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- SPEAKER VIEW: if you could please switch your screen to SPEAKER VIEW. To do this, take your mouse and hover over your screen and to the top RIGHT corner of your screen please click SPEAKER VIEW.
- MORNING TEA: Morning Tea will be at 11.30am for 20 min
- The Webinar will conclude at 1.30pm and will follow with Q&A for 15 minutes for those participants that have further queries of our presenter
- QUESTIONS: This is an interactive Webinar and you are encouraged to please ask any questions that you may have of our presenter, Ross. To ask a Question, please hover over your screen with your mouse and click on the UNMUTE button. Once you have asked your question, please click MUTE – to avoid any background noise from entering the Webinar. You may also hold down your space bar to ask your question and release it after you have asked your question. Ross and the AEBN team will be here to assist you.

THANK YOU!

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

AEBN SERIES 2: Dangerous Goods and Hazardous Substances Workshop Webinar

5 April 2023

Presented by

Australian Environment Business Network (AEBN)

www.aebn.com.au

Zoom Tips!

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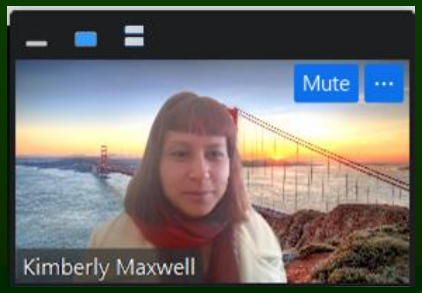
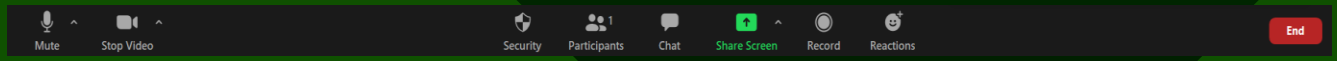
Full screen mode

Recommended speaker view





AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Agenda

- Refresher – Intro to Dangerous Goods (DG)
- Storage and Handling
- Road and Rail Transport

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Legislative Framework

- MODEL ACT FOR THE TRANSPORT OF DANGEROUS GOODS BY ROAD AND RAIL 2007
- MODEL SUBORDINATE LAW FOR THE TRANSPORT OF DANGEROUS GOODS BY ROAD AND RAIL
- Australian Dangerous Goods Code (ADG7.7)
- IMDG CODE (SEA TRANSPORT)
- IATA REGULATIONS (AIR TRANSPORT)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

LEGISLATIVE FRAMEWORK - VICTORIA

- DANGEROUS GOODS ACT 1985
- DANGEROUS GOODS (STORAGE AND HANDLING) REGULATIONS 2022
- DANGEROUS GOODS (TRANSPORT BY ROAD OR RAIL) REGULATIONS 2018

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Hazardous Substances

- Hazardous Chemicals regulated in nationally harmonised Work Health & Safety (WHS) laws:
  - ACT, NSW, NT, QLD, SA, TAS, WA, Commonwealth
- In VIC, Hazardous Substances are regulated under existing OHS laws:
  - WA has adopted modified WHS laws, but Dangerous Goods remain outside
- National review of WHS laws in 2019
- GHS edition 7 mandatory as of 1-Jan-2023 after 2-year transition (replacing edition 3)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Safe Work Australia

Australian Government statutory body –

- Responsibility for improving work health and safety and workers' compensation arrangements across Australia
- Safe Work Australia is not a regulator, no regulatory powers

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Transport of Dangerous Goods

- Not covered by the Work Health & Safety (WHS) regulations for hazardous chemicals
- These remain covered by transport laws and the Australian Dangerous Goods (ADG) Code, as implemented in each state.
  - Administered by National Transport Commission (NTC)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Hazardous Substances

- Hazardous substances (VIC) are those that, following worker exposure, can have an adverse effect on health.
  - Examples include poisons, substances that cause burns or skin and eye irritation, and substances that may cause cancer.
  - Many hazardous substances are also classified as dangerous goods.
  - In other states, WHS Regulations refer to Hazardous Chemicals instead of Hazardous Substances

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Safety Data Sheet (SDS)

- A **Safety Data Sheet** (SDS) is a technical bulletin containing detailed information about a hazardous substance.
  - Formerly known as a **Material** Safety Data Sheet (MSDS)
- An SDS must comply with VIC OHS Regulation 145
  - = WHS Regulations Part 7.1 Division 2
- The hazard identification for the substance must be determined in accordance with the GHS.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

GHS

- Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- Internationally recognised system for the classification of chemicals
- Developed by a United Nations (UN) committee

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Australian Dangerous Goods Code Edition 7.7 (ADG7.7)

- ADG7 replaced ADG6 from 2007
- ADG7.7 adopted from 1 October 2020, mandatory from 1 October 2021
  - Based on UN21

- ADG 7.8, based on UN22, adopted for use from 1 April 2023.
  - Mandatory from 1 October 2023.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

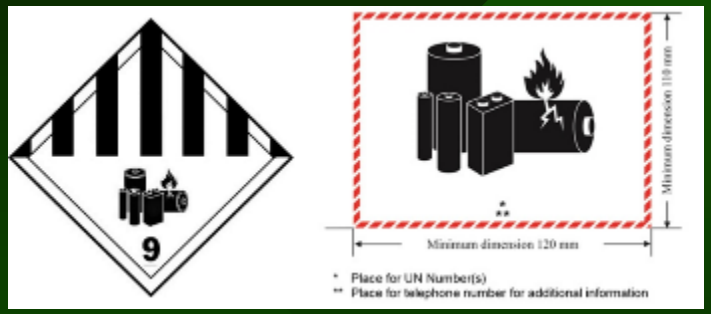
Objectives

- To be able to identify and be aware of the hazards of Dangerous Goods
- To make the Storage and Handling of Dangerous Goods safer

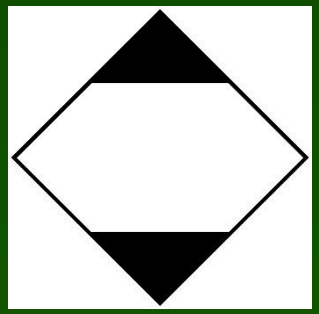
AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Changes in ADG7.5

