Transporting, handling and storing agvet chemicals
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Learning Guide information

This Learning Guide will assist you to build knowledge and skills. It is a workbook which will be useful to you for recording your learning and for presentation as evidence that you have completed the required learning and workplace activities.

This learning guide will help you to:
• handle and move chemical containers correctly and safely
• observe guidelines for chemical spills and disposal of contaminated materials
• identify and observe transport requirements for agvet chemicals
• minimise risks involved in loading and unloading chemicals
• define the responsibilities of personnel involved in transporting chemicals
• identify relevant legislation, standards and codes of practice which apply to storage and handling of agvet chemicals
• implement effective procedures for the storage of agvet chemicals.

This learning guide will lead you through a series of topics. At the end of each topic you will be asked to complete a Quick Quiz. This is a series of true or false questions that will enable you to determine whether you understand the material you have been reading.

Answers to the Quick Quiz have been provided in the back of the learning guide. However, it is recommended that, before you refer to these answers, you work through the Quick Quiz with your co-workers as this will help you best remember and relate the subject matter to your workplace.

Workplace Activities
When you have completed the Quick Quiz, you will find a Workplace Activity. These should be completed either before you move onto the next topic in this learning guide or before commencing Module 3 in the Agsafe Accreditation Program.

Workplace Activities will need to completed and used in Agsafe Workshops or Webinar sessions.

Agsafe Workshops and Webinars
While there is no time limit for finishing this learning guide, you will not be able to enrol in an Agsafe Workshop or Webinar until all Workplace Activities from Agsafe Modules 1-3 have been completed.
Workplace health and safety

Working with agvet chemicals – even within a wholesale or retail business – has associated risks.

As an employee you have a responsibility to:

- follow your organisation’s workplace health and safety procedures
- follow manufacturers’ guidelines, product labels and Safety Data Sheets for handling, storing and transporting agvet chemicals
- respond to a situation where someone is put at risk of injury (as long as you do not endanger yourself)
- report any incidents or situations which cause you or other people injury, or put you or others at risk.

Equipment and Materials

To help you complete activities, you will need access to the following:

- a range of agvet chemicals in original containers that are in good condition
- a safety data sheet (SDS) for each agvet chemical
- an agvet chemical storage area that complies with legislation and industry standards
- agvet chemical handling and loading equipment
- appropriate personal protective equipment (PPE).
1 Handling agvet chemicals

When you have successfully completed this topic you will be able to:

• handle and move chemical containers correctly and safely
• observe guidelines when dealing with a chemical spill
• dispose of contaminated materials appropriately
• clean-up after a spill using appropriate personal protective equipment (PPE).

1.1 Handling chemical containers

It is easy to acquire careless habits when carrying and handling chemical containers.

When containers have been removed from their pallets or original packaging they are more susceptible to being damaged.

Avoid touching, tasting or smelling chemicals. Don’t eat, drink or smoke when handling chemical containers as you could accidentally swallow some chemical residues or ignite flammable chemicals with a cigarette.

1.2 Safe manual handling

You have already covered manual handling in a previous Agsafe module. Below is a summary of key points for lifting and handling agvet chemicals.

Assess the load

• ensure that the travel path is clear and free of obstructions
• check the labelled weight - don’t try to lift any object that is too heavy for you
• determine if the load is too awkward for one person to lift
• ensure that the load is stable
• look for lifting points
• check whether the surface of the load is slippery to hold.
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Lifting
- stand as close to the load as possible, feet spread apart
- bend at the knees, keeping your back straight and stomach tucked in
- grasp the load firmly
- lift smoothly, using the muscles in your legs, not your back
- hold the load close to the centre of your body.

Carrying
- keep the load close to your body
- don’t change your grip
- avoid twisting your body
- don’t block your vision with the load you are carrying
- face your whole body in the direction you are headed.

If the item is bulky or of an awkward shape, ask someone to help you move it. Use lifting devices or mechanical aids to move heavy items.

Safe lifting involves using the muscles in your legs, not your back.

1.3 Dealing with a spill

As careful as people try to be, spills can and do occur. The spill may be a minor problem with a few leaking containers; it may be a major accident where a tank truck or rail car overturns and spills its cargo; or it may be an equipment malfunction where the contents of a fully loaded spray tank are suddenly released.

In the event of a chemical spill, the person who caused the spill is responsible for taking action to deal with the spill. It is also their responsibility to have spill control and personal protective equipment, appropriate for the chemicals being handled, readily available.

Suppliers and sellers of agvet chemicals should be familiar with the laws and guidelines governing chemical spills. Their inability to respond properly to such an emergency, no matter how minor the problem, could seriously endanger public health and environmental quality.
The suggested guidelines in the event of a hazardous chemical spill are:
1. Control the spill
2. Contain it
3. Clean it up.

1. **Control the Spill**
   The first step with a spill is to ensure that you and others are safe and are not exposed unnecessarily to the leaking chemical. Protective equipment must be used when attempting to control the leak. If someone is injured, precautions must be taken to ensure the protection of persons who are helping the injured.

   After checking on your own and other people's safety, steps must be taken to control the flow of the liquid being spilled regardless of the source. For example, if a container has tipped over, if a hazardous chemical is leaking from a damaged drum, or if a 5 litre can on a storage shelf has rusted through and is leaking, everything possible must be done to stop the leak or spill at once. For instance, smaller containers up to 200 litres can be put into larger containers to prevent further release of the chemical. Stopping larger leaks or spills is often not so simple.

   The police must be alerted if the spill occurs on a public highway. The product label or SDS must be available.

   The contaminated area must be roped off to keep people away from the spill. Any drift or fumes that may be released need to be avoided. Road flares may not be used if the leaking material is flammable. At times it may be necessary to evacuate people down-wind from the spill.

   Someone should be present at the spill site continuously until the chemical is cleaned up and the danger removed.

   ![Image](Contaminated areas must be roped off to keep people away from the spill.)

2. **Contain the Spill or Leak**
   At the same time as the leak is being controlled, the spilled material should be contained in as small an area as possible. Everything possible must be done to keep it from spreading or getting worse. In some situations it may be necessary to use a shovel or power equipment to construct a dam.

   The spilled material must not get into any body of water, including storm-water drains, no matter how small the spill. If the chemical does contaminate a stream, pond, or any other waterway, the authorities must notify downstream users as soon as possible.
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to prevent accidental poisoning of livestock and to avoid contamination of crops and soil if the water is used for irrigation.

Liquid spills can be further contained by spreading absorbent materials such as fine sand, vermiculite, clay or pet litter over the entire spill. Universal sorbents packed in porous fabric pillows are available. These pillows or “tubes” can be placed directly on the spill or used to dyke around the spill area. Waste disposal is also simplified since the contaminated pillows can be placed into heavy-duty disposal bags without dust or spillage.

Spill kits are used to contain and clean up a spill. (Source: spillcontrolsystems.com.au)

Disposal of all hazardous wastes must be done in strict accordance with label instructions and all applicable state and federal laws. This applies to all farm chemicals – insecticides, fungicides, and herbicides. Sawdust or sweeping compounds should not be used if the material is a strong oxidiser because such a combination presents a possible fire hazard.

In the case of dust, wettable powder, or granular material, further spreading can be reduced by lightly misting the material with water, or covering the spill with some type of plastic cover. However, the cover will then be contaminated and should be discarded after use.

3. Clean Up the Spill

If it has not already been done, absorbent material must be spread over the contaminated area. It can then be swept up and placed in an appropriate steel or fibre drum lined with a heavy-duty plastic bag. The absorbent should be added until the liquid is soaked up. Once the spill has been cleaned up, it may be necessary to decontaminate or neutralise the area, especially if a carbamate or organophosphate insecticide was involved.

Sodium hypochlorite – as in household bleach diluted 50/50 in water – or hydrated lime can be used to clean up the contaminated area. Sodium hypochlorite and lime must not be used together. The cleaning material should be worked into the spill area with a coarse broom. PPE must be worn. Then fresh absorbent material should be added to soak up the now contaminated cleaning solution. This material should then be swept up and placed in a plastic bag or drum for disposal. This procedure is to be repeated several times to ensure that the area has been thoroughly decontaminated.
Material used to contain and clean up a spill should be disposed of in a plastic bag or drum. (Source: prenco.com.au)

1.4 Soil Contamination

The only effective way to decontaminate soil saturated with a hazardous chemical is to remove at least 5 to 7 cm of soil. The contaminated soil must be disposed of at a proper disposal site. The area should then be covered with at least 5 cm of lime followed by fresh topsoil.

Clean the equipment and vehicles

Any vehicles and equipment that were contaminated either as a result of the original accident or during the cleanup procedure need to be cleaned. The same type of protective clothing, as was worn during the spill clean-up, needs to be worn while cleaning the contaminated vehicles and equipment.

Diluted sodium hypochlorite or an alkaline detergent such as dishwasher soap solution can be used to clean equipment. Sodium hypochlorite solution and alkaline detergent must not be mixed together.

Porous material and equipment such as brooms, leather shoes, and cloth hats cannot be effectively decontaminated and must be discarded or destroyed. Disposable garments and gloves or badly contaminated clothing should be disposed of immediately after completing the clean-up.

Finally, personnel involved in the clean-up must shower thoroughly on completion of clean-up procedures.

Personnel involved in the clean-up must shower thoroughly on completion of clean-up procedures.
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**Emergency telephone number on pesticide labels**
The emergency telephone number found on many product labels and on transport shipping papers will enable you to get advice 24/7 from people who are prepared to handle pesticide emergencies involving their products.

**QUICK QUIZ 1**

<table>
<thead>
<tr>
<th>T</th>
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<tbody>
<tr>
<td>1. The person who causes a chemical spill is responsible for taking action to deal with the spill.</td>
<td></td>
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<tr>
<td>2. The 3 steps in the event of a hazardous chemical spill are (1) contain the spill, (2) control the spill and (3) notify emergency services.</td>
<td></td>
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<tr>
<td>3. Police must be alerted if a spill occurs on a public highway.</td>
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<tr>
<td>4. It may be necessary to decontaminate an area once a spill has been cleaned up.</td>
<td></td>
</tr>
<tr>
<td>5. You shouldn’t eat, drink or smoke before handling chemical containers.</td>
<td></td>
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<tr>
<td>6. Activated charcoal can be used to decontaminate areas where large spills have occurred.</td>
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<tr>
<td>7. Leather shoes must be disposed of after a spill as they cannot be effectively decontaminated.</td>
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<tr>
<td>8. Sawdust should be used where the spill chemical is a strong oxidiser.</td>
<td></td>
</tr>
<tr>
<td>9. Sodium hypochlorite solution and alkaline detergent must not be mixed together.</td>
<td></td>
</tr>
</tbody>
</table>
Transporting, handling and storing agvet chemicals

Workplace Activity 3.1
Please complete this Workplace Activity before moving on to the next chapter.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. List 4 different situations where you are required to handle agvet chemicals:
   a) _____________________________________________________________________________________
      _____________________________________________________________________________________
   b) _____________________________________________________________________________________
      _____________________________________________________________________________________
   c) _____________________________________________________________________________________
      _____________________________________________________________________________________
   d) _____________________________________________________________________________________
      _____________________________________________________________________________________

2. Explain how you ensure the safety of yourself and others while handling agvet chemicals. Give 4 examples:
   a) _____________________________________________________________________________________
      _____________________________________________________________________________________
   b) _____________________________________________________________________________________
      _____________________________________________________________________________________
   c) _____________________________________________________________________________________
      _____________________________________________________________________________________
   d) _____________________________________________________________________________________
      _____________________________________________________________________________________
Transporting, handling and storing agvet chemicals

3. Ask your supervisor for a copy of the workplace policy and procedures for dealing with chemical spills in your workplace and summarise them below:

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__________________________________________________________________________________________
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__________________________________________________________________________________________
__________________________________________________________________________________________
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__________________________________________________________________________________________

4. Outline your company procedures for disposing of materials that have been used to clean up chemical spills:

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__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
2 Transporting agvet chemicals

When you have successfully completed this topic you will be able to:

• identify and observe transport requirements for agvet chemicals
• minimise risks involved in loading and unloading chemicals
• check containers are in a sound condition to transport
• define the responsibilities of the consignor and primary contractor when transporting chemicals.

