



MAKING OUR
FARMS
SAFER



Victorian
Farmers
Federation

HAZARDOUS CHEMICAL HANDLING AND STORAGE GUIDE



Acknowledgements

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The Hazardous Chemical Handling and Storage Guide is part of the Making Our Farms Safer project, funded by the Victorian Government to provide all Victorian farmers with support and resources to improve health and safety on farms.



Contents

Introduction	2
Key Laws That Apply to Chemical Safety on Farms	3
Hazardous Substances	4
Dangerous Goods	5
Safety Data Sheets	6
Prevention	7
Training	8
Agriculture Chemical User Permits	9
Personal Protective Equipment	10
Chemical Storage	11
Signage	12
Dangerous Goods Placards for Stored Chemicals	13
Bunding Guidelines	16
Chemical Disposal	17
Additional Resources	18

Introduction

The use of agricultural and veterinary chemical products is essential for many farming enterprises as part of their standard business operations

Farmers are required to ensure that the use, transport and storage of these products is managed in accordance with a range of state and federal legislation.

This guide aims to provide farmers with a basic level of understanding of what compliance looks like, with links to more specific information as required.

Farmers, as employers, have duties under OHS law to employ or engage persons that are suitably qualified to advise them on health and safety. Farmers are encouraged to utilise the services of the Victorian Farmers Federation's Making Our Farms Safer Team to inspect their farm properties and to make appropriate recommendations.

The use of the terms 'needs to' and 'required to' are used in the publication reflects legal requirements.

The use of the term "should" reflects a recommended course of action.



Key Laws That Apply to Chemical Safety on Farms

In Victoria, employers must, so far as is reasonably practicable, provide and maintain for employees of the employer, a working environment that is safe and without risks to health.

A key part of meeting that duty requires employers to make arrangements for ensuring safety and the absence of risks to health in connection with the use, handling, storage or transport of substances.

The Occupational Health and Safety Act 2004 provides for the overarching duties for employers, responsibilities for ensuring the safe use, storage and handling of chemicals in workplaces are also detailed in the Hazardous Substances chapter of the Occupational Health and Safety Regulations 2017 and also in the Dangerous Goods Act 1985.

A range of controls under Victorian legislation also define how agricultural and veterinary chemicals may be supplied and used.

The primary piece of legislation for Victorian agvet chemical users is the Agricultural and Veterinary Chemicals (Control of Use) Act 1992. It imposes controls in relation to the use, application and sale of agvet chemicals, fertilisers and stock foods.



Hazardous Substances

Hazardous substances are substances that can harm people's health. They may be solids, liquids or gases. In the workplace, they are often in the form of fumes, dusts, mists and vapours.

Hazardous substances are harmful to people's health through inhalation, ingestion or skin absorption. Exposure to hazardous substances can cause immediate and long-term health problems. Health effects include poisoning, irritation, chemical burns, sensitisation, cancer and birth defects. Hazardous substances can also cause diseases of organs such as the skin, lungs, liver, kidneys and nervous system.

It is recommended for employers to download and retain a copy of the [Hazardous Substances Compliance Code](#) and refer to Part three - Duties of employers.



Dangerous Goods

Dangerous goods are substances that are corrosive, flammable, combustible, explosive, toxic, oxidising or water-reactive or have other hazardous properties. They are harmful to both human and property. Dangerous goods can cause explosions or fires, serious illness and injury, death and large-scale property and environmental damage.

Dangerous Goods are recognisable by the Hazchem Diamonds that are featured on the hazardous chemical labels and packages. The images in the diamonds provide an immediate visual indicator of the dangerous nature of the substances.

It is recommended for employers download and retain a copy of the Dangerous Goods (Storage and Handling) Regulations 2012 and refer to Schedule two.

'Hazchem Diamonds' - The diamonds are referred to as placards in the dangerous goods storage and handling regulations. Some packages only put the GHS symbols on packages, some put both, and non-compliant packages put none. The DG "diamonds" placards are for transport and consumer packaging does not always have it.