- New lithium battery mark



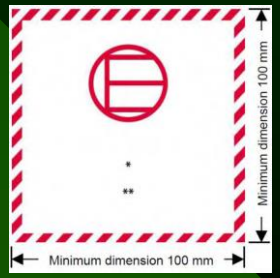
- “Retail Distribution Load” replaced by “Concessional Limited Quantities”



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Changes in ADG7.6

- “Subsidiary Hazard” replaced the term Subsidiary Risk
- Minor classification changes
- New UN Numbers
- Inclusion of “Excepted Quantities” (column 7b) in Table 3.2.3 Dangerous Goods List



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Changes in ADG7.7

- Simplified Limited Quantity requirements
- Amended special provisions and packing instructions for automotive battery transport

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Changes in ADG7.8

- Not as significant as previous versions
- Updated table of exempted consignments to the UN Model Regulations and the ADG Code.
  - Exempts very small quantities of DGs from the code's provisions.
  - Aligns with limited quantity concessions for dangerous goods and Lithium batteries.
- Other provisions affecting containers and packaging.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Dangerous Goods in the Workplace

- Under VIC DG (Storage & Handling) Regulations
- Equivalent obligations in:
  - WHS Regulations (all states except VIC & WA): Schedule 11 hazardous chemicals
  - WA Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations

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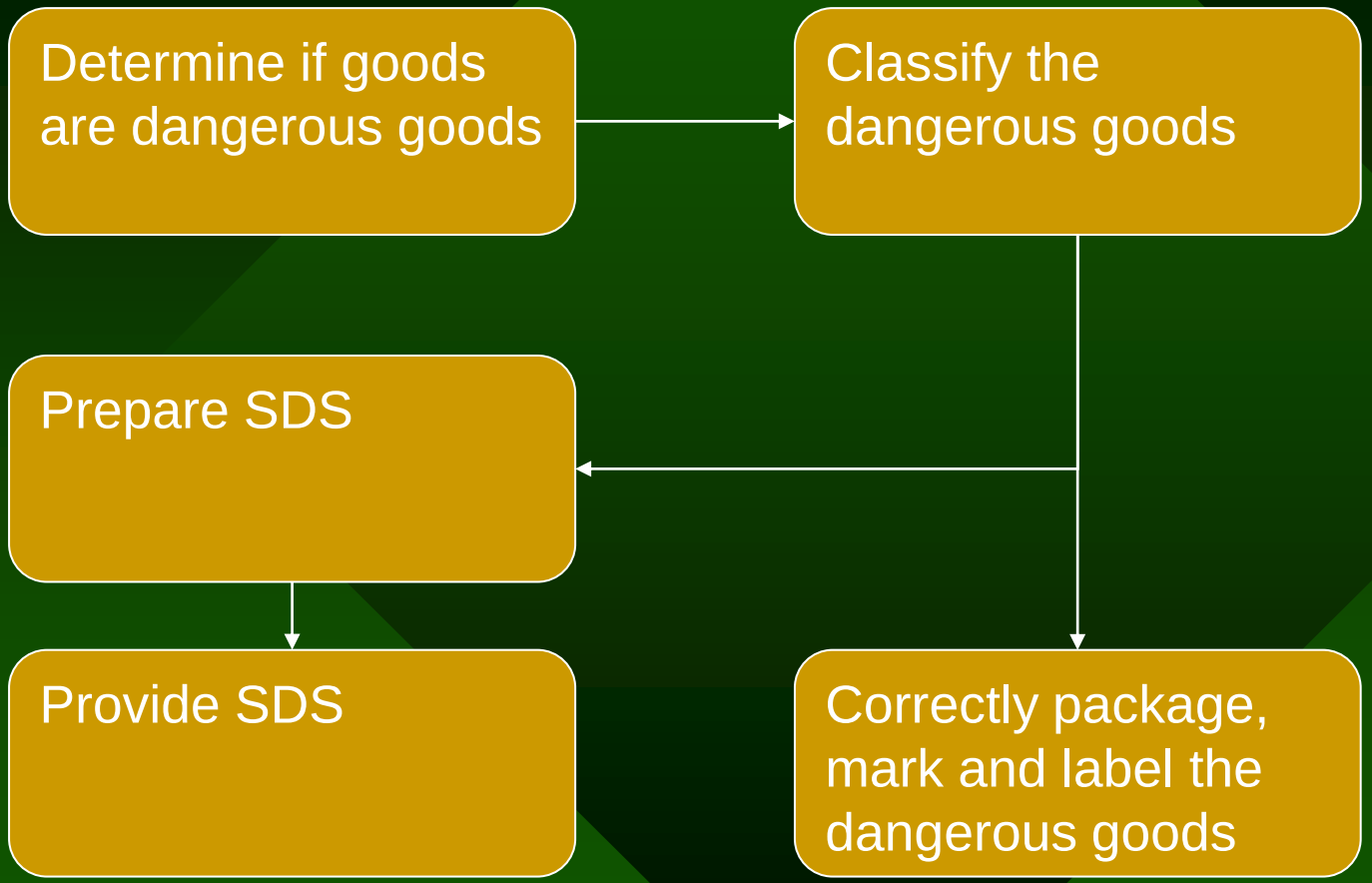
Duties of manufacturers and suppliers



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Duties of Occupier (or PCBU)

- Consultation
- Induction & training
- Obtain SDSs
- DG Register
- Safety signage / placarding
- Packaging & marking
- Hazard identification & risk control
- Stability
- Isolation / Segregation
- Bunding
- Transfer
- Ignition sources
- Security
- Emergency planning / Incident response
- Fire protection

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Dangerous Goods Register

- Required for all Dangerous Goods Locations
- List of product names of all Hazardous Substances in the workplace, including Dangerous Goods and combustible liquids,
- Accompanied by the current SDS
- Can (should!) be combined with Hazardous Substance Register