2.1 Introduction

Faulty or improper packaging can lead to accidental leakage of chemicals during transport that can present a significant safety hazard. Packaging should meet recognised performance standards and be able to withstand the conditions encountered during transport.

The labelling and marking of chemical packages for transport and placarding (signage) of the vehicle used for transport are regulated by law as well as international codes of safe practice.

Using unsuitable equipment or poor handling techniques can seriously damage packaging and increase the risk of spillage. Consequently, attention should be given to the following:

• workers loading or unloading any chemicals must be trained for the job (the need for forklift training is included in this area)
• tools that can damage packaging must not be used
• pallets and truck beds must be free from any sharp edges and nails that could damage containers
• where possible, suitable mechanical handling equipment should be used to reduce the risk of damage.

Suitable mechanical handling equipment should be used to reduce the risk of damage to chemical containers.
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**Vehicles**

Vehicles used to transport chemicals must be checked to ensure that they are suitable for the job.

Chemicals must never be carried in the passenger compartment of a vehicle because spilled chemicals and hazardous fumes can cause serious injury to the occupants.

In an accident, an unsecured chemical drum can become a lethal projectile or rupture and cause a spill that not only affects the occupants of the car but members of the public.

The Agsafe “Ute-it Don’t Boot-it” campaign promotes the benefits covered by the campaign and underpins the duty of care and legal requirements of retailers when loading dangerous goods into end user vehicles.

![Ute-it Don't Boot-it](image)

**2.2 Loading**

The loading and unloading of chemicals is the time when the risk of an accident is greatest and personnel involved in these processes must ensure that they are aware of their responsibilities.

Legal responsibilities extend to everyone associated with a load, from the owner of the site to ensure that access is safe (for example, no potholes) to the driver of the vehicle to ensure the vehicle is driving safely and even to the loader who must ensure that the load is restrained properly. These are only a few of the legal responsibilities relating to all loads. Special requirements for dangerous goods are detailed later in this section.

Chemicals must be loaded and secured in the transport vehicle so that the following conditions apply:

- all packages, prior to loading, must be checked to ensure that they are in good condition
- marking is appropriate and is positioned on packages so that it can be clearly seen during transport
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- the weight is evenly distributed
- all packages must be stowed on the vehicle to minimise movement to reduce the possibility of damage
- heavy goods must not be stacked on light goods in a way that can cause damage.

All packages, prior to loading, must be checked to ensure that they are in good condition.

Chemicals must be loaded and secured so that the weight is evenly distributed.

The unloading of all packages of chemicals must be properly controlled to avoid impact damage.

Secure the load to prevent movement.

Load Restraint

Any load carrying vehicle should be loaded and driven in such a way as to prevent danger to any person, or damage to any property. There are many types of restraint devices. Some of the most common are gates on the side of vehicles and webbing straps. The load needs to be firmly secured to avoid movement during transport.
The Load Restraint Guide (LRG) provides transport drivers, operators, and other participants in the transport chain such as freight consignors, as well as vehicle and equipment manufacturers and suppliers, with basic safety principles which should be followed for the safe carriage of loads on road vehicles.

**Receipt of chemicals**

Unloading of all packages of chemicals must be properly controlled to avoid impact damage.

When goods are being received they should be checked to ensure:

- that quantities are correct and none has been lost in transit
- if any spillage has occurred, the vehicle must be cleaned immediately using a suitable spill kit (never wash down with water without first absorbing spillage)
- leaking containers should be placed in a suitable recovery drum for return to the manufacturer
- the recovery drum must be appropriately marked
- after the leak has been contained, damaged packs in recovery drums should be handled according to the supplier’s instructions
- ensure that any wastes generated are disposed of in accordance with government regulations.

Use absorbent material to soak up any spillage. Wash contaminated parts of vehicle with water and detergent.
2.3 Packaging

Packaging is described as the container in which the goods are held for transport by road and includes anything that enables the container to hold the goods.

Agvet chemicals that are classified as dangerous goods must be packed in approved packaging that has met recognised performance standards and is branded accordingly. This is predominantly the responsibility of the manufacturers who have specialist staff for this purpose.

Improper packaging can lead to accidental leaks or spills during transport, which presents a significant hazard to the public and the environment. Packaging must be able to withstand the conditions encountered during transport.

Some key points to remember are:
1. Products that are received packed in approved containers must remain in those containers.
2. Manufacturing companies have experts who specialise in packaging matters.

Anybody offering dangerous goods for transport that are not in approved packaging will be held responsible for damage if there is an accident or incident. Agvet chemicals must be in an approved carton that features the manufacturer’s brand.

2.4 Packages and Packaging

The type and size of the packaging used for agvet chemicals determine whether the provisions of the Australian Dangerous Goods (ADG) Code apply. In most cases placarding with emergency information panels is required for all containers with a capacity greater than 500 L or containing more than 500 kg of dangerous goods.

Placard Load

A placard load means a load of dangerous goods that must be placarded according to the ADG Code and NTC regulations 2007.

A placard load can consist of:
• dangerous goods in a single receptacle with a capacity of 500 litres or more
• 500 kilograms or more of dangerous goods in a single receptacle
• an aggregate quantity of dangerous goods of 1000 L/kg or more
• an aggregate quantity of dangerous goods of 250 L/kg or more, which includes any of Divisions 2.1, 2.3, or any Packing Group I of any Class or Division.

Retail distribution loads do not generally apply to agvet chemicals as the specified pack sizes are 5L or less. For further information on the criteria for Retail Distribution Loads see section 7.3.1.1 of the ADG Code.

Packages

A package of dangerous goods or other goods is the complete product of the packing of the goods for transport, and consists of the goods and their packaging. A package has a capacity of not more than 500 L or 500 kg.
**Packaging**

The packaging of the goods is the container in which the goods are received or held for transport, and includes anything that enables the container to receive or hold the goods, or to be closed.

The container may constitute the whole of the packaging as in the case of a drum in which is directly placed dangerous goods. Packaging also includes inner, outer and composite packaging, overpacks and large packaging, intermediate bulk containers (IBC), multiple element gas containers (MEGC), tanks, bulk and freight containers, drums, barrels, jerry cans, boxes and bags.

**Overpacks**

Formerly known as a ‘unit load’ in previous editions of the ADG Code, overpacks refers to packages that have been grouped into a single unit for easier handling and stowage for road and rail transport. They include packages from different consignments heading to the same location. Some examples of overpacks include pallets with strapping or shrink wrapping and boxes or crates into which packages are placed.

**Large packaging**

Large Packaging refers to outer packaging that is designed for mechanical handling and has a capacity of not more than 3m³. Large packaging contains articles or inner packaging with a net mass of more than 400 kg or capacities totalling more than 450 litres.

**Intermediate bulk containers (IBC)**

IBC are stackable containers of 250 to 3,000 litre capacity that are designed for the transport of dangerous goods (other than gases) and for mechanical handling. IBC are mounted on pallets that are designed to be moved using a forklift or a pallet jack and have a volume range between that of drums and tanks (hence the term “intermediate”). Common sizes are 1040 litres (often called 1000 litres) and 1250 litres.

**Transport units**

Transport units are defined in the National Transport Commission Regulations 2007 to include vehicles, portable tanks, bulk containers or freight containers.

**Retail Distribution Loads**

This term does not generally apply to the transport of agvet chemicals. Retail Distribution Loads are defined in Section 7.3.1.1 of ADG7.

The marking (labelling) of packages of agvet chemicals, which are classified as dangerous goods, for transport and the placarding (signage) of the vehicles used during transport, are regulated by law and international codes of safe practice.

Placarding is required for specific types and quantities of hazardous materials and usually relates to commercial loads rather than retail distribution loads. This is detailed in the Australian Dangerous Goods Code. (see www.ntc.gov.au)
2.5 Marking and Placarding

The marking (labelling) of packages of agvet chemicals, which are classified as dangerous goods, for transport and the placarding (signage) of the vehicles used during transport, is regulated by law and international codes of safe practice.

- Label/Labelling refers to the application of Class or Division labels, including Subsidiary Risk labels, and, where permitted, Mixed Class labels, to packagings (single, outer, inner and large packagings and small IBCs < 500 kg/L).
- Placarding refers to placement of Class or Division labels, the Mixed Class placard/label and Emergency Information Panels onto transport units such as vehicles, freight containers, IBCs or portable tanks.
- Marking describes all other information that must be applied to packagings, large packagings and transport units, such as Proper Shipping Name, UN Number, the Environmentally Hazardous chemical mark and orientation arrows.

**Standard marking**

Standard marking for an Outer Package of a Combination or a Sole Package, IBC, MEGC or other unpackaged article includes:

- the proper shipping name
- the UN Number prefaced with either “UN” or “UN No.”
- the danger class label
- at least one of each Subsidiary Risk label, where applicable
- the name and address in Australia of the manufacturer or consignor of the dangerous goods, or their agent.

**Marking Overpacks (Previously Unit Loads)**

Overpacks, as they relate to agvet chemicals which are dangerous goods, are typically a pallet or other base on which the packages of dangerous goods are stacked and secured by strapping, shrink or stretch wrap or other material. Other containers such as a pallet box may be used to make up overpacks.

The overpack must be marked with the following:

- a danger class label for each class of dangerous goods in the load
- the subsidiary risk label if applicable to all or any of the dangerous goods in the load
- proper shipping name and UN number for each item of dangerous goods contained in the overpack unless markings and labels representative of all dangerous goods are visible.

Placement of labels on the overpack:

- the appropriate class and subsidiary risk labels must be placed on two opposite sides of the overpack above the forklift lifting points
- each label on an overpack must be at least 100mm x 100mm.