Safety Data Sheets

Employers are required under both the Hazardous Substance Compliance Code and the Dangerous Goods Act to obtain the Safety Data Sheets (SDS) for all of the substances that are used on your farm.

Manufacturers of hazardous chemicals are legally required to make SDS available to users. The hazardous chemical SDS are often available on the manufacturer's website.

The information on the container labels is not sufficient. SDS will include more detailed information.

SDS contains important information about:

- Correct storage and handling procedures
- First aid
- Firefighting procedures
- Spill containment
- Personal protective equipment
- Disposal procedures

You need to ensure that the SDS are readily available and that your employees are made aware of how to access them easily and quickly.

It is not enough to simply have the SDS on a computer or on a shelf. You need to review the SDS and make sure that the substances used at your workplace are used in a safe manner and your employees are trained and have the right personal protective equipment (PPE) to perform their work safely.



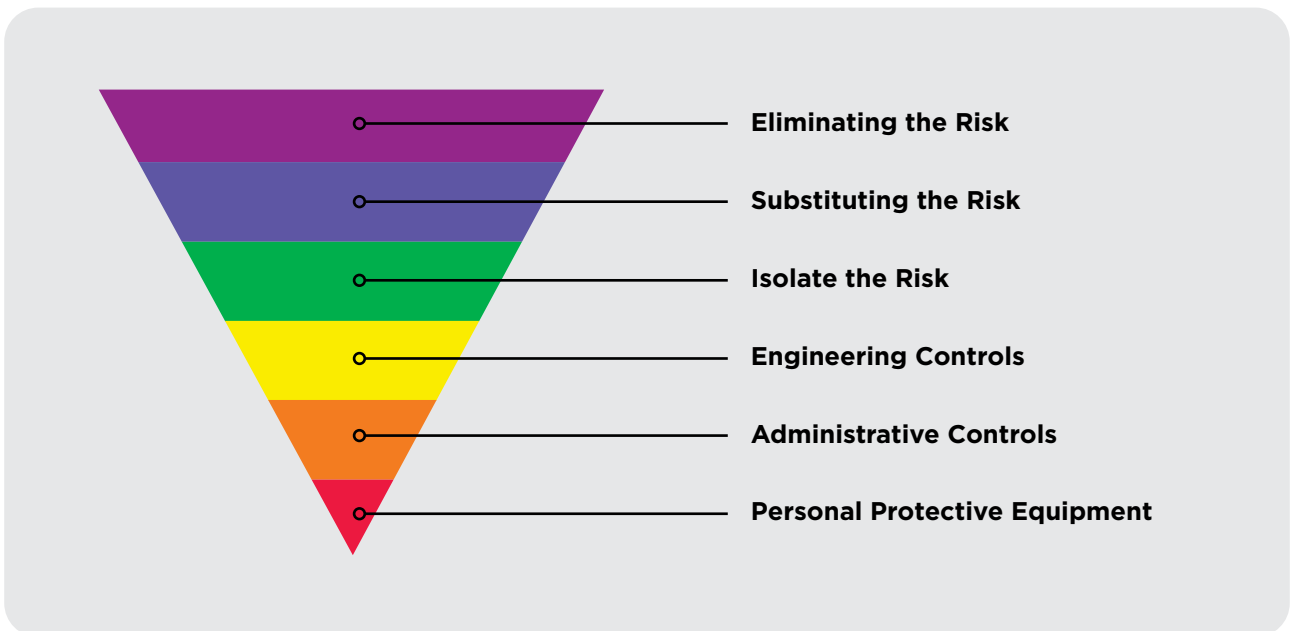
Prevention

Under the OHS Act, employers have a duty to provide a safe workplace. Part of that duty requires the employer to make arrangements for ensuring, so far as is reasonably practicable, the safety and the absence of risks to health in connection with the use, handling, storage or transport of substances at the workplace.

Employers are required to identify and control the hazards associated with the use of chemicals at your workplace.

To meet this requirement, employers are required to eliminate, so far as is reasonably practicable, the risks associated with the use of substances at the workplace and if not able to eliminate the risks, to reduce them so far as is reasonably practicable.