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

DG & Hazardous Substance Register

Supplier	Product	Issue Date	Expiry Date	Eye Hazard	Skin Hazard	Inhalation	Ingestion	DG Class
BOC Gases	Acetylene	19/08/2021	19/08/2026	No	No	No	No	**2.2 Non-Flammable Non-Toxic Gas**
BOC Gases	Argoshield Light	19/08/2021	19/08/2026	No	No	No	No	**2.2 Non-Flammable Non-Toxic Gas**
BOC Gases	Oxygen, Compressed	19/08/2021	19/08/2026	No	No	No	No	**2.2 Non-Flammable Non-Toxic Gas**
bp	Automotive Diesel Fuel	8/06/2019	7/06/2024	**Yes**	**Yes**	**Yes**	**Yes**	No
bp	Regular Unleaded Petrol	26/05/2021	26/05/2026	**Yes**	**Yes**	**Yes**	**Yes**	**3 Flammable Liquid**
Castrol	Activ 2T	15/12/2022	15/12/2027	No	No	No	No	**Combustible Liquid**
Castrol	GTX 20W-5	10/03/2023	9/03/2028	No	No	No	No	No
Cement Australia	Blended Cement	24/03/2023	23/03/2028	No	No	No	No	No

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Threshold Quantities (Victoria)

- Three thresholds are defined in the Dangerous Goods (Storage and Handling) Regulations
  - Placarding Quantity
  - Manifest Quantity
  - Fire Protection Quantity
- The quantities are given in Schedule 2 of the Regulations

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Schedule 2 (extract)

Dangerous Goods (Storage and Handling) Regulations 2022
S.R. No. 115/2022

Schedule 2—Quantities of dangerous goods

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*
Item	*Description of Dangerous Goods*	*Packing Group*	*Placarding Quantity*	*Manifest Quantity*	*Fire Protection Quantity*
		II	250 kg or L	2500 kg or L	10 000 kg or L
		III	1000 kg or L	10 000 kg or L	20 000 kg or L
		Mixed Packing Groups in a single UN Class with the quantity of each Packing Group below the specified quantity for the Packing Group.	1000 kg or L	10 000 kg or L	20 000 kg or L

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Threshold Quantities – WHS States

- Categories based on GHS physical hazards, largely aligned with DG classes
- Thresholds are slightly different
  - Placarding Quantity
  - Manifest Quantity
  - There is no Fire Protection Quantity
- The quantities are given in Schedule 11 of the WHS Regulations

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

WHS Regs Schedule 11 (extract)

Schedule 11—Placard and manifest quantities

(regulations 347 to 350, 361, 390 and 391)

10		Category 4	10 000 L	10 0000 L
11	Self-reactive substances	Type A	5 kg or 5 L	50 kg or 50 L
12		Type B	50 kg or 50 L	500 kg or 500 L
13		Type C to F	250 kg or 250 L	2 500 kg or 2 500 L
14	Flammable solids	Category 1	250 kg	2 500 kg
15		Category 2	1 000 kg	10 000 kg
16		Any combination of chemicals from Items 12 to 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1 000 kg or 1 000 L	10 000 kg or 10 000 L
17	Pyrophoric liquids and pyrophoric solids	Category 1	50 kg or 50 L	500 kg or 500 L
18	Self-heating substances and mixtures	Category 1	250 kg or 250 L	2 500 kg or 2 500 L

Source: Commonwealth Work Health and Safety Regulations 2011, Schedule 11

Threshold Quantities – WA

- Quantities are as per Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations, Schedule 1:
  - Placarding Quantity
  - Manifest Quantity
  - 10 x DG manifest quantity requires DFES Emergency Response Guide (except petrol stations and mine sites).
- Continues under WA WHS legislation.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Threshold Quantities – WA
(Schedule 1)

Table

Item	Description of dangerous goods	Packing group	Placarding quantity	Manifest quantity
1.	Division 2.1 except aerosols	N/A	500 L	5 000 L
2.	Division 2.2 except aerosols	N/A	1 000 L	10 000 L
3.	Division 2.3	N/A	50 L	500 L
4.	Division 2.1 and 2.2 aerosols	N/A	5 000 L	10 000 L
5.	Any one of Class 3, Division 4.1, 4.2 or 4.3, Division 5.1 or 5.2, Division 6.1, Class 8 or Class 9, or any combination of those classes or 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
6.	Goods too dangerous to transport	N/A	5 kg or L	50 kg or L

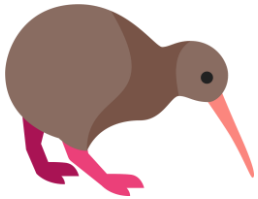
Source: WA Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007, Schedule 1 — Quantities of dangerous goods

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

NZ HSW (HS) Regs

Schedule 3

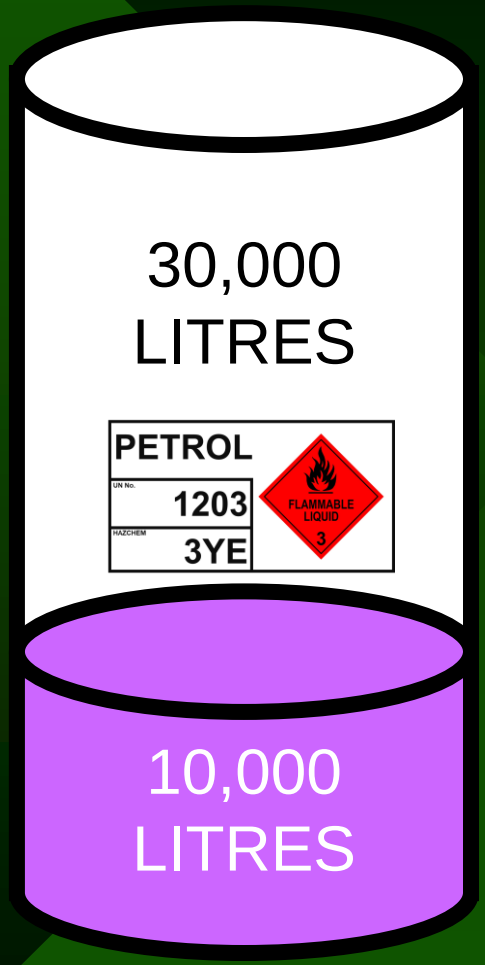
Quantities of hazardous substances that require signage