**Vehicle placarding for packaged dangerous goods**

Transport units (namely road vehicles, portable tanks, bulk containers and freight containers) and all placardable units carrying packaged dangerous goods in the quantities set out in the Australian Dangerous Goods Code must be appropriately placarded.
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Placarding of the vehicles used to transport certain quantities of agvet chemicals, is regulated by law and international codes of safe practice. (Source: dmp.wa.gov.au)

Aggregate quantity is the total of:
- kilograms of solid dangerous goods and aerosols
- litres or kilograms of liquids dangerous goods
- total capacity in litres of containers of class 2 dangerous goods (not aerosols).

Vehicles must display at the front and rear:
- Class labels appropriate to the dangerous goods carried
- Subsidiary Risk labels if applicable
- Mixed Class labels.

If there is more than one class of dangerous goods on the transport unit, the Mixed Class label can be displayed at the front and rear of the vehicle.

Alternatively, class labels for each compatible class of dangerous goods (up to a maximum of two) on the vehicle and any applicable subsidiary risk label may be displayed in the appropriate locations on the vehicle.

The class and subsidiary risk labels used to placard a vehicle must not be less than 250mm x 250mm.

This Mixed Class label can be used to indicate that there is more than one Class of Dangerous Goods on board the vehicle. It must not be used if there is a single load of one class of dangerous goods that has a subsidiary risk – this is not a mixed load.
Fixing the placard to the vehicle
When a vehicle is carrying a placard load of dangerous goods, the placard must be:
• securely fixed to the vehicle
• not obscured and easily legible
• durable and weather resistant
• removed or covered when the vehicle is free from the dangerous goods.

Other Requirements
When a vehicle is transporting a placard load of dangerous goods it must be carrying the following items:
• transport documents
• Dangerous Goods Initial Emergency Response Guide or the relevant Emergency Procedure Guide (EPG)
• personal protective and safety equipment suitable for the dangerous goods being carried
• fire extinguishers
• reflector signals.
## QUICK QUIZ 2

Indicate by checking the boxes whether these statements are true or false.

<table>
<thead>
<tr>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chemicals can only be carried in the passenger compartment of a vehicle if the container has not previously been opened.</td>
<td>✗</td>
</tr>
<tr>
<td>2. The Load Restraint Guide (LRG) sets out basic safety principles for the safe carriage of loads on road vehicles.</td>
<td>✗</td>
</tr>
<tr>
<td>3. Leaking agvet chemical containers that are received at a store should be placed in a suitable recovery drum for return to the manufacturer.</td>
<td>✗</td>
</tr>
<tr>
<td>4. The Agsafe “Ute-it Don’t Boot-it” campaign is aimed at farmers transporting chemicals on their property.</td>
<td>✗</td>
</tr>
<tr>
<td>5. Products that are received packed in approved containers can be repacked into alternative containers providing they are appropriately labelled.</td>
<td>✗</td>
</tr>
<tr>
<td>6. Whether provisions of the Australian Dangerous Goods (ADG) Code apply is dependent on the type and size of the packaging used for agvet chemicals.</td>
<td>✗</td>
</tr>
<tr>
<td>7. The capacity of a “package” of dangerous goods cannot exceed 500 L or 500 kg.</td>
<td>✗</td>
</tr>
<tr>
<td>8. Intermediate bulk containers were known as ‘unit loads’ in previous editions of the ADG Code.</td>
<td>✗</td>
</tr>
<tr>
<td>9. A shrink-wrapped pallet comprising packages of dangerous goods is called an overpack.</td>
<td>✗</td>
</tr>
<tr>
<td>10. Placards must be removed or covered when a transport vehicle is no longer holding dangerous goods.</td>
<td>✗</td>
</tr>
<tr>
<td>11. The requirements for placarding of loads are set out in workplace health and safety legislation.</td>
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</tbody>
</table>
Workplace Activity 3.2

Please complete this Workplace Activity before moving on to the next chapter.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. Outline 3 situations where you have been involved in the transporting of agvet chemicals. Explain why you transported them and what vehicle you used:
   a) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________
   b) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________
   c) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________

2. Explain how you ensured the safety of yourself and others while transporting these agvet chemicals. Give 3 examples of safety checks or measures that you took:
   a) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________
   b) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________
   c) _____________________________________________________________________________________
      _____________________________________________________________________________________
      _____________________________________________________________________________________
3. Check the hazard signs on a placard load delivered to your workplace. Describe 3 different signs and why they were used:

a) _____________________________________________________________________________________
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_____________________________________________________________________________________
_____________________________________________________________________________________

b) _____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
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c) _____________________________________________________________________________________
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4. What is your company policy if an agvet container or pallet is delivered to your premises in a damaged condition?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
Responsibilities when transporting agvet chemicals

When you have successfully completed this topic you will be able to:

- identify and observe transport requirements for agvet chemicals
- minimise risks involved in loading and unloading chemicals
- check containers are in a sound condition to transport
- define the responsibilities of the consignor and primary contractor when transporting chemicals.

3.1 Duty of Care

Everyone involved in the transport of agvet chemicals has a duty of care. This is a responsibility to carry out their tasks in a manner which will not cause harm or injury to themselves, other people, their property, animals or the environment.

The safe transport of chemicals depends on good organisation and management.

Personnel involved must have a clear understanding of the following:

- their responsibilities
- the classification of dangerous goods
- segregation and stowage of the chemicals
- transport documentation
- marking and labelling of packages and the placarding of transport units including vehicles
- safety equipment that must be carried during the transport of dangerous goods
- stowage and restraint
- the condition of the vehicles transporting the dangerous goods
- the packaging used
- dealing with large packages, IBCs, freight containers and overpacks (e.g. pallet lots).

3.2 Responsibilities of Personnel

The NTC Regulations 2007 assigns special duties to people who are:

- consignors
- packers
- loaders
- prime contractors
- vehicle owners
- drivers.

Agvet chemical storage premises management and staff are likely to have obligations as:

- consignors
- loaders and unloaders
- drivers
- vehicle owners
- packers.
Consignor

The consignor is the person who engages a prime contractor, either directly or through an agent, to transport the goods and who has possession of or control over the goods immediately before they are transported by road. The consignor is also the person identified as such on transport documents.

Consignors must be aware that packers, loaders, prime contractors, drivers and vehicle owners also have certain duties that they are required to know or reasonably ought to know.

The consignor must ensure that:

- accurate and complete transport documents are provided
- separate transport documents are provided if the consignment is to be delivered on separate vehicles later
- the driver has the required emergency information
- all packages and bulk containers are approved, maintained, sealed, correctly marked, compatible with the goods and safe for transport
- overpacks are securely stowed and correctly marked
- dangerous goods which are forbidden to be transported are not offered for transport
- combinations of goods are compatible or that an approved segregation device is used
- the vehicle is suitable for the task, free of defects, carries or is equipped with appropriate load restraining devices, correctly placarded when necessary, appropriately licensed if required and carries the required safety equipment
- that a telephone advisory service, where necessary, is maintained
- an emergency plan is in place for dealing with a dangerous situation while the goods are being transported
- equipment and other resources are provided on the request of an authorised officer to control a dangerous situation, contain, dispose of or recover any dangerous goods which have leaked, spilled or accidentally escaped.

Consignors must not consign any dangerous goods by road unless they know or reasonably ought to know that they have met their responsibilities with regard to the items above.
Transporting, handling and storing agvet chemicals

Packers
A packer is a person who packs dangerous goods for transport by road, puts the goods in packaging or puts packaged goods in outer packaging or unit load or who manages, controls or supervises these activities.

All duties relating to packers carry the wording “if a person knows or reasonably ought to know”.

If you are a packer, it is your responsibility to know the requirements for packaging, marking and placarding. You can ask the consignor or the prime contractor for further information if you are unsure.

The packer must ensure that:
- only suitable, approved packaging is used
- all packages, large packagings, overpacks, IBC and bulk containers are correctly marked
- the markings are not false or misleading
- marked packages actually contain dangerous goods.

Packers must not pack dangerous goods for transport by road unless they have met their responsibilities as outlined above.

Loaders
A loader is a person who loads packaged dangerous goods into a transport unit or places a portable transport unit containing dangerous goods for transport on a vehicle, where the goods are to be transported by road or who manages, supervises or controls these activities.

If you are a loader, it is your responsibility to know the requirements for packaging, marking and placarding. You can ask the consignor or the prime contractor.

The loader must ensure that:
- packages, large packagings and overpacks containing dangerous goods are safe for transport
- freight containers, tanks and IBC are approved and suitable for transport
- if a combination of goods are to be loaded that they are compatible or that approved segregation devices are used
- the load is appropriately restrained and correctly placarded.

The loader must not load dangerous goods for transport by road unless they know or reasonably ought to know that they have met their responsibilities as outlined above.
Prime Contractors

A person is the prime contractor for the transport of dangerous goods or other goods by road if, in conducting the business for or involving the transport of dangerous goods by road, they undertake to be responsible or are responsible for the transport of the goods.

If you are a prime contractor, it is your responsibility to know the requirements for packaging, marking and placarding. Prime contractors should be aware that packers, loaders, drivers and vehicle owners have certain duties that they are required to know or reasonably ought to know.

The prime contractor must ensure that:

• employees are trained in respect of their responsibilities
• packages or large packagings that are damaged or defective to the extent they are not safe to transport are not transported
• goods that are too dangerous to transport are not transported
• freight containers, tanks and IBC are approved and the freight containers are suitable for transporting the goods, and are free of defects, clean and dry and free of dangerous goods residues
• the vehicles comply with all the safety standards and are covered by the required insurance
• safety equipment is provided and regularly serviced and all packages and large packagings are approved, safely stowed, securely restrained and correctly marked
• the load is correctly placarded

**EMERGENCY PROCEDURE GUIDE—TRANSPORT**

<table>
<thead>
<tr>
<th>NAME</th>
<th>UN No</th>
<th>HAZOChem</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARBON DISULFIDE</td>
<td>1131</td>
<td>3WE</td>
</tr>
</tbody>
</table>

A colourless or pale yellow liquid with a foul smell. Liquid does not mix with water.
Bottles at 46°C, ignites at 100°C.
Vapours are heavier than air.
Vapours can travel a considerable distance to a source of ignition and flash back.
Vapours can be ignited by contact with an ordinary light bulb, a warm steam pipe, or a hot exhaust pipe.
Containers may explode when heated.
Vapours from runoff may create explosion hazard.
Fire will produce toxic sulfur dioxide gas.