The Hierarchy of Control is a way of ranking risk control measures, from the most reliable and effective level of protection to the least. It is recommended to assess the hazards in the following order and consider all six ranks. If the chemical hazard cannot be eliminated, you may need to implement more than one control measure.



Employers cannot rely solely on Personal Protective Equipment to protect employees from exposure to substances.

Many of the Safety Data Sheets will specify a range of other necessary control measures and employers will need to ensure that appropriate controls are in place.

Training

Employers have a duty to provide adequate training, instruction and supervision as is necessary to ensure the safety of their employees at the workplace.

Employers should ensure that they provide their employees with training on how to read Safety Data Sheets (SDS) to ensure that their employees are made aware of the risks to their health and the appropriate storage of the substances used at the workplace.

It is recommended that particular focus should be placed on the substances that create the greatest risks of exposure through handling and contact.

SDS can range anywhere from one to twenty or more pages and often can contain a lot of technical information. Employees do not need to know about all of the technical details, but they certainly need to know about some of the important elements such as safe handling and PPE requirements.

In addition to making employees aware of the risks to their health, training should also cover:

- Correct storage and handling procedures
- First aid
- Firefighting procedures
- Spill containment
- Personal protective equipment
- Disposal procedures

The training should also include making employees aware of where the SDS are located and how they can access them quickly if needed.



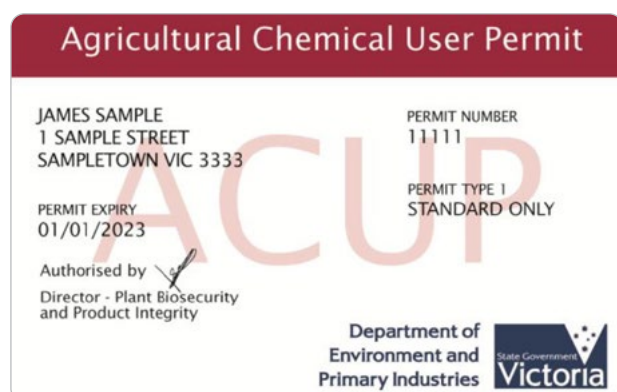
Agriculture Chemical User Permits

An agricultural chemical user permit (ACUP) is a permit issued to a person that gives authority to:

- purchase specified 'restricted supply' chemicals in Victoria
- use specified 'restricted use' chemicals in Victoria

Persons undertaking work involving the use of these restricted chemicals must undertake relevant training before they can apply for and hold an ACUP.

ACUPs do not authorise a person to use agricultural chemicals on another person's property, crop or commodity for a fee or reward (contractors). For this purpose a Commercial Operator Licence is needed.



Sample agricultural chemical user permit issued by Agriculture Victoria includes the permit holder's name and address, and the permit type, number and expiry.

Who needs an ACUP?

A person is required to hold an ACUP to use any of the agricultural chemical products that are Schedule 7 poisons (DANGEROUS POISONS) or that contain any of the following chemicals:

- atrazine, metham sodium, or ester formulations of MCPA, 2,4-D, 2,4-DB or triclopyr
- 1080 (sodium fluoroacetate) or PAPP (4-aminopropiophenone)
- pindone concentrate (2.5% or greater) for the preparation of baits
- gaseous methyl bromide
- phosphine formulated as liquefied gas

Exceptions

Where a 'restricted use' chemical is used, a Standard endorsed ACUP is not required by people who are operating under the direct and immediate supervision (within sight and sound) of a Standard endorsed ACUP holder.

All ACUPs are issued for 10 years and no further training is required during this period to maintain the ACUP. Previous training equivalents are also accepted.

A chemical user training course certificate or card is not an ACUP — it only qualifies the holder to apply for a Standard endorsed ACUP.

Personal Protective Equipment

The Safety Data Sheet (SDS) will provide instructions on the types of Personal Protective Equipment (PPE) that should be used when handling substances on the farm.

Employers are required to ensure that they read the SDS carefully and identify, and provide, the right PPE for their employees to use.