Hazard classification	Description	Quantity
1	Fireworks subject to the Hazardous Substances (Fireworks) Regulations 2001	1 000 kg (gross weight)
	Safety ammunition, including pre-primed cartridges and primers, of class 1.4S	10 000 kg (gross weight)
	Airbag initiators and seatbelt pretensioners of classes 1.4G and 1.4S	5 000 kg (gross weight)
	Cable cutters of class 1.4S (UN 0070)	5 000 kg (gross weight)
	Power device cartridges of class 1.4S (UN 0323)	5 000 kg (gross weight)
	Signal or shock tubes of class 1.4S (UN 0349)	5 000 kg (gross weight)
	Cassette degradation devices of class 1.4S (UN 0432)	5 000 kg (gross weight)
	Propellants of class 1.1C (UN 0160) and 1.3C (UN 0161 and UN 0499), gun-powder of class 1.1D (UN 0027), and substances of classes 1.3G, 1.4G, and 1.4S not listed above	50 kg
	All remaining explosive hazardous classifications	Any quantity
2.1.1A	Non-permanent gas	250 kg
	Permanent gas	100 m^3
2.1.1B	Non-permanent gas	500 kg
	Permanent gas	200 m^3
2.1.2A	Aerosol	3 000 L aggregate water capacity
3.1A, 3.2A, 4.1.3A, 4.2A, 4.3A	Liquid	50 L
	Solid	50 kg
(HRC000003, HSR000073, HSR001442) petrol, E10	Liquid	250 L

- Schedule 4 Quantities of hazardous substances that require fire extinguishers
- Schedule 5 Threshold quantities for emergency response plan

Quantity Measurement Bulk

- Non liquid – the mass (kgs) the container is designed to hold
- Liquid – the design capacity of the container in litres
  - In example: 30,000 litres
- Gas – total capacity of the container
- Solids not in container – undivided mass in kgs



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

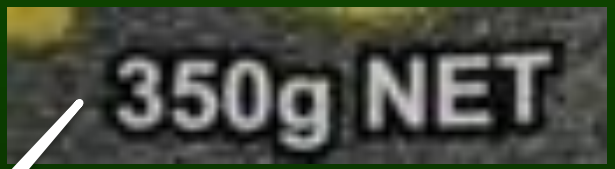
Quantity Measurement Packaged

- Non liquid – net mass (kgs) in container
- Liquid – net capacity of the container
- Gas – Total capacity of the container

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Quantity Measurement - Articles

- The net quantity of that part of the article that is Dangerous Goods



12 x 350 g
= 4,200 g
= 4.2 Kg

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Minor Storage

- Quantities less than the placarding quantity
  - Note: There may be several minor quantity stores on a site.

- Ensure containers are properly labelled
- Maintain Register and SDSs
- Provide suitable PPE
- Ensure adequate segregation
- Ensure suitable spill management
- Provide training
- Provide security
- Manage waste disposal

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placard Quantities

- Placard site and storage facilities
- Identify hazards
- Perform risk assessment
- Take risk control measures
  - Storage and handling
  - Transfer
  - Segregation
  - Ignition sources
  - Spill control
  - Ventilation