**HAZARDS**

**Fire**

<table>
<thead>
<tr>
<th>HAZARD</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Flammable</td>
<td>This liquid has a low flashpoint and is easily ignited by heat, sparks or flame. Vapours can form explosive mixtures with air. Vapours can travel a considerable distance to a source of ignition and flash back. Vapours can be ignited by contact with an ordinary light bulb, a warm steam pipe, or a hot exhaust pipe. Vapours are heavier than air and will collect in low or confined areas (ditches, basements or tanks). Containers may explode when heated. Vapours from runoff may create explosion hazard. Fire will produce toxic sulfur dioxide gas.</td>
</tr>
</tbody>
</table>

**Health**

<table>
<thead>
<tr>
<th>HAZARD</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poisonous</td>
<td>May be fatal if inhaled, swallowed or absorbed through skin. May irritate or burn skin and eyes. Runoff from the control of diluted water may pollute waterways.</td>
</tr>
</tbody>
</table>

**PROTECTIVE CLOTHING**

**Emergency responders**

In presence of fire, wear SCBA and fully-encapsulating gas-tight suit when handling this substance. Structural firefighters uniform is NOT effective for this material.
Transporting, handling and storing agvet chemicals

- the goods are compatible or approved segregation devices are used
- transport documentation and emergency information is provided
- dangerous goods are removed from the vehicle prior to towing or repairs
- where necessary, routes and times of travel as designated by the competent authority are followed
- incidents resulting in dangerous situations are reported to the competent authority
- dangerous goods in bulk are not transported unless a telephone advisory service is provided
- placard quantities of dangerous goods are not transported unless an emergency plan is in place and dangerous goods are not transported unless the driver and the vehicle are licensed
- the prime contractors must not transport dangerous goods by road unless they know or reasonably ought to know that they have met their responsibilities as outlined above.

Responsibilities given to the prime contractor may be shared with others in some cases, but this does not lessen the prime contractor’s responsibilities.

Drivers

Most duties relating to the driver carry the wording, “if the person knows or reasonably ought to know”. So if you don’t know and you are a driver, it is your responsibility to find out. Ask the consignor or the prime contractor.

As the person doing the transporting, a driver may be seen as the first target for any prosecution if there are any incidents.

The driver must ensure that:

- bulk dangerous goods are not carried if the vehicle or the driver are not licensed
- transport documents and emergency information are carried in the emergency information holder
- goods are protected from damage, correctly stowed and secured at all times
- the goods are compatible and the vehicle is correctly placarded
- if the vehicle or equipment is knowingly defective, the vehicle is not driven
- the necessary safety equipment is carried and serviced regularly
- when necessary, the requirements with regard to the route, procedures and rest stops are complied with
- in the case of breakdown, other road users are alerted and warning devices are used
- no unauthorised passengers are carried
- there is no smoking, carrying or lighting of matches or lighters if certain agvet chemicals are carried in bulk
- all parking, loading and unloading requirements for dangerous goods are complied with
- the goods are not unloaded unless the consignee is present or by prior arrangement, a secure place is made available
- if the vehicle is involved in an accident resulting in a dangerous situation the prime contractor, police and emergency services are notified and assistance is provided
- procedures outlined in any emergency information are followed
- the escape of dangerous goods is prevented or minimised in an emergency
- non-essential people are warned and kept away during an emergency
Transporting, handling and storing agvet chemicals

- routes and times of travel, as designated by the competent authority, are followed
- drivers must not carry dangerous goods unless they know or reasonably ought to know that their responsibilities have been met as outlined above.

![Image of a driver]

The driver must ensure that all parking, loading and unloading requirements for dangerous goods are complied with.

**Procedures during Transport**

The driver’s duties state that they must comply with all the instructions of the Competent Authority and the prime contractor if a placard load of dangerous goods has:

- broken down or become immobilised
- stopped on a road and/or
- become a traffic hazard.

In the event of one or more of these situations occurring the driver must:

- alert other road users of the hazard by operating the hazard warning lights (if it is safe to do so)
- place portable, reflector warning triangles on the ground alongside the vehicle and 50 to 150 metres to the front and rear
- operate the battery isolator switch (if fitted) when the vehicle is carrying bulk goods and is left unattended, unless it is necessary to leave the lights on to prevent a traffic hazard.

The driver must not:

- carry any unauthorised passengers.
- smoke, carry fire, matches or cigarette lighters if the vehicle is carrying bulk goods of certain agvet chemicals or allow any other person in the vehicle to do so.

**Parking, standing and unloading**

The driver must not park or leave the vehicle standing:

- in a built up area with public access
- within 15m of any building where there are people (except where loading and unloading)
- in any other place where there is likely to be a concentration of people
- within 8m of another vehicle which is transporting a placard load.
The driver may park or leave the vehicle standing if it is reasonable to do so but for no longer than is necessary:
• for loading or unloading
• if there is a breakdown
• because of a dangerous situation involving the vehicle
• for a brief rest or refreshment break
• to comply with a requirement of the law.

Vehicles carrying certain classes of agvet chemicals are not to be parked or left standing within 15m of a naked flame.

Trailers containing dangerous goods should only be detached:
• at a vehicle marshalling area where loading and unloading is permitted.
• at a transport depot designed for loading or unloading
• for the immediate exchange of trailers, between prime movers
• in an emergency, in the interest of safety
• if the vehicle is disabled on a road or street.

3.3 Transport Emergencies

If a fire, explosion, leakage or spillage involving dangerous goods occurs, current legislation requires that the consignor and the prime contractor must ensure that any information, special equipment or supplies needed for recovering the dangerous goods are made available at the scene within a reasonable time.

The consignor’s responsibility is for equipment and supplies to recover or neutralise the goods and the prime contractor’s responsibility is for equipment to recover the vehicle.

Where dangerous goods are carried in placard load quantities, the legislation requires that both the prime contractor and the consignor maintain a telephone advisory service, while the goods are on the vehicle, so that if an emergency occurs:
• technical advice on the product and how to handle the emergency as well as advice on the equipment and fittings on the vehicle can be provided without delay, and
• where required, at least one person suitably trained and competent to assist in controlling the emergency goes to the scene quickly.

The Consignor

The consignor should have a plan to handle the worst emergency. When sending packaged goods the consignor must:
• arrange for any special supplies or equipment to be available at the scene of an emergency within a reasonable time
• give technical advice on the properties and hazards of the products they dispatch
• have an agreed plan of operations and communications with the prime contractor for the actions both will take in an emergency.

When sending placard loads the consignor must:
• maintain a telephone advisory service while the goods are on the vehicle
• ensure that whoever answers the phone knows what to do. That is, they are a technically-trained person who understands the properties and hazards of the
products and is capable of giving advice for them or they are able to contact a technically-competent person quickly and that this person has the means of going to the scene quickly if required to do so

• consider whether neutralising chemicals are needed in case of a spill and ensure that they can get a supply of the chemicals at short notice
• consider the equipment required for the transfer of goods from a disabled tanker and the source of supply of such equipment
• consider what safety equipment is necessary for handling a spill and whether they should have this equipment available for any of their staff who may have to visit the scene of an emergency.

When sending placard loads the consignor must maintain a telephone advisory service while the goods are on the vehicle.

**The Prime Contractor**

A prime contractor should make arrangements so that the special equipment needed for recovery of the vehicle is available at the scene of an emergency within a reasonable period of time.

The emergency plan should be made in consultation with the customers for whom they are transporting dangerous goods. The emergency plan should be written down and all employees involved – particularly drivers – should be aware of what they have to do in an emergency. The emergency plan covers:

1. **Communication**: the prime contractor should ensure that the driver has all the necessary telephone numbers on the Emergency Procedures Guide (EPG) card to allow them to contact the home base, the fire brigade and police, and the consignor. They should have in their emergency plan telephone numbers for:
   – the Environment Protection Authority
   – the Metropolitan Fire Brigade
   – the Country Fire Authority in the states in which their vehicles operate.

2. **Equipment**: the prime contractor should make arrangements with people who can supply and operate equipment needed to recover a disabled truck (e.g. crane operators). The business and after-hours telephone numbers should be in the emergency plan.

**Managing the transport emergency**

The requirements will depend on the nature of the emergency.

A truck breakdown (mechanical) may mean making arrangements to tow the vehicle off the highway. Police may be needed to control traffic until the vehicle is moved.

Where an accident occurs without any spill of dangerous goods, recovery of the truck and clearing of the road is the prime objective.
Where there is a spill of dangerous goods, the operating authority is the fire brigade. The police will control the area and the fire brigade will handle the problem.

The consignor may be required to give technical advice, send a knowledgeable, technically-trained person to the scene, organise neutralising chemicals and/or arrange supply of sand or soil to dam a significant spill.

The prime contractor may also be required to send equipment to the scene to recover the truck (e.g. cranes), or right a tanker, transfer a tanker load to another tanker, or supply another prime mover.

Materials used to clean up a transport spill will be contaminated and must be disposed of safely according to the requirements of the appropriate agency.

When the emergency is over, the prime contractor may be required to clean up the site or arrange to have it cleaned.
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## Workplace Activity 3.3

Please complete this Workplace Activity before moving on to the next chapter.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. Provide examples of where you have undertaken responsibilities for each of the following roles and describe what you did. If you haven’t undertaken a role explain how this is carried out in your workplace:

<table>
<thead>
<tr>
<th>Role</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consignor</td>
<td></td>
</tr>
<tr>
<td>Loader / unloader</td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td></td>
</tr>
<tr>
<td>Packer</td>
<td></td>
</tr>
</tbody>
</table>
2. List 5 precautions that your company takes to plan for transport emergencies when consigning packaged goods and/or placarded loads:

a) _____________________________________________________________________________________
   _____________________________________________________________________________________
   _____________________________________________________________________________________

b) _____________________________________________________________________________________
   _____________________________________________________________________________________
   _____________________________________________________________________________________


c) _____________________________________________________________________________________
   _____________________________________________________________________________________
   _____________________________________________________________________________________

d) _____________________________________________________________________________________
   _____________________________________________________________________________________
   _____________________________________________________________________________________

e) _____________________________________________________________________________________
   _____________________________________________________________________________________
   _____________________________________________________________________________________
Storing agvet chemicals

When you have successfully completed this topic you will be able to:

- identify relevant legislation, standards and codes of practice which apply to storage and handling of agvet chemicals
- implement effective procedures for storing of agvet chemicals
- maintain isolation and segregation protocols
- determine and confirm bund integrity.

4.1 Australian Standards

The requirements for storing agvet chemicals depends on the storage mix, the extent of the dangerous goods stored, the classes of dangerous goods, their quantities and packing groups.

Storage of dangerous goods in any quantity requires compliance with regulations. Once the quantity exceeds a certain threshold, more prescriptive requirements can apply based on the Australian Standards for storing agvet chemicals (AS 2507—1998). Agvet chemical wholesale and retail premises typically store a mixture of dangerous goods classes and non dangerous goods which will be covered under this Australian Standard.

Minor storage is the level set by Australian Standards where quantities of dangerous goods exist in small quantities (usually less than 1000 litres of Packing Group III). Quantities greater than minor storage require much more stringent storage facilities, where specific ventilation, fire fighting equipment and segregation distances are all prescribed.

Companies need to determine if their store qualifies as ‘minor storage’. Where minor storage quantities may be exceeded you need to provide engineering controls such as separation, bunding and ventilation.

Where large quantities are intended to be kept, companies should seek the advice of a dangerous goods consultant to work out the most cost effective solution and conduct a risk assessment, with a view to meeting the Australian Standards for the Storage and Handling of Mixed Classes of Dangerous Goods (AS 3833) and the Storage and Handling of Flammable and Combustible Liquids (AS 1940).

