



Dangerous goods waste – safe storage and handling of dangerous goods in the waste industry

In many cases, hazardous waste will also be classified as dangerous goods (dangerous goods waste). The key difference between hazardous chemicals and dangerous goods is that dangerous goods are classified according to their immediate hazards and associated risks, which includes fire, explosion, corrosion and poisoning that can affect property, the environment or people. On the other hand, hazardous chemicals are classified based on their immediate or prolonged effect on a person's health.

Sound dangerous goods waste management practices are essential for safe operations within the waste industry and this involves understanding and assessing the risks presented from dangerous goods waste.

How is dangerous goods waste regulated?

Dangerous goods waste is primarily administered and managed by the Department of Mines, Industry Regulation and Safety under the *Dangerous Goods Safety Act 2004* and relevant regulations.

Consider your specific scenario when looking to achieve compliance. Note that the requirements of the *Occupational Safety and Health Act 1984*, the *Environmental Protection Act 1986*, and subsidiary legislation, will also apply.

Furthermore, any licensing requirements for dangerous goods waste are separate to licensing requirements set by the Department of Water and Environmental Regulation (e.g. Controlled Waste Licence).

Identify the waste

Prior to receiving, storing or handling dangerous goods waste, always ensure it is correctly identified and classified. Proper identification will alert workers and others about the hazards and potential risks.

Dangerous goods waste may include solvents, paints, or adhesives that are typically Class 3 flammable liquids.

Most herbicides and pesticides commonly used in the agricultural industry are classified as toxic (Division 6.1) or corrosive (Class 8) substances.

Ways to identify the waste include:

- seeking information about the product from the waste producer or consignor
- obtaining safety data sheets (SDS) for all waste and/or original products
- having samples of waste product identified via laboratory testing – refer to the Australian Dangerous Goods Code for product classification.

Know the quantity

The quantity of dangerous goods held on any business site may change regularly. Gauging the quantity of the waste on site is necessary because holding specific quantities may be subject to different regulatory requirements.

There are three levels of quantity: minor (small quantity), placard and manifest.

Refer to Schedule 1 of the Dangerous Goods Safety (Storage and handling of non-explosives) Regulations 2007 for more information.

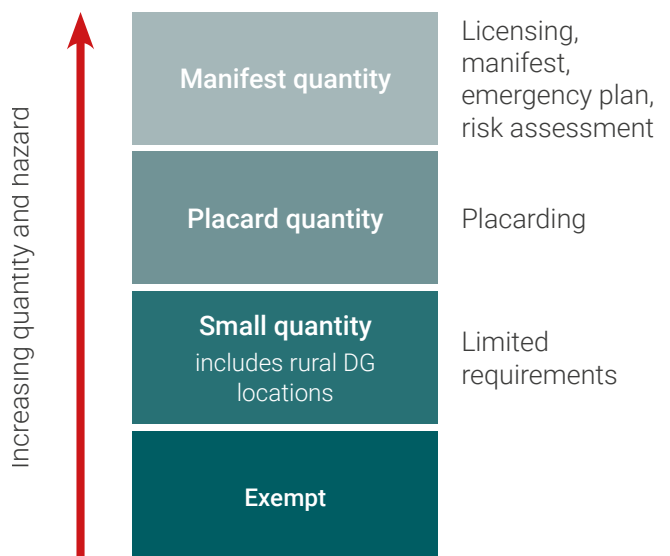


Figure 1 Schematic showing storage and handling regulatory regime

Unless otherwise exempt (see regulation 25), a site must be licensed if dangerous goods are stored or handled at the site in quantities that exceed the manifest quantities.

For example, a licence is required for the storage of six Class 8 Corrosives IBCs (6000L) and twenty Class 3 Flammable liquid drums (4000L).

Table 1 Extract from Schedule 1 table – Example of the manifest and placard thresholds for mixed classes of dangerous goods waste

Description of dangerous goods	Packaging group	Placarding quantity	Manifest quantity
Any one of Class 3, Division 5.1 or 5.2, Division 6.1, Class 8 or Class 9, or any combination of those classes of Divisions	I	50 kg or L	500 kg or L
	II and III (aggregate)	1,000 kg or L	10,000 kg or L
	I, II and III (aggregate) where quantity of goods in packing group I does not exceed 50 kg or L	1,000 kg or L	10,000 kg or L

For amounts above the placard quantity, safety requirements such as placarding, segregation, spill containment, management of ignition sources, housekeeping, fire protection etc. are applicable.

Placarding and labelling

Placards and labels inform employees, visitors and emergency services of the types of dangerous goods at a site.

For sites storing above placard quantities, the following measures apply:

- a HAZCHEM sign is to be affixed on every entrance to the site
- all dangerous goods storage areas must be correctly signposted with the relevant class label (i.e. class diamonds)
- all packaging containing dangerous goods waste must be labelled with the relevant class label.