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

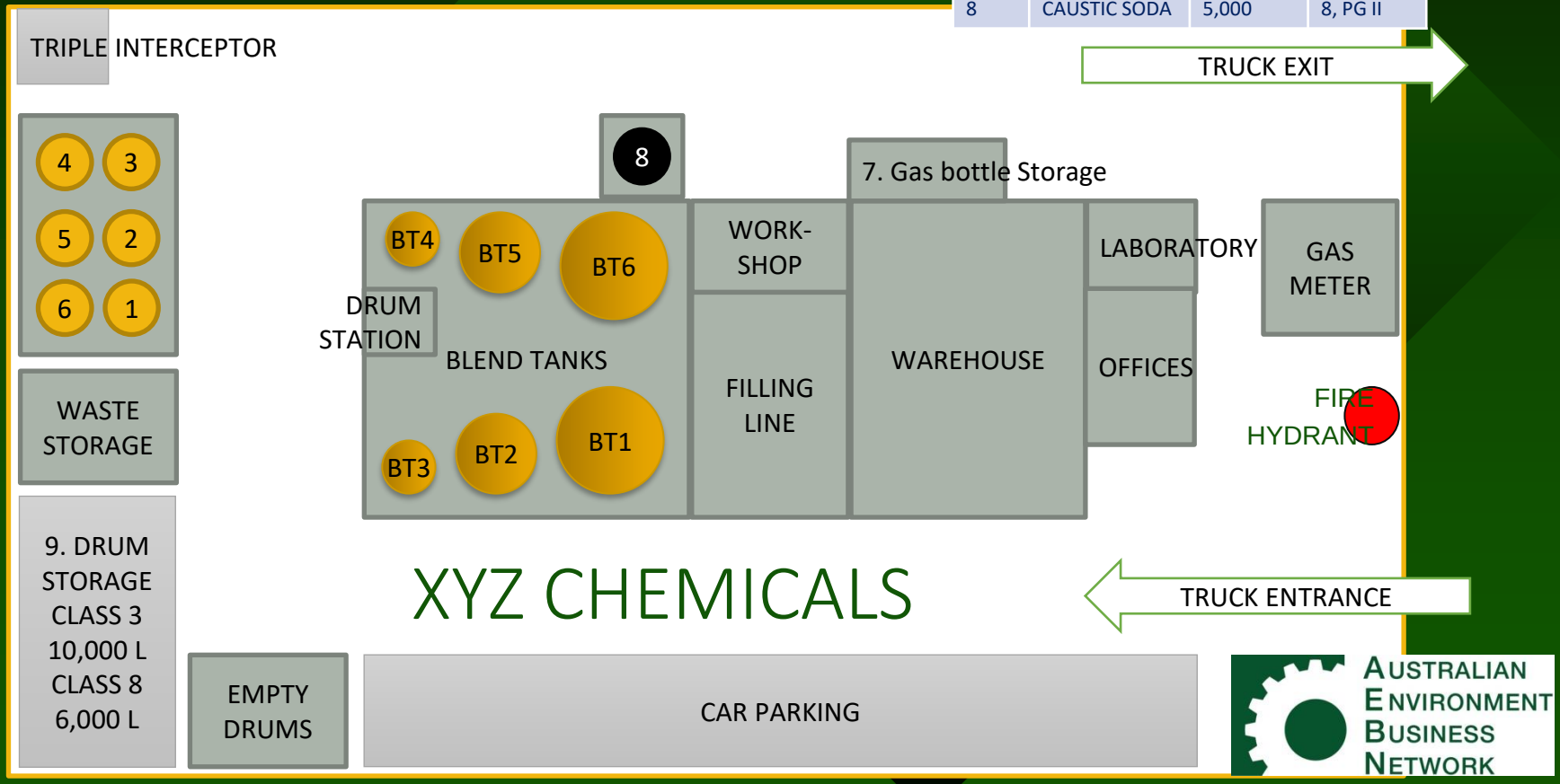
Manifest Quantity

1. Notification to workplace safety regulator
   - VIC requires 2-yearly update to WorkSafe (changed from 5-yearly on 1 July 2021)
   - Licence required in SA, WA
   - See regulator websites in other States
2. Prepare Manifest
   – Shows location of storage facilities and quantities in each store
3. Prepare written Emergency Plan
   – (Approved by Fire Authority – VIC)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Dangerous Goods Manifest

TANK	PRODUCT	VOL. (L)	DG CLASS
1	MEK	10,000	3, PG II
2	WHITE SPIRIT	20,000	3, PG III
3	WASTE OIL	20,000	C2
4	HEATING OIL	30,000	C1
5	BASE OIL 150	55,000	C2
6	BASE OIL 460	55,000	C2`
8	CAUSTIC SODA	5,000	8, PG II



Fire Protection Quantity (VIC only)

- Obtain written report from Fire Brigade re adequacy of fire protection services

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

DFES Emergency Response Guides (FES-ERGs – WA only)

- Required at sites that store or handle more than 10 x manifest quantity (except petrol stations and mine sites).
- Designed to provide essential information to the Department of Fire and Emergency Services (DFES) for use in an emergency at larger dangerous goods sites.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Segregation

- Segregation of chemicals in a warehouse, is of critical importance to the manager and the operator.
- Principally achieved by Class
- Sub-hazards must also be considered when determining segregation

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

- **Some interactions can be violent.**
  Nitric Acid (Class 8 - Corrosive/Class 5.1 Oxidising Agent) + Ethanol (Class 3 - Flammable Liquid)
  will lead to an *explosion* with the liberation of fumes of nitrous oxide, acetaldehyde and formaldehyde.

- **Some interactions can liberate very poisonous gases.**
  Hydrochloric Acid (Class 8 - Corrosive) +
  Sodium Cyanide (Class 6.1 - Poison)
  will liberate extremely poisonous Hydrogen Cyanide.

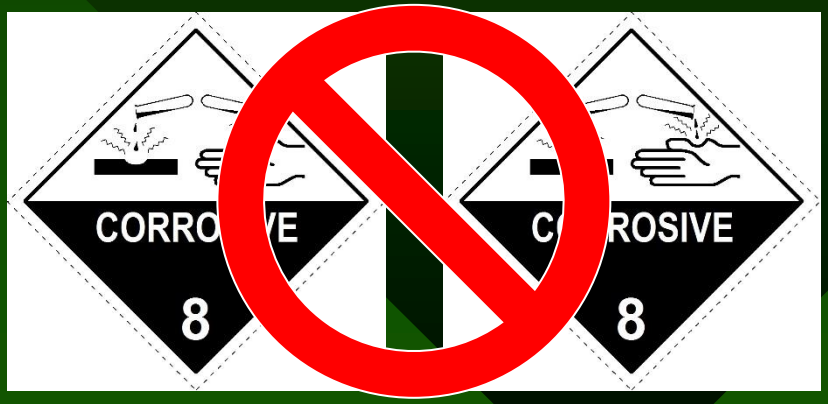
- **Some interactions can liberate heat and acid fumes.**
  Sulphuric Acid (Class 8 - Corrosive) +
  Sodium Hydroxide (Class 8 - Corrosive)
  will liberate much heat and fumes.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Segregation

- Flammables
- Oxidisers

- Corrosives – Acids
- Corrosives – Alkalis



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Segregation

- See Appendix 2 of the Code of practice for the storage and handling of dangerous goods (VIC)

CLASS	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	8	9
2.1	A	E	C	B	B	D	B	D	D	C	B	B
2.2	E	A	B	E	E	E	E	B	E	B	B	B
2.3	C	B	A	C	C	C	C	C	C	B	B	B
3	B	E	C	A	B	D	B	D	D	C	B	B
4.1	B	E	C	B	A	D	B	D	D	C	B	B
4.2	D	E	C	D	D	A	B	D	D	C	B	B
4.3	B	E	C	B	B	B	A	D	D	C	D	B