Storage of dangerous goods in any quantity requires compliance with regulations.
4.2 The Manifest

Workplace health and safety legislation requires that a chemical register must be kept for any enterprise that stores or uses hazardous chemicals.

With companies involved in storing large amounts of agvet chemicals on their premises, there is also a legal obligation that a ‘manifest’ is maintained on their site. The manifest outlines the types and typical quantities of chemicals that are being stored and their location. The manifest must also include a site plan of the premises that outlines the storage facilities.

While the manifest is usually maintained by a nominated manager, all staff should be aware of the manifest and should alert the manager if there is any change in the storage arrangements for agvet chemicals.

A manifest has three important functions in that it:

1. serves as an Emergency Services Manifest which:
   - lists each dangerous goods division given in the ADG Code
   - the maximum anticipated quantities stored for each dangerous goods division
   - Packing Group
   - shows a site plan with a storage area floor plan showing the location of each Class/Division of dangerous goods and all substances of Packing Group I, together with a list of maximum quantities of these substances at each location.
2. guides the design and construction of a premises in order to control risk.
3. helps determine the need for placarding and licensing, and the applicability of legislation and Australian Standards.

See Appendix A at the back of this learning guide for information on how to complete a manifest.

The location and quantities of dangerous goods and all substances of Packing Group I are detailed in the manifest.
4.3 Construction of Storage Facilities

**Minor storage**
Even for small amounts of agvet chemicals, Australian Standards require that:
- floors must be concrete or other material that is impervious to liquids, resistant to attack by the chemicals being stored and have a smooth finish for ease of cleaning
- non-combustible materials should be used wherever possible
- the storage area should be protected against heat and exposure to sunlight.

**Greater than minor storage**
Where the quantity of agvet chemicals exceeds minor storage quantities, reinforced concrete frames should be used instead of unprotected steelwork. If unprotected steelwork is present, fire protection of the vertical main load bearing members can be achieved with such products as sprayed vermiculite cement or sprayed asbestos-free mineral fibre.

Floors must be concrete or other material that is impervious and resistant to attack by the chemicals being stored. Earth, unsealed timber and unsealed masonry are examples of materials that are unsuitable for floors.

Also, floors must be designed and constructed so that, in a fire, released chemicals are safely diverted into a suitable area for their disposal.

The cladding of storage buildings must be non-combustible.

If the roof is of solid construction, smoke and heat relief must be provided with either low melting transparent panels or ventilation panels which will open at least 2% of the floor area. These panels must be permanently open or be able to be manually opened, or open automatically in a fire.

*This greater than minor storage has concrete floors, good natural lighting and ventilation systems.*
4.4 Location and Segregation

Segregating chemicals

Some types of agvet chemicals should be stored separately from other chemicals and from each other to ensure cross contamination cannot occur if there is a leaking container or spill.

Some examples that may apply in your store include:

- liquids should be stored as close to floor level as practicable to reduce the risk of breakage or spillage
- liquids should not be stored above solids in order to avoid any damage or contamination of other products through leakage
- flammable products should be segregated from non-flammable products by at least 3 metres
- veterinary chemicals must be segregated from all other chemicals
- scheduled poisons should be segregated according to their schedule
- flammable, non-flammable and poisonous gases should be segregated from each other by a 3 metre separation which can be either by “line of sight” or a wall made of a non-combustible, vapour proof material.

See the table showing segregation requirements for transport of Dangerous Goods in placard quantities on the next page.

Location of minor storage

Minor storage areas should not be located in an area that is prone to flooding and should be located above the highest recorded flood level.

They must be at least 3 metres from any unrelated work area, office, amenities, storage area for gas cylinders, or readily combustible or flammable materials or fuel storage area.

Minor storage areas must also be at least 5m from any watercourse, body of water, drain or sewer that is not confined to the premises.

Minor Storage of Class 4.3 Dangerous Goods

There are special requirements for the minor storage of Class 4.3 Dangerous Goods (agvet chemicals that, on contact with water, either combust or release flammable or toxic gases). These should not be stored outdoors unless adequately protected from exposure.

Preferably, they should be stored in a lockable metal cabinet, provided that the cabinet is marked with the Class 4.3 diamond, and there are no electrical switches, motors or lights within 3 metres of the storage.

In some states it is a requirement to indicate where Class 4.3 agvet chemicals are stored.

There are special requirements for the minor storage of Class 4.3 Dangerous Goods.
Segregation requirements for transport of Dangerous Goods in Placard Quantities
Transporting, handling and storing agvet chemicals

Location of greater than minor storage
Stores which have quantities greater than minor storage of agvet chemicals need to be located according to local government requirements such as mandatory distances from schools and hospitals.

Stores must also be:
• built in areas where there is no risk of flooding
• accessible to emergency services
• at or below ground level (for flammable and combustible liquids)
• separated by at least 5 metres from any stores for agvet chemicals that are not on the same premises
• separated by at least 5 metres from any drains, sewers, watercourses or bodies of water, in order to reduce the likelihood of contamination.

Major Hazard Facilities
Major hazard facilities (MHFs) are locations such as oil refineries, chemical plants and large fuel and chemical storage sites where large quantities of hazardous materials are stored, handled or processed.

Operators of determined MHFs have obligations to:
• identify all major incidents and major incident hazards for the facility
• conduct and document a safety assessment in relation to the operation of the facility that involves a comprehensive and systematic investigation and analysis of all aspects of risks to health and safety that could occur in the operation of the MHF
• implement control measures that eliminate or minimise the risk of a major incident occurring at the MHF
• prepare an emergency plan
• establish a Safety Management System (SMS) for the operation of the MHF
• prepare a Safety Case for the MHF that demonstrates that the MHF’s SMS will control risks arising from major incidents and major incident hazards and demonstrates the adequacy of the measures to be implemented by the operator to control risks associated with the occurrence of major incidents.
(Source: www.safeworkaustralia.gov.au)

4.5 Spill Containment
Spill containment is a system that prevents spilt hazardous chemicals from being absorbed into a surface or running off to other areas.

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

- the nature of the hazardous chemicals (whether liquid or solid)
- the quantity of the hazardous chemicals
- the size of the largest container or reasonably foreseeable largest spill
- the potential impact if the hazardous chemicals escape to the environment
- whether it is necessary to provide for the management of firewater at an incident
- a separate spill containment is provided for incompatible goods
- the materials used to construct the containment system, as well as any materials used for absorption, are compatible with the hazardous chemicals
- other materials in the vicinity that will prevent contamination of groundwater or soil
- the system’s integrity will be maintained in any reasonably foreseeable incident.

A spill containment system used for large quantities of hazardous chemicals is bunding.

Bunding consists of:
- an impervious bund wall or embankment surrounding the facility or tanks
- an impervious floor within the bunded area
- any joints in the floor or the wall, or between the floor and the wall
- any associated facilities designed to remove liquids safely from the bunded area without polluting the environment.

**Containing spills**

Spill containment is a legislative requirement for dangerous goods.

All agvet chemicals stores must have a means to contain any spills and, as far as practicable, all fire-fighting water. The volume expected in fighting a fire can be many cubic metres of water per ton of product stored, unless special precautions are provided.

Hazardous chemicals must have a hierarchy of controls in place and, unless the hazard has been eliminated or substituted, this would include engineering controls such as methods to limit the area of contamination in the event of spills or leaks.

Sometimes the bunded area can be designed so that it drains to a pit where spills and contaminated water can be treated so that it is rendered harmless.
Common methods of containment of spills include:
- a sloping floor with or without a sump
- a bunded area
- either of the above, with drainage to a holding pit, tank or sump
- trenches or spoon drains
- a combination of the above.

Sometimes the loading and unloading areas may also be bunded.

### 4.6 Ventilation

All agvet chemical storages are required to have sufficient ventilation to achieve an air exchange that dilutes vapours to below recommended workplace exposure standards and any lower explosive limits.

**Minor storage**

Where possible natural ventilation should be provided by vents located in the upper and lower walls and in the roof. The lower vent must be above bund level. All vents should be designed or protected to prevent entry by birds or vermin.

To assist the air circulation, a clear space of 1 metre be maintained between the topmost products and the roof as well as between the goods and the walls.

Where gas cylinders are enclosed within buildings or compounds, the walls must be 50% open to ventilation.

*Gas cylinders are often stored outside in cages such as this one. (Source: prattsafety.com.au)*

**Major storage**

Ventilation systems need to be capable of diluting and removing the normal level of vapour generated within the storage area by either natural or mechanical means.

A natural ventilation system should comprise upper and lower wall vents in each 3m length of wall in opposing walls.

Alternatively, natural ventilation systems may be achieved by having one or more sides of the storage facility (floor to ceiling) open to the outside.
QUICK QUIZ 4

Indicate by checking the boxes whether these statements are true or false.

1. Engineering controls such as bunding and ventilation are needed where minor storage quantities are exceeded.
2. Minor storage covers the medium danger packing group of goods where quantities are usually less than 1000 litres.
3. Companies involved in storing large amounts of agvet chemicals must maintain a manifest.
4. Liquid chemicals should be stored high above floor level to reduce the risk of breakage or spillage.
5. Flammable products should be segregated from non-flammable products by at least 2 metres.
6. A manifest can be used to guide the design and construction of agvet chemical storage areas on a site.
7. The floors in minor storage facilities should have a smooth finish for ease of cleaning.
8. Bunding is designed to contain above ground spillages and leaks and to help with clean-up operations.
9. Where gas cylinders are enclosed within buildings, the walls must be 30% open to ventilation.
10. In minor storages a clear space of 1 metre must be maintained between the topmost products and the roof and between the goods and the walls.
11. Earth and unsealed masonry are suitable as floors for minor storage areas.
Workplace Activity 3.4

Please complete this Workplace Activity.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. Describe four separate storage areas you have on your premises. For each one indicate whether these are minor or major storage areas by checking the box:

   a) ____________________________________________________________

       Minor  ☐  Major  ☐

   b) ____________________________________________________________

       Minor  ☐  Major  ☐

   c) ____________________________________________________________

       Minor  ☐  Major  ☐

   d) ____________________________________________________________

       Minor  ☐  Major  ☐

3. Where is your manifest for your workplace kept and who is responsible for keeping it up to date?

   Where? _______________________________________________________

   Who? _________________________________________________________

4. What systems and procedures does your workplace have to ensure segregation of agvet chemicals?

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________
5. Describe the spill containment systems used in the main storage areas in your workplace:

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

6. List 3 features that ensure good ventilation in the main storage areas in your workplace:

a)  _____________________________________________________________________________________ 
_____________________________________________________________________________________

b)  _____________________________________________________________________________________
_____________________________________________________________________________________

c)  _____________________________________________________________________________________
_____________________________________________________________________________________
Other storage considerations

When you have successfully completed this topic you will be able to:

• outline security features and practices in your premises
• observe safe storage practices for agvet chemicals
• recognise safety and security considerations for offices and amenity areas
• identify and locate safety features and equipment in your workplace.