For example, milking gloves are not adequate for the handling of dairy acids – the SDS will probably specify the use of rubber gloves. If the wrong types of gloves are provided the substances may leak through and cause skin irritation.

To prevent risk of eye injuries, SDS will often specify the use of goggles or even face shields to provide additional protection from splashing into the face or mouth.

If PPE is to be used at the workplace, the employer must ensure that the equipment is:

- selected to minimise risks to health and safety
- suitable for the nature of the work and any hazard associated with the work
- a suitable size and fit and reasonably comfortable for the person wearing it
- maintained, repaired or replaced so it continues to minimise the risk
- used or worn by the worker, so far as is reasonably practicable.
- includes overalls, aprons, footwear, gloves, chemical resistant glasses, face shields and respirators.

The effectiveness of PPE relies heavily on workers following instructions and procedures correctly. If PPE must be used for long periods, if dexterity and clear vision are needed for the task, or if workers have not been adequately trained on how to fit and use PPE properly, workers might avoid using it. Employers need to ensure that their employees wear the PPE that is provided.



Chemical Storage

Storing agricultural chemicals correctly helps to prolong their shelf life and protect people, animals and the environment.

Follow the storage directions on the chemical product labels and Safety Data Sheets (SDS).

Chemicals should be stored:

- Safely locked away from children, unauthorised people and animals
- Stored according to the Storage and Handling of Agricultural and Veterinary Chemicals (Australian Standard 2507-1998).

Many smaller farm properties have minor quantities of chemicals and dangerous goods. A minor quantity is where the quantity of DGs that is under a “placard quantity” as prescribed in the Occupational Health and Safety Act (OHS Act) 2004, the Occupational Health and Safety Regulations (OHS Regulations) 2017 and the Dangerous Goods (Storage and Handling) Regulations 2012.

HAZCHEM sign or DG placards are not required for packaged products or IBCs where farms have minor quantities of DGs.

Chemicals should be stored in a secure well ventilated, well-lit location away from feedstuffs, houses and waterways.

Employers are required to:

- maintain a list of all chemicals kept in storage
- store chemicals in a cool, well-ventilated area that is away from direct sunlight (such as a shed), lockable, has an impervious (chemical-proof) floor and shelving and is bunded to contain spills
- store chemicals in their original labelled containers (if labels come off, re-label the container)
- keep all SDS in a register nearby for easy access
- never store chemicals in food or drink containers

- separate incompatible or different chemical types to avoid cross-contamination
- never store chemicals with seeds, fertilisers, protective clothing or stockfeed
- ensure running water, first aid and other facilities as required by the SDS are available.

If you store chemicals that are classified as dangerous goods in large quantities, there are special storage requirements under the Dangerous Goods (Storage and Handling) Regulations 2012 that apply.

Chemical and Dangerous Goods Storage – Placard Quantities

Once the placard quantity of chemical products have been reached (which are classified as DGs), a HAZCHEM sign and Dangerous Goods Class diamonds are required to be displayed.

The types of placards (signs) include:

- outer warning placard for the entrance to the workplace (HAZCHEM)
- DG placards for hazardous chemicals in bulk (i.e. tanks, including stockpiles)
- DG placards for packaged products in store.

In addition, for large quantities of Dangerous Goods stored, a manifest will need to be recorded and meet other operational safety requirements (e.g. where the DG quantities or Agvet chemicals exceeds 10,000 litres or kilograms).

Most DG classes have Packing Groups (either PG 1 High danger; PG 2 Medium Danger; and PG 3 Low Danger). This also affects the volumes which may be transported and stored, as well as placarding. This Packing Group is on the DG labelling with the UN number (United Nations number), Dangerous Goods Class.

Signage

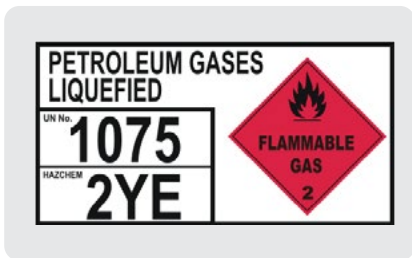
A warning placard, or HAZCHEM sign, is required at the entrance to the farm when the workplace exceeds a prescribed placarding quantity of Dangerous Goods (DGs).