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

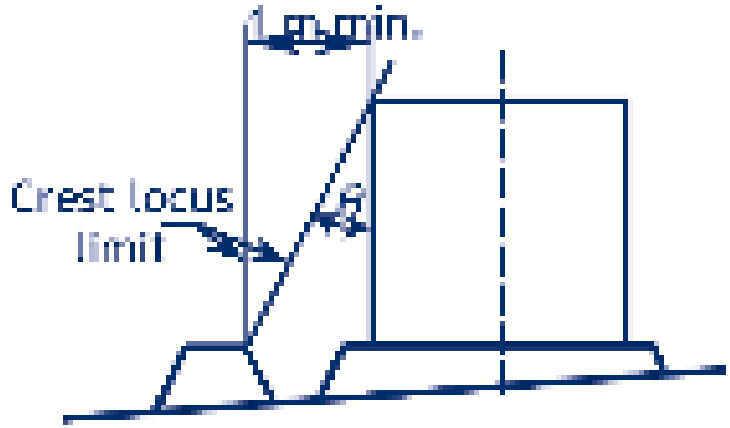
Bunding – Package Storage

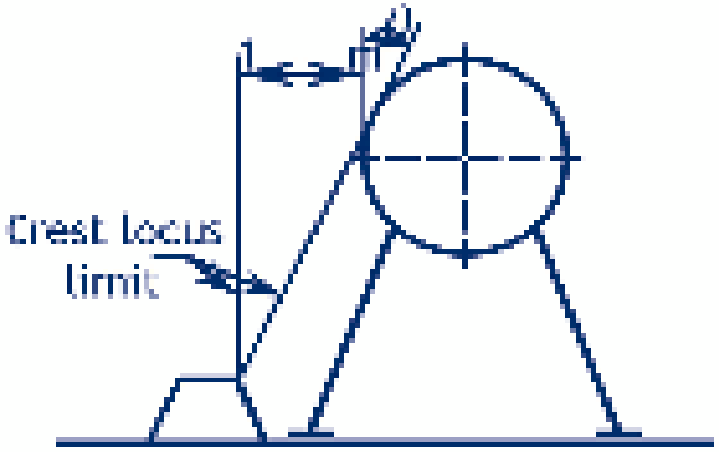
- The capacity of the spillage containment compound shall be at least 100% of the volume of the largest package, plus 25% of the storage capacity up to 10 000 L, together with 10% of the storage capacity between 10 000 L and 100 000 L, and 5% above 100 000 L.
  - Source: AS 1940:2017, part 4.4.3(d) Spillage containment

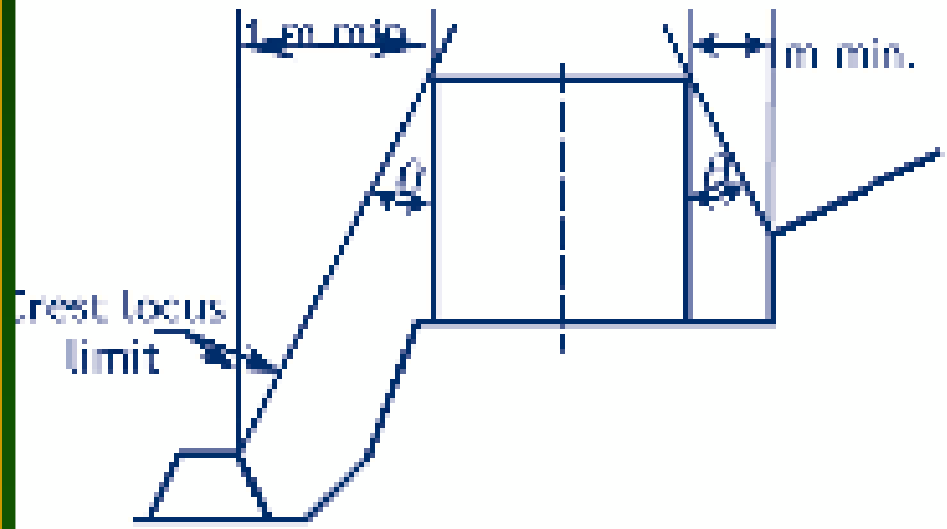
NOTE: Allowance must also be made for fire and storm water if appropriate

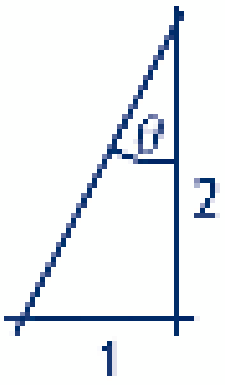
AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Bunding – Bulk Storage









Tan θ = 0.5

Determination of angle θ

Other matters to consider

- Transit storage
- Site plan
- Hazmat box and its location

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding for Storage

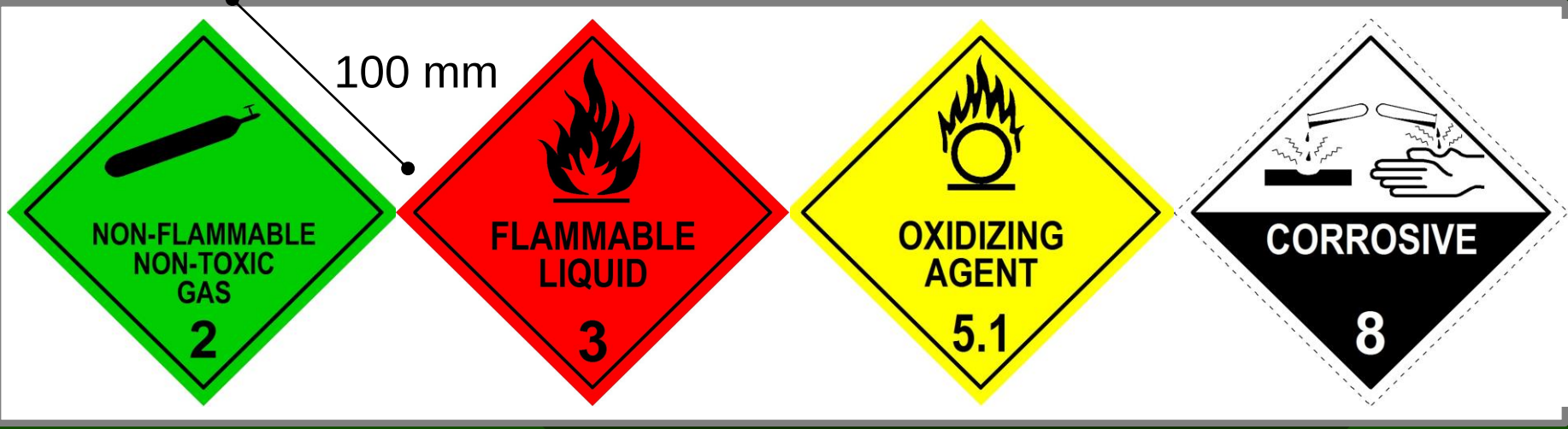
- There are four ‘types’ of placard under the Dangerous Good Regulations – these are:
  - Outer warning placards
  - Information placards for stated Dangerous Goods in tanks
  - Information placards for stated Dangerous Goods in Packages; and
  - Information placards for stated combustible liquids in tanks or packages

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Outer Warning Placard

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Package Store Placard



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Bulk Tank Placard

AMMONIA, ANHYDROUS

50 mm

50 mm

UN No.