5.1 Facilities

Security

Arson accounts for a large proportion of warehouse fires so securing agvet chemical stores or warehouses is essential.

Unauthorised entry to stores or warehouses should be prevented during work hours, by controlling entry to the premises and in off-duty hours by locking doors and windows. Many premises have also installed intruder alarms.

Where the wall of a store or warehouse forms a boundary wall, care must be taken to ensure that entry cannot be gained via ventilation openings, the roof or adjacent buildings. Offices, which form an integral part of the premises, may also provide a possible entry to the store. Attention should be paid to the security of such offices.

The site should be surrounded by a secure wall or fence and entry gates should be kept to a minimum. There should, however, be access from at least two sides in case of an emergency.

Doors must be securely locked at the end of the working day. However, emergency exit doors must be able to be readily opened from the inside at all times.

The gas cylinder storage area must be secured within the premise’s perimeter fence. If premises are not secured, a separate cylinder storage compound should be provided. This requires a 1.8m high fence and lockable gate which opens outwards.

Outdoor storage areas should be secured by a fence with two strands of barbed wire on top.
Transporting, handling and storing agvet chemicals

Drainage
The building should be on a site which minimises the risk of contaminated water reaching water courses, water reserves or the public drainage system.

Floor areas of all agvet chemical stores must be free from open drainage in order to prevent the uncontrolled release of contaminated fire-fighting water in the event of a fire.

Where stormwater draining from the roof needs to be channelled through the floor, the drain pipes must be securely sealed at the floor and protected from damage by vehicle or pallet movements. The storm water drainage system should be constructed so that it can be conveniently blocked.

Racks and shelves
Racks and shelves are commonly used for storing of smaller packages. All racks and shelves must be non-combustible, impervious and chemically resistant to the stored chemicals. They must also be used within their safe working loads (SWL). The modification of a pallet rack without engineering approval also can compromise the structure and alter the holding weight capability.

Metal racks or frame pallets allow better use of available height but need specialised forklift trucks to make the most of the floor space.

The choice between block stacking on pallets and the use of pallet racks is likely to be influenced primarily by cost considerations.

The advantages of racks over block storage are:
• more stable storage with less damage to the lower layer
• better stock control and easier rotation of stock
• ease of visual inspection and access to pallets
• efficient sprinkler systems can be installed close to the goods within the racks.

Safe working loads
There should be some means of ensuring that staff using the racking are aware of its SWL such as having one or more signs in conspicuous locations, such as at the end of all aisles, which contain the following information:

a. racking manufacturer’s name and trademark
b. safe working unit load
c. safe working unit load for each shelf beam level
d. safe working total unit load for each bay.
Pallet racking system have many advantages over block storage.

Damage to packs will be minimised and the risk of product spillage greatly reduced if products are stacked at the appropriate height as shown in the table below:

<table>
<thead>
<tr>
<th>Pack</th>
<th>Packs High Per Pallet</th>
<th>Pallet Loads High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel drums</td>
<td>2 *</td>
<td>4</td>
</tr>
<tr>
<td>Fibre drums</td>
<td>2 *</td>
<td>3</td>
</tr>
<tr>
<td>Plastic drums</td>
<td>2 *</td>
<td>2</td>
</tr>
<tr>
<td>Paper sacks</td>
<td>4-5</td>
<td>3</td>
</tr>
<tr>
<td>Plastic sacks</td>
<td>4-5</td>
<td>3</td>
</tr>
<tr>
<td>Fibre case containing tins</td>
<td>4-6</td>
<td>4</td>
</tr>
<tr>
<td>Fibre case containing soft packs</td>
<td>4-6</td>
<td>2</td>
</tr>
<tr>
<td>(eg. Plastic bottles)</td>
<td>4-6</td>
<td>2</td>
</tr>
<tr>
<td>Wooden cases</td>
<td>2-4</td>
<td>4</td>
</tr>
</tbody>
</table>

* This figure should be reduced to 1 for 200 litre drums or similar large drums and kegs.
Source: Agsafe Ltd

In some situations 4 pallets high may exceed the safe working limit of the bottom pallet, depending on the density of the stored product and the condition of the lower pallets. Stacking lower at the front and higher at the back is common practice when near walkways.

**Office and amenity accommodation**

Offices and amenities should be located away from the main body of a large store or warehouse.

Where there are such facilities within the premises they must be segregated from the storage area and the construction should be designed to provide at least one hour fire resistance. A means of exit other than via the storage area must be provided.
Heating facilities in offices and amenity rooms must be kept clear of combustible materials at all times. They must be properly maintained and of a suitable design. Gas or oil-fired heaters are not recommended, but electric heaters of the oil-filled or fan-assisted types are suitable.

Radiant electric heaters, on the other hand, are potentially more hazardous and should not be used. Time switches can be used in association with electric heaters to ensure that they are not left switched on after working hours. All heaters should be permanently installed, preferably wall-mounted, and the use of portable heaters should be positively discouraged.

Smoking should be restricted to designated areas which should contain appropriate means of disposing of cigarette butts. These should not be discarded into waste paper bins as they are a common source of fires.

Where food and drink are consumed on the premises, a clean area must be provided in the amenity room for this purpose.

Lockers should be installed to provide separate accommodation for outside clothes and working clothes and a clean cupboard or locker should be used to store personal protective equipment, including dust masks, respirators, gloves and eye protection equipment required for use in emergencies.

5.2 Other safety factors

Ignition sources
There should not be any sources of ignition in the bunded area (3 metres distance recommended) for flammable liquids or storage of flammable solids or oxidising substances.

Sources of ignition include electrical appliances, lights, power points, switches not approved for hazardous atmospheres, naked flames (including one-off welding) or oil or gas fired space heaters.

Electrical equipment needs to be kept to a minimum in storage areas with fuse boards installed outside the building.

Any heating of a store or warehouse should not impact directly on the stored products. Steam or hot water heating systems are recommended, while fan assisted electric heaters are acceptable. Gas or oil-fired portable hot air units must be avoided. Central heating units should be isolated from the storage area.

*Lockers can provide separate accommodation for outside clothes and working clothes and personal protective equipment.*
During the hours of operation, lighting must be sufficient to provide safe working conditions that provide clear visibility of all markings on packages, signs, instruments and other necessary items. However, stored products must be kept well clear of light fittings. Emergency lighting is not necessary, as emergency exits and escape routes can be identified by luminous paint, tape or luminescent signs.

**Emergency exits**

Exits, other than the main doors, must be available for emergencies to prevent anybody being trapped inside. If any person (even an intruder) is harmed because they are unable to exit a chemical store in an emergency, the premise’s owners are potentially liable.

**Safety showers and eyewash facilities**

Safety showers are for emergency use only and should not be confused with general washing facilities.

A safety shower and eye wash facility should be installed in an area that is quick and easy to access in case of an emergency. Such facilities should not be located inside the storage area. The water supply will need to be adequate for a minimum of 15 minutes of full water flow.

Safety showers and eyewashes must be checked regularly and should be insulated from extreme temperatures. They must be kept clear at all times to ensure unhindered access.

**Signage**

On the entry point there should be a sign stating:

“Chemical Store Keep Out – Authorised Staff Only”

“No smoking. No naked flames”

On the inside of the chemical store there should be signs stating “No Smoking” as well as one indicating the location of the “Spill Kit”. Other signs and placards used in storage area include Dangerous Goods symbols, PPE, combustible liquids, emergency exits and HAZCHEM.

**Personal Protective Equipment (PPE)**

Should be located near but not inside the chemical store, as this may lead to contamination of PPE. Any dirty equipment should be kept separate while waiting to be cleaned or disposed of. PPE needs to be appropriate to the chemical being used/stored. Information about appropriate PPE can be found on the chemical label and SDS.

Examples of PPE are overalls, rubber boots, elbow length rubber or PVC gloves, chemical goggles or face shield, PVC apron and suitable respirator. Charcoal filters must be regularly replaced and must be stored in a suitable air-tight container when not being used.
First aid kits

All workers must be able to access a first aid kit. This will require at least one first aid kit to be provided at their workplace.

The first aid kit should provide basic equipment for administering first aid for injuries including:
• cuts, scratches, punctures, grazes and splinters
• muscular sprains and strains
• minor burns
• amputations and/or major bleeding wounds
• broken bones
• eye injuries
• shock.

The contents of first aid kits should be based on a risk assessment of the workplace.

First aid kits can be any size, shape or type to suit your workplace, but each kit should:
• be large enough to contain all the necessary items
• be immediately identifiable with a white cross on green background that is prominently displayed on the outside
• contain a list of the contents for that kit
• be made of material that will protect the contents from dust, moisture and contamination.

In the event of a serious injury or illness, quick access to the kit is vital. First aid kits should be kept in a prominent, accessible location and be able to be retrieved promptly. First aid kits should be located close to areas where there is a higher risk of injury or illness. Emergency floor plans displayed in the workplace should include the location of first aid kits.

A person in the workplace should be nominated to maintain the first aid kit (usually a first aider) and should:
• monitor access to the first aid kit and ensure any items used are replaced as soon as practicable after use
• undertake regular checks (after each use or, if the kit is not used, at least once every 12 months) to ensure the kit contains a complete set of the required items (an inventory list in the kit should be signed and dated after each check)
• ensure that items are in good working order, have not deteriorated and are within their expiry dates and that sterile products are sealed and have not been tampered with.

(Source: safeworkaustralia.gov.au)

An appropriate first aid kit should be kept in a clean, easily accessible area.
Safety Data Sheets (SDS)

The SDS contains additional information about the chemical and details of the first aid requirements of a chemical. Current SDS must be obtained and held for all products found in the chemical store. SDS must be easy to access in case of an emergency.

Inventory of chemicals

A copy of the inventory must be kept separately from the storage area for emergency purposes. The inventory should be updated every 3 months, including quantity and trade names of chemicals.

Emergency plan

An emergency plan should be in place in case of a spill, fire, explosion, leak or other emergency. All staff should be fully trained for these scenarios and made aware of the procedures and the equipment to use in case of an emergency. Emergency contact numbers and assembly areas should be clearly signposted and known to all staff.

Emergency plans, or a summary of key elements of emergency plans, should be readily accessible by workers or on display in the workplace, for example on a notice board.

QUICK QUIZ 5

Indicate by checking the boxes whether these statements are true or false.

