Has a first aid assessment been conducted?	☐	☐
	Does the workplace have trained first aiders and suitable first aid facilities?	☐	☐
	Are workers aware of where first aid facilities are kept and who first aiders are?	☐	☐

		Yes	No
Neighbouring businesses	Have neighbouring businesses been considered if an emergency occurs?	☐	☐
	How would they be advised of an emergency situation arises (if applicable)?	☐	☐
	Should they be consulted about the preparation and coordination of emergency plans?	☐	☐
	Have the risks from neighbouring businesses been considered, for example, fire from restaurant/takeaway food outlets, Q fever from cattle yards, or vehicle accidents on major roads?	☐	☐
Post incident follow-up	Are there procedures in place to notify the relevant regulator about a notifiable incident where necessary?	☐	☐
	Are there procedures in place to ensure the cause of the emergency is determined and action is taken to prevent a similar incident occurring again?	☐	☐
	Are there procedures in place to ensure the welfare of workers after an emergency or an incident, for example, medical treatment or trauma counselling?	☐	☐
Review	Are emergency plan practice runs undertaken to assess the effectiveness of the emergency plan, for example, evacuation drills?	☐	☐
	Is someone responsible for documenting and retaining the results of emergency plan practice runs?	☐	☐
	Is someone responsible for reviewing the emergency plan and informing workers of any revisions?	☐	☐

22. INCIDENT AND INJURY REPORT

DETAILS OF INJURY (FOR EXAMPLE, TO A WORKER OR VISITOR) AND TREATMENT

Date of incident

Time of incident

am

pm

Nature of incident

☐ Near miss ☐ First aid ☐ Medical Treatment/doctor

Name of injured person

Address

Occupation

Date of birth

Telephone

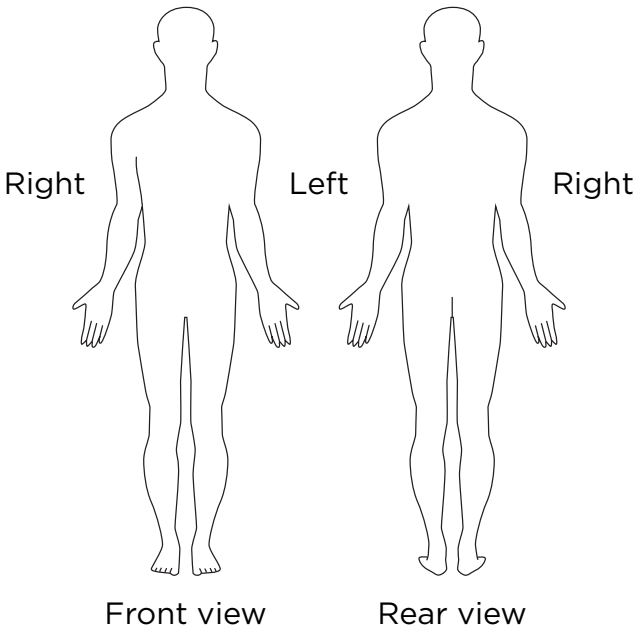
Employer

Activity in which the person was engaged at the time of injury

Exact site location where injury occurred

Nature of injury, for example, fracture, burn, sprain, foreign body in eye

Body location of injury (indicate location of injury on the diagram)



Treatment given on site

Name of treating person

Referral for further treatment?

☐ Yes ☐ No

Name of doctor or hospital

Certificate of capacity

☐ Yes ☐ No

Attach copies

Injury management requirement?

☐ Yes ☐ No

Notify return to work coordinator

Name of return to work coordinator

WITNESS TO INCIDENT
(EACH WITNESS MAY NEED TO PROVIDE AN ACCOUNT OF WHAT HAPPENED)

Witness name

Witness contact

Witness name

Witness contact

DETAILS OF INCIDENT
(FOR EXAMPLE, PROPERTY, PLANT OR ENVIRONMENTAL DAMAGE)

Date of incident

Time of incident

am

pm

Location of incident

Details of damage to equipment or property

Name of person who received the report

Telephone

DESCRIPTION OF INCIDENT

IMMEDIATE RESPONSE ACTIONS
(FOR EXAMPLE, BARRICADES, ISOLATION OF POWER SOURCES) TO STABILISE THE SITUATION

REPORTED TO

Reported to winery management

☐ Yes ☐ No

Provide details (when, reported to and reported by)

Reported to SafeWork NSW

☐ Yes ☐ No

Provide details (when, reported to and reported by)

Reported to Workers Compensation Insurer

☐ Yes ☐ No

Provide details (when, reported to and reported by)

COMPLETED BY

Name

Position

Signature

Date

23. CONFINED SPACE ENTRY PERMIT

GENERAL

Permit number

Location of work

Description of work

CONTROL MEASURES

ISOLATION

Space needs to be isolated from

Location/method

Water/gas/steam/chemicals

Mechanical/electrical drives

Auto fire extinguishing systems

Hydraulic/electrical/gas power

Sludge/deposits/wastes

Locks and/or tags have been affixed to isolation points

☐ Yes ☐ No

ATMOSPHERE

THE ATMOSPHERE IN THE CONFINED SPACE HAS BEEN TESTED

Results of tests

Oxygen

Flammable gases

per cent LEL

per cent LEL

Other gases

ppm (less than ppm

ppm (less than ppm

Other airborne contaminants

The conditions for entry are as marked below:

1. With supplied air breathing apparatus ☐ Yes ☐ No
2. Without respiratory protection ☐ Yes ☐ No
3. With escape unit ☐ Yes ☐ No

HOT WORK

Area clear of all combustibles including atmospheres ☐ Yes ☐ No

Type of appropriate fire prevention equipment available

Suitable access and exit ☐ Yes ☐ No

Hot work is permitted ☐ Yes ☐ No

PERSONAL PROTECTIVE EQUIPMENT

THE FOLLOWING SAFETY TYPE OF EQUIPMENT MUST BE WORN

Respiratory protection

Harness/lifeline

Eye protection

Hand protection

Footwear

Protective clothing

Hearing protectors

Safety helmet

Communication equipment

Other

OTHER PRECAUTIONS

Warning notices/barricades	☐ Yes	☐ No
All persons have been trained	☐ Yes	☐ No
Is continual air monitoring required	☐ Yes	☐ No

EMERGENCY RESPONSE

Procedures/Equipment

STANDBY PERSON

Standby personnel requirements

AUTHORITY TO ENTER

The control measures and precautions appropriate for the safe entry and execution of the work in the confined space have been implemented and persons required to work in the confined space have been advised of and understand the requirements of this written authority.

Signed (person in direct control)	Date	Time

	Date	Time
This written authority is valid until:		

PERSONS AUTHORISED TO ENTER CONFINED SPACE

Entry			Exit		
Name	Date	Time	Name	Date	Time

WITHDRAWAL OF WRITTEN AUTHORITY

All persons and equipment accounted for ☐ Yes ☐ No

Equipment checked and stored correctly ☐ Yes ☐ No

Signed (person in control) | Date | Time

Remarks or comments about the work

24. ELECTRICAL EQUIPMENT REGISTER

ELECTRICAL EQUIPMENT

Workplace

Date

Equipment description	Plant/Serial number	Date of inspection/ test	Results and/or trip current (less 30 mA) for earth leakage device	Date of next inspection/ test	Electrician's/qualified person's signature	License/ Registration number

Electrical item	**Frequency of inspection/test (in accordance with relevant requirements)**
Tools and leads or electrical equipment	
Sub-board earth leakage device	

25. WORK HEALTH AND SAFETY – HAZARDOUS CHEMICALS REGISTER

The following hazardous chemicals are stored and handled or used in the workplace.

Product name	Application	Quantity	Product labelled		SDS		Classified as hazardous in the SDS	
			Yes	No	Yes	No	Yes*	No
			☐	☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐	☐
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			☐	☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐	☐

* If YES: The risks and control measures associated with the use of the product/substance and the precautions for its use are outlined in the Safe Work Method Statement/safe work procedure

26. REFERENCE MATERIALS

www.safework.nsw.gov.au/law-and-policy/legislation-and-codes/codes-of-practice

CODES OF PRACTICE

A code of practice provides detailed information on how you can achieve the standards required under the work health and safety laws. These do not replace the work health and safety laws, but codes of practice can be issued to help make understanding what you have to do a little easier. Under the *Work and Safety Act 2011,* codes of practice are admissible in court proceedings. Courts may regard a code of practice as evidence of what is known about a hazard, risk or control, and rely on it to determine what is 'reasonably practicable' in the circumstances to which the code relates.

It is recognised that equivalent or better ways of achieving the required work health and safety outcomes may be possible. For that reason compliance with codes of practice is not mandatory providing that any other method used provides an equivalent or higher standard of work health and safety than suggested by the code of practice. As well as codes of practice, Safe Work Australia has guidance material that can also help you achieve the standards under work health and safety laws.

Code of practice	Description
Confined space code of practice	This Code provides practical guidance on how to meet the requirements under the WHS Regulations in relation to work carried out in a confined space. It applies to persons conducting a business or undertaking who have management or control of a confined space, and to designers, manufacturers or suppliers of plant or structures that include, or are intended to include, a confined space. This Code will help determine when a space is a 'confined space' for the purposes of the WHS Regulations, what the potential hazards are and how to eliminate or minimise the risks when carrying out work in a confined space.
Construction work code of practice	This Code provides guidance to principal contractors and other persons conducting a business or undertaking who carry out construction work on how to meet the health and safety requirements under the WHS Act and Regulations relating to construction work.
Excavation code of practice	This Code provides practical guidance for persons conducting a business or undertaking on how to manage the health and safety risks associated with excavation work. This Code applies to all types of excavation work, including bulk excavations more than 1.5 metres deep, trenches, shafts and tunnels.
First aid in the workplace code of practice	This Code of Practice provides practical guidance for persons conducting a business or undertaking on how to comply with duties under the WHS Act and Regulations to provide adequate first aid facilities in the workplace. It includes information on first aid kits, procedures, facilities and training for first aiders.
Hazardous manual task code of practice	This Code of Practice on how to identify hazardous manual tasks and control the risks of workers being affected by musculoskeletal disorders is an approved code of practice under section 274 of the *Work Health and Safety Act.*
How to manage and control asbestos in the workplace code of practice.	This Code of Practice on how to manage and control asbestos in the workplace is an approved code of practice under section 274 of the *Work Health and Safety Act* (the WHS Act).