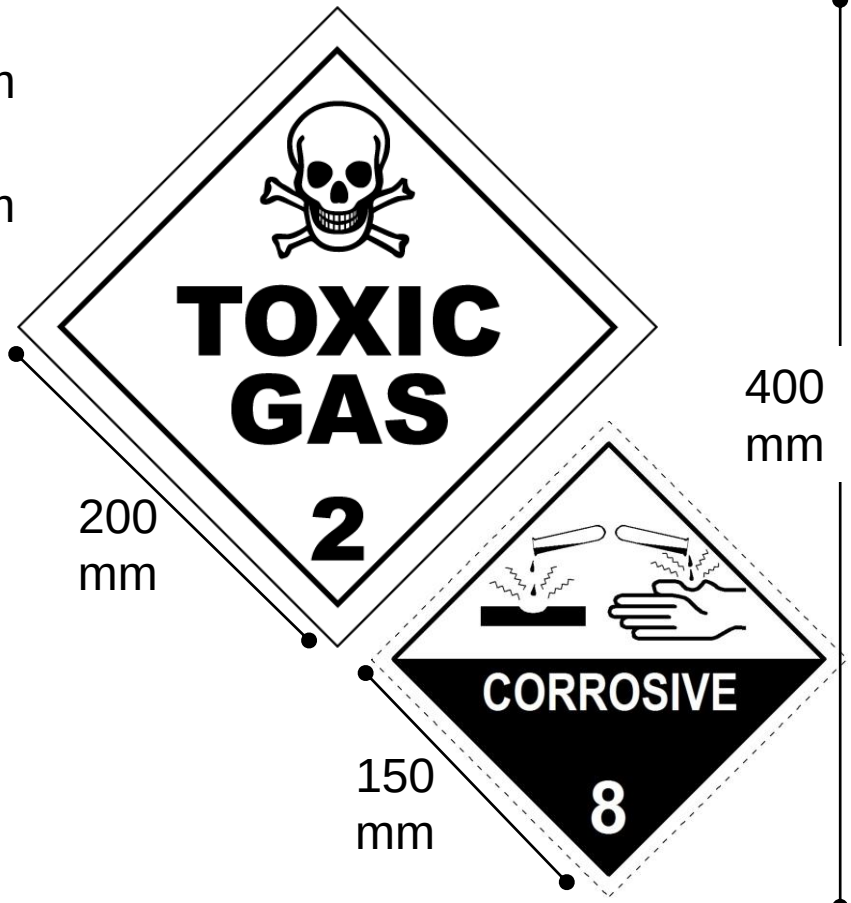
100 mm

1005

HAZCHEM

100 mm

2RE



400 mm

200 mm

150 mm

800 mm

Combustible Liquid Placard
(GHS: Flammable Liquid Category 4)

- Placard quantity is 10,000 litres
- Applies to diesel fuel storage (above-ground only)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

New Zealand Signage Format

HAZCHEM

IN CASE OF FIRE
CALL 111 – ASK
FOR FIRE
DEPARTMENT

IN CASE OF
SPILL CALL
AUCKLAND
CITY COUNCIL
POLLUTION
HOTLINE
09 377 3107

COMBUSTIBLE LIQUID
KEEP AWAY FROM IGNITION
SOURCES – NO SMOKING
TOXIC TO AQUATIC LIFE
CONTAIN SPILLS, PROTECT WATERWAYS

>10,000L BULK DIESEL

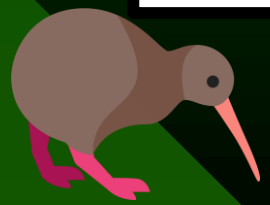
HAZCHEM

IN EMERGENCY
DIAL 111, FIRE,
POLICE OR
AMBULANCE

For urgent medical
advice: National
Poisons Centre
Dial 0800 POISON
(0800 764 766)

TOXIC TO AQUATIC LIFE
CONTAIN SPILLS, PROTECT WATERWAYS

1,000L - <10,000L BULK DIESEL



AUSTRALIAN
ENVIRONMENT
BUSINESS
NETWORK

Segregation Exercise

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Road and Rail Transport

- Packaging
- Placard loads
- EIPs
- Limited and Excepted Quantities
- Shipping documentation
- Bulk transfer

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

ADG uses container based approach

- Large packagings
  - Capacity ≤3 m^3, containing
    i. articles or inner packaging with net mass >400 kg, or
    ii. total capacities >450 L
- Bulk containers (solids, >1 m^3 capacity)
- Portable tanks (>450 L)
- IBCs (Intermediate Bulk Containers, ≤3,000 L)
- Tank vehicles
- Multiple element gas containers (MEGCs)
- Gas cylinders
- Pressure drums

MEGCs

Aggregate Quantity

- The total of
  a) the number of kilograms of:
     i. solid dangerous goods; and
     ii. articles (including aerosols); and
  b) the number of litres or kilograms, whichever is used in the transport documentation to describe the goods, of liquid dangerous goods; and
  c) the total capacity in litres of receptacles containing dangerous goods of Class 2 (except aerosols).