1. Outdoor storage areas should be secured by a fence with two strands of barbed wire on top.
2. Floors of chemical stores must be open to drains to allow the escape of water in cases of fire.
3. Oil-fired heaters are recommended for heating in offices adjoining chemical storage areas.
4. Steel drums can be stacked up to 4 pallet loads high.
5. Rack storage causes less damage to the lower layers than block storage.
6. Block storage provides for better stock control and easier rotation of stock.
7. Electric fuse boards should be installed on the outside of chemical storage structures.
8. Emergency contact numbers and assembly areas should be clearly signposted and known to all staff.
9. A safety shower and eye wash facility should be located within every chemical storage area.
10. Emergency exit doors in chemical storage areas must be able to be readily opened from the inside at all times.
11. Premises owners are not liable if an intruder is harmed when unable to exit a chemical store in an emergency.
Workplace Activity 3.5

Please complete this Workplace Activity.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. List 3 security features or practices used to dissuade intruders entering your workplace:
   a) _____________________________________________________________________________________
      _____________________________________________________________________________________
   b) _____________________________________________________________________________________
      _____________________________________________________________________________________
   c) _____________________________________________________________________________________
      _____________________________________________________________________________________

2. Outline how water runoff is prevented from entering drains or waterways from chemical storage areas in your workplace:
   ______________________________________________________________________________________
   ______________________________________________________________________________________

3. What type of rack or shelving system do you use in your storage areas?
   ______________________________________________________________________________________
   ______________________________________________________________________________________

4. What equipment do you use to assist in lifting or placing products on shelves/racks?
   ______________________________________________________________________________________
   ______________________________________________________________________________________
   ______________________________________________________________________________________

5. How are your company’s policies and procedures on safe stacking heights documented?
   ______________________________________________________________________________________
   ______________________________________________________________________________________
   ______________________________________________________________________________________
6. What types of heaters are used in the following areas?

Storage areas

__________________________________________________________________________________________

Offices

__________________________________________________________________________________________

Sales areas

__________________________________________________________________________________________

7. List the locations of the following in your workplace:

Safety showers/eyewash facilities

__________________________________________________________________________________________

__________________________________________________________________________________________

First aid kits

__________________________________________________________________________________________

__________________________________________________________________________________________

Spill kits

__________________________________________________________________________________________

__________________________________________________________________________________________

Fire extinguisher

__________________________________________________________________________________________

__________________________________________________________________________________________

PPE

__________________________________________________________________________________________

__________________________________________________________________________________________
Disposal of chemicals

When you have successfully completed this topic you will be able to:
• promote stewardship programs for the disposal of containers and agvet chemicals
• describe techniques for cleaning containers
• define record-keeping requirements for use and storage of agvet chemicals
• outline procedures for reporting spills or workplace injuries associated with agvet chemicals.

6.1 Waste Disposal

One of the greatest problems facing users of agvet chemicals is the disposal of empty containers and unwanted chemicals.

In recent years, a combined effort between farmers, manufacturers and local, state and federal government has meant that Australia leads the way with waste management initiatives for farm chemical users.

This resulted in the development of the Industry Waste Reduction Scheme (IWRS) which includes the drumMUSTER and ChemClear® Programs.

The Industry Waste Reduction Scheme

The IWRS was developed as a joint initiative by the National Farmers' Federation (NFF), together with the Australian Local Government Association (ALGA), CropLife Australia Limited, Animal Health Alliance (Australia) and the Veterinary Manufacturers and Distributors Association (VMDA).

The main aims of this scheme are to:
• reduce the amount of packaging by encouraging manufacturers to use bulk or refillable containers, water-soluble sachets and new formulations such as granules and gel packs
• ensure discarded containers are disposed of in an acceptable way
• provide a service for the environmental disposal of obsolete, unwanted and deregistered agvet chemicals.

drumMUSTER

The drumMUSTER program was introduced in 1999 to ensure discarded containers are disposed of in a socially, economically and environmentally acceptable way.

The scheme applies a $0.04 per litre or kilogram levy on participating manufacturers of eligible agvet chemicals sold in non-returnable chemical containers over 1 litre or 1 kilogram in content.

Payment of the levy must be passed on to the final consumer and each invoice from manufacturers or distributors should bear the inscription:
‘You have been charged four cents per litre/kilogram on all non-returnable containers which fall under the Industry Waste Reduction Scheme.’

Not all chemical manufacturers are participating in the scheme.

Chemical containers on which a levy has been charged should be labelled with the drumMUSTER eligible container logo:

![drumMUSTER eligible container logo](image)

*drumMUSTER ensures that discarded containers are disposed of in a socially, economically and environmentally acceptable way.*

The label can be placed on the container as a sticker, included on the product label or embossed into the container.

DrumMUSTER containers are collected and transported by an approved team of processors and delivered to materials recovery centres where they are recycled into items such as wheelie bins, fence posts and garden stakes.

**ChemClear®**

ChemClear® was implemented in 2003 as a national program to collect currently registered agvet chemicals at the end of their life cycle, or, when they become obsolete.

ChemClear® operates a booking system which accepts registrations of chemical waste. Collections occur when thresholds of registered chemicals are met across state or selected regions. Collections are undertaken at approved local government host sites.

ChemClear® will not accept agvet chemicals that are part of a return scheme by manufacturers, or a call back scheme between the Australian Pesticides and Veterinary Medicines Authority (APVMA) and manufacturers.

Group 1 chemicals are collected free of charge under the program. These chemicals are currently registered agvet chemicals manufactured by companies supporting the IWRS.

Group 2 chemicals are those chemicals that are no longer registered, unknown, unlabelled, out of date, or mixed AgVet chemicals. A fee applies for disposal unless a state government subsidy is in place.

Retail stores can access the ChemClear® program for the disposal of Group 1 classified chemicals up to 40L per year at no charge. Volumes greater then this can also be disposed for a fee. Quotations for disposal will be provided on registration.
Clients can be directed to use the website www.chemclear.com.au or the free call number 1800 008 182 to register their chemicals.

ChemClear® is a national program that collects and disposes of currently registered agvet chemicals.

6.2 Record-Keeping

While being a legal requirement to keep certain chemical use and storage records, records capture useful data that can be used to demonstrate that due care is taken when storing chemicals.

The types of records that stores need to keep include:
- product registers
- manifest
- hazard identification and controls
- site plan
- emergency plans
- poisons sales
- safety data sheets (SDS)
- staff induction & training information
- duty statements
- details of safety consultation with staff
- notification and licencing
- forklift licenses
- traffic management plans
- emergency plans
- first aid certificates.

Records should contain all the required information and should be clear, accurate and readily available to an authorised officer upon request.

Records are a valuable reference in case of incident or when an illness is reported. With good records, an enterprise can show that correct procedures have been developed and undertaken for the storage and transporting of chemicals.

When storing hazardous chemicals, enterprises must keep a SDS register for hazardous chemicals held in the store.
6.3 Incident Reports

If there is an incident involving a chemical spill, a chemical pollution event or a possible misuse of a chemical or pesticide, there is a 24-hour environment line in all states that can be contacted to report the incident.

Chemical incident reports should also be completed for spills or injuries.

**Reporting a spill**

The procedure for handling a spill is outlined in the SDS. The workers involved need to make a report detailing:

- the nature of the spill
- the steps taken to clean it up
- the waste storage
- the people affected by the spill.

This information can be recorded in the enterprise records under the above headings or on a sheet for the purpose. Depending on the size of the spill and the threat posed, you may be required to report the spill to the environment protection authority (EPA) in your state or territory.

**Reporting injury or poisoning**

These reports are used for the protection of workers handling the chemical in the future.

These reports should provide the following information:

- the people involved and the kind of poisoning
- the nature of the incident, including the chemical involved and the equipment used
- the people who witnessed the incident or who first came on the scene.

Serious workplace incidents need to be notified to work health and safety regulators. These ‘notifiable’ incidents include:

- the death of a person
- a serious injury or illness
- a dangerous incident arising out of work carried out by a business, undertaking or a workplace.

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

An employer must provide immediate notification of a ‘notifiable incident’ to the relevant work health and safety regulator after becoming aware of it. They may be asked to provide written notification with 48 hours and to preserve the incident site until an inspector arrives or directs otherwise.
Transporting, handling and storing agvet chemicals

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Regulator</th>
<th>Telephone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>WorkCover NSW</td>
<td>13 10 50</td>
<td>Website not applicable for notifications</td>
</tr>
<tr>
<td>Victoria</td>
<td>Victorian WorkCover Authority</td>
<td>1800 136 089</td>
<td>worksafe.vic.gov.au</td>
</tr>
<tr>
<td>Queensland</td>
<td>Workplace Health and Safety Qld</td>
<td>1300 369 915</td>
<td>worksafe.qld.gov.au</td>
</tr>
<tr>
<td>South Australia</td>
<td>SafeWork SA</td>
<td>1300 365 255</td>
<td>safework.sa.gov.au</td>
</tr>
<tr>
<td>Western Australia</td>
<td>WorkSafe WA</td>
<td>1300 307 877</td>
<td>worksafe.wa.gov.au</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>WorkSafe ACT</td>
<td>02 6207 3000</td>
<td>worksafety.act.gov.au</td>
</tr>
<tr>
<td>Tasmania</td>
<td>WorkSafe TAS</td>
<td>1300 366 322 (within Tasmania) 03 6233 7657 (external)</td>
<td>worksafe.tas.gov.au</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>NT WorkSafe</td>
<td>1800 019 115</td>
<td>worksafe.nt.gov.au</td>
</tr>
<tr>
<td>Commonwealth</td>
<td>Comcare</td>
<td>1300 366 979</td>
<td>comcare.gov.au</td>
</tr>
</tbody>
</table>

If you need to report a workplace incident contact the regulator in your jurisdiction.

**QUICK QUIZ 6**

Indicate by checking the boxes whether these statements are true or false.

<table>
<thead>
<tr>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
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<tr>
<td>6.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
</tr>
</tbody>
</table>
Workplace Activity 3.6
Please complete this Workplace Activity.

This sheet will need to be completed and brought to the Agsafe Workshop or used on the Agsafe Webinar.

1. What information is provided to customers in your store about drumMUSTER?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

2. What information is provided to customers in your store about ChemClear®?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

3. What records are kept in your store about chemicals that are held in storage?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

4. Who is responsible for keeping and updating these records?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

5. Where is the product register kept?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

6. Who has access to the product register?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

7. How often is the product register updated and checked against stored chemicals?

__________________________________________________________________________________________
__________________________________________________________________________________________
Transporting, handling and storing agvet chemicals

8. What are your workplace procedures for dealing with a chemical spill?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

9. What are your workplace’s policies and procedures for dealing with chemical injuries and poisonings?

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
Quick Quiz Answers

Quick Quiz 1:
1. T
2. F
3. T
4. T
5. F
6. F
7. T
8. F
9. T

Quick Quiz 2:
1. F
2. T
3. T
4. F
5. F
6. T
7. T
8. F
9. T
10. T
11. F

Quick Quiz 3:
1. F
2. T
3. T
4. F
5. T
6. F
7. T
8. F
9. T
10. F
11. T

Quick Quiz 4:
1. T
2. F
3. T
4. F
5. F
6. T
7. T
8. T
9. F
10. T

Quick Quiz 5:
1. T
2. F
3. F
4. T
5. T
6. F
7. T
8. T
9. F
10. T
11. F

Quick Quiz 6:
1. T
2. F
3. F
4. T
5. T
6. F
7. T
8. F
9. F
HOW TO COMPLETE YOUR AGSAFE MANIFEST

An individual manifest should be completed for each store (e.g. retail area, warehouse, bulk storage).