As an example, where a farm has an unleaded petrol (Flammable Liquid Class 3) tank which can hold more than 250 litres then it is required to display a HAZCHEM sign (based on the capacity of the storage, not how much is actually stored).

In addition to the HAZCHEM sign at the workplace entrance, specific DG placards are required on tanks (petrol, diesel, bulk gas tanks). The following diagrams show the information placard required for aboveground tanks of LPG, Diesel and Petrol.

Intermediate Bulk Containers

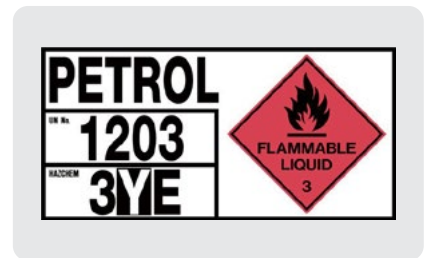
Any Intermediate Bulk Containers holding Dangerous Goods will be placarded with the label on the container, the same as for packaged products.



Aboveground LPG tank



Aboveground Diesel Tank



Aboveground Petrol Tank



If there is a risk from vapours, other signs can also be used to remind workers to turn off engines before filling tanks, no naked flames, etc.

















Appropriate Hazchem signage at the main entrance

Dangerous Goods Placards for Stored Chemicals

Dangerous Goods (DGs) placards for chemicals stored in a Chemical Store (including IBC's) which have reached placarding quantities are required to be displayed on the outside of the Chemical Store. The placards are based on the Class of Dangerous Good held (and their Packing Group), as shown here, with examples of volumes for some common classes held on-farm:

Class 2.1 Flammable Gases	200L
Class 3 Flammable Liquid PGII	250L (petrol)
Class 4.1 Flammable Solid PGII	250kg
Class 5.1 Oxidising Agent PGII	250kg/L
Class 6.1 Toxic PGIII	1000L (Chlorpyrifos 500EC)
Class 8 Corrosive PGIII	1000kg (Krista K)
Where the total volume of DGs exceeds	10,000L/kg

















Dangerous Goods: must have a Class diamond on the label to be a DG (as below):



<p>Class 1 Explosives</p>		<p>Class 6 Toxic</p>	
<p>Class 2 Gases, including non-flammable, non-toxic gases – secured and upright</p>	   	<p>Class 8 Corrosive</p>	
<p>Class 3 Flammable liquids - petrol, turpentine, kerosene, flammable paints: (to be stored separately to agvet chemicals)</p>		<p>Class 9 Miscellaneous (often environmental pollutants)</p>	 
<p>Class 4 Flammable Solids; Spontaneously Combustible Substances; Dangerous When Wet – This class includes diesel fuel which is stored on many farms.</p>	  		
<p>Class 5 Oxidising Substances; Organic Peroxides</p>			

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 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.

Placards must be kept legible and unobstructed.