Code of practice	Description
How to manage health and safety risks code of practice.	This Code of Practice on how to manage work health and safety risks is an approved code of practice under section 274 of the *Work Health and Safety Act* (the WHS Act)
Labelling of workplace hazardous chemicals code of practice	This Code applies to substances, mixtures and articles used, handled or stored at the workplace and which are defined as hazardous chemicals under the WHS Regulations. While this Code applies to hazardous chemicals as defined, it is recommended practice to provide a label for any chemical that is suspected of producing adverse health, safety or environmental effects but has insufficient information generated to allow it to be correctly classified. The label should reflect current state of knowledge. This Code provides practical guidance to persons conducting a business or undertaking involved in the manufacture, import, supply or use of hazardous chemicals on how to correctly label hazardous chemicals used in the workplace.
Managing electrical risks in the workplace code of practice	This Code provides practical guidance for persons conducting a business or undertaking on managing electrical risks in the workplace. It applies to all workplaces where a person conducting a business or undertaking: • has management or control of electrical equipment, including electrical installations, or • carries out electrical work on or near energised electrical equipment, including electrical installations. This Code also applies to construction and demolition sites, except if a requirement of the Code is dealt with in AS/NZS 3012: 2010 Electrical installations – Construction and demolition sites. In that case you must comply with AS/NZS 3012: 2010. Further information about construction work can be found in the Code of Practice: Construction Work.
Managing noise and preventing hearing loss at work code of practice	This Code of Practice applies to all types of work and all workplaces covered by the WHS Act where there is the potential for exposure to noise that can contribute to hearing loss. It provides practical guidance to persons conducting a business or undertaking on how noise affects hearing, how to identify and assess exposure to noise and how to control health and safety risks arising from hazardous noise.
Managing risks of hazardous chemicals in the workplace code of practice.	This Code provides practical guidance on how to manage health and safety risks associated with hazardous chemicals for persons conducting a business or undertaking who use chemicals in their workplace. A person conducting a business or undertaking can be a manufacturer, importer or supplier of hazardous chemicals, or a business owner who uses, handles, generates or stores hazardous chemicals at their workplace. This Code applies to: • substances, mixtures and articles used, handled, generated or stored at the workplace which are defined as hazardous chemicals under the WHS Regulations • the generation of hazardous chemicals from work processes, for example, toxic fumes released during welding.

Code of practice	Description
Managing the risk of falls at workplaces code of practice	This Code applies to all workplaces covered by the WHS Act and Regulations where there is a risk of a fall by a person from one level to another that is reasonably likely to cause injury. This Code provides practical guidance to persons conducting a business or undertaking, including those persons who design, construct, import, supply or install plant or structures, on how to manage health and safety risks arising from falls. It includes information on a range of control measures to eliminate or minimise the risks.
Managing risks of plant in the workplace code of practice.	This Code provides practical guidance on how to manage health and safety risks of plant once it is in the workplace, from plant installation, commissioning and use through to decommissioning and dismantling. This Code provides practical guidance to persons who conduct a business or undertaking and have management or control of plant in the workplace, as well as to persons who install and commission plant. It includes information about specific control measures required under the WHS Regulations for plant generally.
Managing the work environment and facilities code of practice	This Code applies to all types of work and all workplaces covered by the WHS Act, including workplaces that are mobile, temporary and remote. It provides practical guidance for persons conducting a business or undertaking on how to provide and maintain a physical work environment that is without risks to health and safety. This Code covers: • the physical work environment, such as workspace, lighting and ventilation • facilities for workers, including toilets, drinking water, washing and dining areas, change rooms, personal storage and shelter • remote and isolated work • emergency plans
Welding processes code of practice	This Code of Practice provides practical guidance for persons conducting a business or undertaking on how to manage health and safety risks associated with welding. This Code applies to all workplaces covered by the WHS Act where welding processes are carried out and to all persons involved in these activities. Although this Code focuses on welding processes, it may also be relevant to manage the risks associated with allied processes. Welding and allied processes involve similar hazards and in some cases the same risk control measures can be implemented. There are many different types of allied processes including metal preparation; metal cutting, gouging, brazing and soldering that need specific control measures. For more guidance on allied process control measures refer to Health and Safety in Welding WTIA Technical Note No. 7.
Work health and safety consultation, co-operation and co-ordination code of practice	This Code of Practice provides practical guidance to persons conducting a business or undertaking on how to effectively consult with workers who carry out work for the business or undertaking and who are (or are likely to be) directly affected by a health and safety matter. It includes information on mechanisms to facilitate worker participation and representation. This Code also provides guidance to duty holders who share responsibility for the same work health and safety matter on how to consult, co-operate and co-ordinate activities with each other. This Code applies to all types of work and all workplaces covered by the WHS Act.

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