STEP 1 Using FORM A (Hazardous Chemical Register) photocopy and complete a separate hazardous chemical register for each store type/depot (e.g. retail area, mixed class warehouse, flammable store, Class 6 store, bulk storage, gas platform). Photocopy additional forms for each store if required.

STEP 2 List product (trade) names of all agricultural, veterinary, industrial and other chemicals (including fuel, gas, pool chlorine, paints, turpentine, methylated spirits) in each of the stores/depots. Refer to product label or Safety Data Sheet (SDS) to determine the UN number, dangerous goods class or combustibility if applicable, packing (or packaging) group, HAZCHEM code i.e. 2WE, 4WE etc., and schedule poisons classification.

Note: It helps to group products by Dangerous Goods Class. (Dangerous Goods can be identified as those having a Dangerous Goods Class diamond on the label). In the case of mixed class stores one form may be used if the total number of products will fit on the one form, otherwise photocopy and complete separate forms for each dangerous goods class. List the Class 6 sub-risk 3 and Class 3 sub-risk 6 separately.

Refer to the SDS for Packing (or Packaging) Group and note PG I, II, or III in the column marked PG*. These Groups (commonly used under Transport) are classified as PGI = great danger, PGII = medium danger or PGIII = minor danger. Most products are PGIII with the notable exceptions of Aluminium Phosphide (Phostoxin, Fumitoxin) which is PGI and Ivomec Pour-on for cattle which is PGII. Currently packing groups are not assigned to Class 2 (gases) and Class 9. All Aerosols are identified as Class 2 but should be listed separately on FORM B.

Refer to product label or SDS for HAZCHEM code and the product list eg. Kilval 3XE, Afugan 2WE, Fusilade 2Z. Note: 4WE Use of Dry Agent for fire or spillage control. Although you will be familiar with products of Class 4.3 Dangerous When Wet e.g. Fumitoxin and other aluminium phosphide products, which logically have a HAZCHEM Code of 4WE, there are other products of Class 6.1 (e.g. QUICKPHOS fumigation tablets) and Class 8 (e.g. SANITE dairy cleanser) which are also 4WE rated products.

Note in the column marked “Schedule S5, S6 or S7” the Schedule poisons classification for which the label may have one of the following signal warnings:

<table>
<thead>
<tr>
<th>OLD (no longer legal)</th>
<th>NEW TRANS-TASMAN LABELLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule 5 WARNING</td>
<td>CAUTION</td>
</tr>
<tr>
<td>Schedule 6 POISON (or CAUTION)</td>
<td>POISON</td>
</tr>
<tr>
<td>Schedule 7 DANGEROUS POISON (S7)</td>
<td>DANGEROUS POISON</td>
</tr>
</tbody>
</table>
STEP 3 Determine the maximum quantity likely to be stored at your premises at any one time of each for the products. Enter this in the column marked PEAK (L/Kg). If there are significant seasonal variations please make sure that the quantity indicated is the PEAK quantity at any one time e.g. if you store 3 pallets (approx 1920L) of Sprayseed (Class 6.1 PGIII) at any one time in Autumn/Winter only and 3 pallets (approx 1920L) of Gramoxone (Class 6.1 PGIII) in Spring at any one time only please note this on FORM A.

When adding together Class 6 PGIII for FORM B (Manifest) you only need to add one value of 1920L to the rest of your Class 6.1 PGIII total. Please note comments regarding seasonal variations if applicable on FORM A in the Peak quantity column. Note: Exceptionally high volumes kept in storage for transit e.g. depending on the individual state regulations, goods may be stored for a certain period of time and still be considered to be ‘in transit’.

STEP 4 After completing the product registers (FORM A) for each type of store as determined above, calculate the total for each Class of Dangerous Goods by Packing (or Packaging) Group; for Combustibles; and for Poison Schedules; and then transfer the information to FORM B (MANIFEST). FORM C MANIFEST Hazardous Chemicals (GHS) can be used for products that have been classified under the GHS system (introduced in 2012 and being phased in over 5 years). You will need to photocopy separate manifest forms (FORM B or FORM C) if you have separate storage areas (e.g. retail area, warehouse, bulk storage, gas platform) and calculate the totals for each area. Usually paints which have a red dangerous goods diamond on the can are classified as “manufactured product” and should be entered in the section marked MANUFACTURED PRODUCT (i.e. not in the Class 3 section).

STEP 5 The next step is to determine possible notification/licensing requirements. Storage factor (WA), calculate your requirement for SA licensing etc as relevant to your state Dangerous Goods regulations. Also check whether storage exceeds minor storage limits in Australia eg. Australian Standard AS 1940 (The Storage and Handling of Flammable and Combustible Liquids) and other relevant Australian Standards.
<table>
<thead>
<tr>
<th>Business Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store name or code:</td>
<td>Name of person completing document:</td>
</tr>
</tbody>
</table>

(Please prepare a separate register for each store/depot type e.g. retail area, mixed class warehouse, flammable store, bulk storage, gas platform.)

<table>
<thead>
<tr>
<th>Product Name (Trade Name)</th>
<th>UN No.</th>
<th>Class (eg 3, 6 or 8)</th>
<th>Sub Risk</th>
<th>PG* (I, II or III)</th>
<th>HAZCHEM code</th>
<th>C1 or C2**</th>
<th>Schedule S5, S6 or S7</th>
<th>Hazardous Chemical Y or N</th>
<th>Peak (L/Kg)</th>
<th>Maximum quantity stored at any one time during the year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: PG* = Packing (or Packaging) Group (I, II, III), C1 or C2** refers to combustible liquids (see Material Safety Data Sheet)
FORM B Peak Hazard Manifest

Business Name: ______________________ Date: ___________
Store name or code __________________ Your name: ___________

(Please prepare a separate manifest for each store/depot type e.g. retail area, mixed class warehouse, flammable store, bulk storage, gas platform.)

FORM B – MANIFEST
1. List of Maximum Quantities, at any one time, of Dangerous Goods/Schedule Poisons/Combustible Liquids stored on premises.
2. Retail/stores/depots must be on separate forms, and attached.
3. Consignment stock and stock kept for short periods exceeding transit i.e. 18 hours should be included.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>MAXIMUM QUANTITY IN kilograms/litres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PGI</td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td></td>
</tr>
<tr>
<td>(Sub-risk 6)</td>
<td></td>
</tr>
<tr>
<td>Flammable Solids</td>
<td></td>
</tr>
<tr>
<td>Spontaneously Combustible</td>
<td></td>
</tr>
<tr>
<td>Dangerous When Wet</td>
<td></td>
</tr>
<tr>
<td>Oxidising Substances</td>
<td></td>
</tr>
<tr>
<td>Organic Peroxide</td>
<td></td>
</tr>
<tr>
<td>Poisons (or Toxic)</td>
<td></td>
</tr>
<tr>
<td>(Sub-risk 3)</td>
<td></td>
</tr>
<tr>
<td>Corrosives</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>PG</td>
</tr>
</tbody>
</table>

Key:  PG* = Packing (or Packaging) Group (I, II, III)

COMBUSTIBLE LIQUIDS
(Refer to Material Safety Data Sheet (MSDS) to determine C1 or C2 classification)

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashpoint 61°C ≤ 150°C</td>
<td>flashpoint &gt;150°C</td>
</tr>
</tbody>
</table>

MANUFACTURED PRODUCT
e.g. paint with red diamond
(Manufactured product means dangerous goods of Class 3 PG II or III, which have properties e.g. solid content and viscosity, as defined in the ADG Code.)

Maximum quantity stored at any one time in Litres

SCHEDULE POISONS
(including those which are NOT Dangerous Goods)

| CAUTION | POISON |
| SCHEDULE 5 | SCHEDULE 6 |
| WARNING | DANGEROUS |

AEROSOLS
(in Litres)

Maximum quantity stored at any one time
**FORM C Peak Hazard Manifest – Hazardous Chemicals (GHS)**

**Business Name:** ______________________  **Date:** ______________________

**Store name or code** ______________________  **Your name:** ______________________

(Please prepare a separate manifest for each store/depot type eg. retail area, mixed class warehouse, flammable store, bulk storage, gas platform.)

**FORM B – MANIFEST**

1. List of Maximum Quantities, at any one time of Hazardous Chemicals stored on the premises
2. Consignment stock and stock kept for short periods exceeding transit i.e. 18 hours should be included.

<table>
<thead>
<tr>
<th>HAZARD CLASS</th>
<th>MAXIMUM QUANTITY IN kilograms/litres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Category 1</td>
</tr>
<tr>
<td>Flammable Gases</td>
<td></td>
</tr>
<tr>
<td>Gases under pressure with acute toxicity</td>
<td></td>
</tr>
<tr>
<td>Note—Category 4 only up to LC50 of 5000 ppmV</td>
<td></td>
</tr>
<tr>
<td>Gases under pressure with skin corrosion categories 1A, 1B or 1C</td>
<td>A</td>
</tr>
<tr>
<td>Gases under pressure-aerosols</td>
<td></td>
</tr>
<tr>
<td>Gases under pressure not otherwise specified on this table</td>
<td></td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td></td>
</tr>
<tr>
<td>Flammable Liquids with acute toxicity</td>
<td></td>
</tr>
<tr>
<td>Flammable Solids</td>
<td></td>
</tr>
<tr>
<td>Self reactive substances</td>
<td>TYPE A</td>
</tr>
<tr>
<td>Substances which in contact with water emit flammable gas</td>
<td></td>
</tr>
<tr>
<td>Oxidising liquids and solids</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity</td>
<td></td>
</tr>
<tr>
<td>Skin corrosion</td>
<td>A</td>
</tr>
<tr>
<td>Corrosive to metals</td>
<td></td>
</tr>
<tr>
<td>Other chemical products not specified above eg environmentally hazardous, paint, non hazardous chemicals in the same bund etc:</td>
<td></td>
</tr>
</tbody>
</table>
Sample format for an emergency services manifest as described by Safe Work Australia (previously NOHSC and ASCC):

<table>
<thead>
<tr>
<th>HAZARDOUS SUBSTANCE CLASS AND GENERIC DESCRIPTOR</th>
<th>PACKING GROUP</th>
<th>PRODUCT NAME</th>
<th>UN NUMBER</th>
<th>MAXIMUM QUANTITY</th>
<th>LOCATION WITHIN STORE</th>
<th>SUBSIDIARY RISK</th>
<th>TOTAL QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PG I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PG II &amp; PG III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Congratulations!

The completion of this Agsafe learning guide and workplace activities will assist you to gain Agsafe Accreditation.

To achieve Agsafe Accreditation, you will need to complete the following:

• Agsafe Module 1 *Workplace health and safety with agvet chemicals*
• Agsafe Module 2 *Providing information on agvet chemicals*
• Agsafe Module 3 *Transporting, handling and storing agvet chemicals*
• Attendance at an Agsafe Workshop or Webinar.

One you have completed all three Agsafe learning guides, please contact the Agsafe office to enrol in an Agsafe Workshop or Webinar.