Type of Dangerous Good	Placard (ADG Code)	Packing Number (See SDS)	Placard Quantity	Manifest Quantity	Examples of Products used in Agriculture
Flammable Gases Class 2.1	 	N/A	500 L	5000 L	acetylene, liquefied petroleum gas (LPG), natural gas
Non-flammable Non-Toxic gases Class 2.2	 	N/A	2,000 L	10,000 L	oxygen, nitrogen, argon, carbon dioxide, nitrous oxide
Toxic Gases Class 2.3		N/A Aerosols Cryogenic Fluids	50 L 5,000 L 1,000 L	500 L 10,000 L 10,000 L	insecticide, methane gas, methyl bromide (fumigant) chlorine, anhydrous ammonia
Flammable Liquids Class 3	 	I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	diesel, paints, solvents, petrol, thinners, kerosene, turpentine, white spirits, alcohol, linseed oil, pine oil, endosulfan (insecticide), aviation gasoline
Flammable solids, self-reactive substances and solid de-sensitized explosives Class 4.1		I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	
Substances liable to spontaneous Combustion Class 4.2		I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	hay, oil bearing seeds
Substances which in contact with water emit flammable gases Class 4.3	 	I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	aluminium phosphide (phosphine fumigant)
Oxidising Substances Class 5.1		I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	ammonium nitrate (fertilisers)
Organic Peroxides Class 5.2	 	I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	
Toxic Substances Class 6.1		I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	S7 pesticides, chlorpyrifos (organophosphorus insecticide), dichlorvos (organophosphorus insecticide), carbamate pesticides, degreasing solvent, paint stripper, formaldehyde (fungicide), cyanides, isocyanates (two pack paints)
Corrosive Substances Class 8		I II III or mixed	50 kg or L 250 kg or L 1,000 kg or L	500 kg or L 2,500 kg or L 10,000 kg or L	hydrochloric acid, nitric acid, superphosphate, sodium hydroxide (caustic soda), potassium hydroxide (caustic potash), ammonium solution, ferric chloride (water treatment), sodium hypochlorite (disinfectant)

Type of Dangerous Good	Placard (ADG Code)	Packing Number (See SDS)	Placard Quantity	Manifest Quantity	Examples of Products used in Agriculture
Miscellaneous Dangerous substances and articles Class 9		II III or mixed	1,000 kg or L 5,000 kg or L	10,000 kg or L 10,000 kg or L	
Environmental Hazard Class 9		N/A	500 L	5000 L	

Kg = kilograms, **L** = Litres, **Mixed** = Mixed quantities of the same type. **Packing numbers** = Packing Group I: high danger, Packing Group II: medium danger, Packing Group III: low danger

Substance Storage

Products must be stored as below:

Storage design features should include good lighting, ventilation, bunding, segregation, racking/shelves, security i.e. lockable, with S7s locked away).

Check the Safety Data Sheets for the specific storage requirements.



Example: S7 poisons storage

Schedule 7 Chemicals

Schedule 7 chemicals are chemicals with a high potential for causing harm at low exposure. These require special precautions during manufacture, handling and use. These poisons are not for general sale and require a person to hold a Schedule 7 poison permit to purchase or otherwise obtain them in Victoria.

Schedule 7 chemicals can be stored in the same area as other chemical products, but must be inaccessible to unauthorised person and the public. This could be within the main chemical storage area.

With separation/segregation of products based on DG Class, incompatibility (e.g. Class 3 Flammables to be stored away from all other DGs, including Combustibles as below).

DGs should not be stored near ignition sources (e.g. aerosol sprays should not be stored near a bench grinder).

Appropriate storage cabinets should be used for the storage of DGs.



Example: Dangerous goods storage cabinets

Bundling Guidelines

If the materials to be banded are contained in drums (or other small containers), the banded area should be designed to contain whichever of the following gives the largest bund capacity:

- at least 110% of the volume of the largest storage vessel; or
- 25% of the total volume stored in that bund.

This includes any earthen bunding around the storage area and it must be able to contain any spills on site and avoid soil contamination.

For farm sheds Concrete and bitumen are the two most widely used materials impervious to chemical spills. However, various media which when mixed with soil may make an impervious surface, are suitable for the task.

Phosphine products must be stored in a steel waterproof container to provide protection for emergency personnel in case of fire, preventing the products becoming wet and releasing toxic phosphine gas.

Emergencies

In case of emergency, PPE, spill kits, respirator, gloves, overalls, gumboots and goggles need to be available on site.

Employers need to ensure that the materials in spill kits are compatible with all products which could include sand, vermiculite, absorbent socks and pads. Refer to Safety Data Sheets (SDS) if required.

Employees should be trained in the use of a spill kit and first aid kits need to be readily accessible.

Fire extinguishers suited to the products in storage should be located at entrances and emergency showers should be available where the SDS specify a shower is needed.