Containers must be properly cleaned prior to removing its labels. In cases where containers are not properly cleaned or contain residue they are deemed as being 'full'. These 'full' containers must be labelled properly and will contribute to the total quantity of dangerous goods waste inventory.



Figure 2 Sample outer warning placard







Figure 3 Examples of dangerous goods class diamonds

Segregate incompatibles

Dangerous goods must be segregated correctly to avoid possible hazardous reactions that can result in the release of heat and toxic gases.

Some chemicals may belong to the same dangerous goods class or division but still can react dangerously when mixed together.

Examples of dangerous goods to segregate

Segregate		
Flammable liquids, e.g. paints, solvents, fuel	from	Flammable gases, e.g. BBQ cylinders, acetylene, aerosols Oxidising agents, e.g. hypochlorite Corrosive substances, e.g. acids, alkalis and batteries
		
		
		






Segregate		
Acids, e.g. hydrochloric and sulphuric 	from	Bases/alkali, e.g. caustic substances Liquid chlorine solution (bleach) 
Pool chlorine, e.g. solid calcium hypochlorite 	from	Acids, e.g. hydrochloric Oils and fuels  



Figure 4 Metal (conductive) pipe for transfer of flammable liquids sufficiently long enough to avoid splashing and generation of static electricity

Decanting and transferring

Decanting and transferring of dangerous goods waste are considered to be high risk. Depending on the type of dangerous goods, decanting or other transfer operations can create a hazardous environment susceptible to fires, explosions and toxic releases.

Key considerations for the safe transfer and decanting of dangerous goods waste are:

- always decant away from offices, crib rooms and neighbouring properties and businesses
- ensure sufficient ventilation to avoid the creation of hazardous atmospheres
- provide fire protection in proximity of the decanting area
- manage ignition sources especially when handling flammable gases and liquids:
 - check if equipment is adequately earthed and bonded during flammable liquid transfer
 - use fit-for-purpose equipment for transfers or decanting, e.g. flameproof forklift, pumps certified to operate in hazardous areas
 - identify and isolate ignition sources, e.g. power switches, cooling fans, or radios in proximity of the decanting area – see Table 2
 - avoid splash filling (free fall of liquid) by bottom filling via an earthed conductive fill pipe, which will also help to dissipate static charge on the liquid.

Table 2 Examples of ignition sources

Type of ignition source	Examples
Flames	Welding flames, gas heaters, pilot lights, cigarettes, matches.
Sparks	Welding arcs, cigarette lighters and telephones Static electricity including from friction sources Lightning Friction from drilling, grinding, scraping of metal on concrete.
Electrical Wiring	Starters for fluorescent lighting, electric motors, electrical equipment like power points and switches.
Heat	Hot surfaces including light bulbs, ovens, radiators or heaters, flue pipes, vehicle engines and exhaust systems, pumps and generators Heat generating chemical reactions.

Good housekeeping is essential

Keep combustible materials such as rags, cardboard boxes, and wooden planks more than 3 metres away from dangerous goods. Decluttering of the site can improve stock management, prevent segregation problems and allows for quick access to firefighting equipment in case of emergency.

Training and supervision

All workers must be aware of the hazards associated with dangerous goods waste. This is achieved through appropriate training, instruction and supervision. Dangerous goods training can be done in-house or alternatively by a registered training organisation (RTO).



Did you know?

If disposed lithium batteries are damaged, short circuited or overheated, they can catch fire or explode.

The 3S's of lithium battery safety

- **Separate** lithium batteries from other batteries and any flammable or combustible materials
- **Secure** battery terminals with tape or other insulating material to prevent short circuits
- **Store** batteries in fire resistant containers and in cool dry location away from sources of heat

Useful resources

Dangerous Goods Safety Act 2004

https://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_242_homepage.html

Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007

https://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_2770_homepage.html

Guidance about hazardous chemicals

<https://www.dmp.wa.gov.au/Safety/Guidance-about-hazardous-6930.aspx>

Licensing and exemptions for storage and handling – guidance note

https://www.dmp.wa.gov.au/Documents/Dangerous-Goods/DGS_GN_LicensingAndExemptionsStorageAndHandling.pdf

Overview of dangerous goods storage and handling regulations – information sheet

https://www.dmp.wa.gov.au/Documents/Dangerous-Goods/DGS_IS_OverviewOfStorageAndHandlingRegulations.pdf

Dangerous goods storage and handling regulations 2007 – guide

http://www.dmp.wa.gov.au/Documents/Dangerous-Goods/DGS_G_SH_Regs.pdf

WA dangerous goods accredited consultants list

http://www.dmp.wa.gov.au/Documents/Dangerous-Goods/DGS_IS_AccreditedConsultantList.pdf

Australian Dangerous Goods Code

<https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code>

Waste and recycling industry – checklist

https://www.commerce.wa.gov.au/sites/default/files/atoms/files/waste_and_recycling_2019.pdf