Example: Cut down shuttle used as a portable bund (for Class 8 Corrosive)



Example: Cut down shuttle used as a portable bund (for Class 3 Flammable Liquid)



Example:

Chemical Disposal

Empty chemical containers and unwanted chemicals must be disposed of correctly by following the product label instructions.

- Concentrated chemicals should never be disposed of on-site. Disposal must be carried out by a licensed waste disposal company or chemical collection program. Label the product for disposal and store it securely until it is collected for disposal.
- To dispose of unused farm chemicals, visit ChemClear www.chemclear.org.au or call 1800 008 182.

Used containers

All containers should be emptied, triple rinsed and punctured through the lid opening and out the bottom before disposal.

Container disposal methods include:

- returning refillable containers to the chemical reseller
- through a commercial disposal program that collects and recycles empty and clean chemical containers (such as drumMUSTER, visit www.drummuster.org.au or call 1800 008 707 or contact your local council)
- disposing of containers at an approved municipal landfill tip.

Action Plan

- Undertake an annual audit and create a detailed list of all substances used on the farm including agricultural chemicals, fuels, aerosol sprays and workshop chemicals
- Contact the manufacturers, or visit their websites, and obtain copies of all relevant Safety Data Sheets (SDS)
- Review the SDS to ensure that the substances are being used and stored appropriately on your farm
- Provide training for your employees to enable them to read an SDS covering safe use, storage and handling, personal protective equipment, first aid, emergency procedures and spill containment
- Ensure that substances are stored where there is little risk from damage from interaction with farm machinery (e.g. forklifts, tractors)
- Ensure that the storage area is properly bunded, or that suitable bunds are provided, to contain a potential spill
- Ensure that the SDS are readily accessible
- Ensure that chemicals are stored properly in covered, well ventilated storage including shelving
- Ensure that a spill kit is available and that employees are trained in its use
- Contact ChemClear to schedule the removal of any unused and unwanted chemicals
- Contact drumMuster to arrange the collection of used chemical containers and drums.

Additional Resources

Victorian Farmers Federation (VFF)

The VFF Making Our Farms Safer team can provide advice and support about chemical storage or OH&S rights and responsibilities for farming communities.

We can also help with these free services:

- Assist you to write a Farm Safety Plan
- Organise a Farm Safety Walk with a trained Safety Officer to put workplace theory into practice
- Provide a review of your Farm Safety Management System with tailored recommendations for improvements.

For more information, visit <https://www.vff.org.au/project/making-our-farms-safer> or call 1300 882 833.

drumMUSTER

Developed with the environment in mind, the drumMUSTER program collects and recycles eligible, empty and clean agricultural and veterinary chemical containers.

drumMUSTER is Agsafe's national product stewardship program that is supported by agvet chemical manufacturers and industry stakeholders which includes member and farming associations, as well as state and local governments.

Working hand-in-hand with local councils and other collection agencies, drumMUSTER has established collection facilities all over Australia and since its inception in 1998 the program has recycled over 38 million containers at Nov 2021.

Once the containers have been collected, they are recycled into re-usable products such as wheelie bins, road signs, fence posts and bollards.

Using the program is easy. Simply triple rinse your eligible containers, round them up, make sure the lids have been removed as this is a different type of plastic, and take them to your local drumMUSTER collections site, which is usually located at local waste transfer stations.

For further information, visit www.drummuster.org.au or call 1800 008 707

ChemClear

ChemClear is Australia's only Extended Producer Responsibility (EPR) program operating for agvet chemicals and is an initiative of the Industry Waste Reduction Scheme (IWRS).

ChemClear is funded by a 6c per lt/kg levy collected under the Industry Waste Reduction Scheme (IWRS). The levy also supports ChemClear's sister program drumMUSTER.

Since 2003 the program has collected and disposed of more than 791 tonnes of obsolete, inherited and unknown agvet chemicals as at Nov 2021.

Using ChemClear ensures that agvet chemical users will meet their responsibilities and obligations under any Quality Assurance, Farm or Environmental Management program.

For further information, visit ChemClear www.chemclear.org.au or call 1800 008 182.





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