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Limited & Excepted Quantities

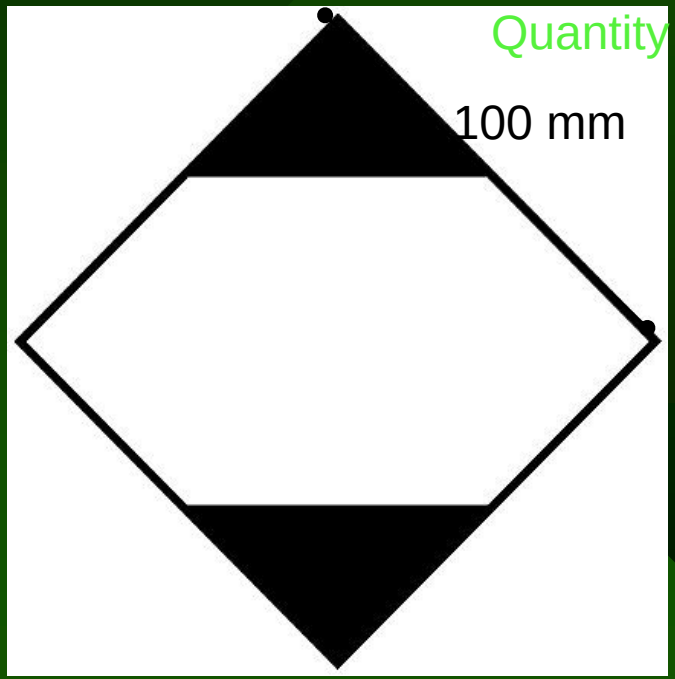
- The ADG has adopted rules for transport of Dangerous Goods in limited quantities without vehicle placarding, licensing and other controls
  - Chapter 3.4: “the transport of certain small quantities of dangerous goods may be conditionally exempt from the Regulations and this Code”.
  - Chapter 3.5 “Excepted quantities of dangerous goods of certain classes, other than articles, meeting the provisions of this Chapter are not subject to any other provisions of this Code”.
- Specific provisions apply to inner, intermediate and outer packaging, and to segregation

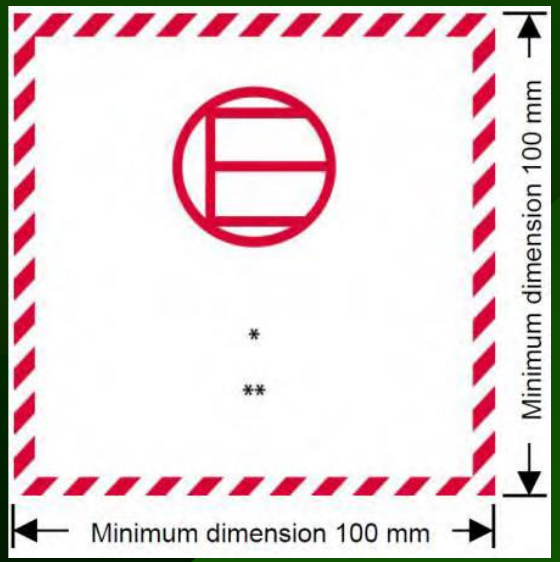
AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Limited & Excepted Quantities

- Limited Quantities are listed in Column 7a of Table 3.2.3
- Excepted quantities are in Table 3.2.3 column 7b

Limited Quantity mark





Excepted Quantity mark

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Limited & Excepted Quantities

Table 3.2.3: Dangerous Goods List

UN No. (1)	Name and Description (2)	Class or Division (3)	Subsidiary Hazard (4)	Packing Group (5)	Special Provisions (6)	Limited Quantities (7a)	Excepted Quantities (7b)	Packagings & IBCs: Packing Instruction (8)	Packagings & IBCs: Special Packing (9)	Portable Tanks & Bulk Containers: Instructions (10)	Portable Tanks & Bulk Containers: Special Provisions (11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1942	AMMONIUM NITRATE, with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance.	5.1		III	306	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1944	MATCHES, SAFETY (book, card or strike on box)	4.1		III	293 294	5 kg	E1	P407			
1945	MATCHES, WAX "VESTA"	4.1		III	293 294	5 kg	E1	P407			
1950	AEROSOLS	2			63 190 277 327 344	See SP 277	E0	P207 LP200	PP87 L2		
										T75	TP5
1955	COMPRESSED GAS, TOXIC, N.O.S.	2.3			274	0	E0	P200			

277 For aerosols or receptacles containing toxic substances the limited quantity value is 120 ml. For all other aerosols or receptacles the limited quantity value is 1000 ml.

Limited & Excepted Quantities & Concessional Limited Quantities

- In 2017 ADG7.5 replaced Retail Distribution Loads with Concessional Limited Quantities (CLQ), including domestic consumables dangerous goods, requirements.
- In 2018 ADG7.6 introduced Mixed Packet (Lower Risk) Dangerous Goods provisions, and Personal Care Products in consumer packaging provisions.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

ADG7.7 simplifies Limited Quantity requirements further

- LQ sub-categories removed:
  - Concessional Limited Quantity
  - Mixed Packet (Lower Risk) Dangerous Goods
  - Personal Care Products in Consumer Packaging.
- DG Transport Documentation no longer required
  - Documentation to state load "**Contains Dangerous Goods Packed in Limited Quantities**".
- Placarding requirements also change.

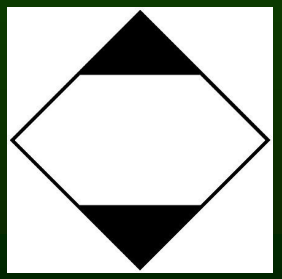
AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Domestic Consumable DGs

- LQ segregation, overpack and documentation concessions extend to Domestic Consumable DGs that are packed and intended for retail distribution, which are defined as including:
  - party poppers;
  - sparklers and bon-bons (UN0337),
  - domestic smoke detectors (UN 2911),
  - lighters and lighter refills (UN1057) or
  - portable fire extinguishers with compressed or liquefied gas up to 23kg gross weight (UN 1044).
- See LQ guidance document in webinar attachments.

Placard load – LQ or DC

- A load that contains Limited quantity and / or domestic consumable DGs that :
  - **Includes** aggregate quantity of **any 1** UN number from a single place of consignment:
    - **≥ 2,000 L or Kg**
  - **Does not include** aggregate quantity of any 1 UN number from a single place of consignment:
    - **≥ 8,000 L or Kg**
  - See ADG 7.7 Table 5.3.2



- If consigning a mixed load of LQ/DC and fully regulated DC, see ADG 7.7 Table 5.3, NOTE 5, or p. 14-15 of NTC Guidance document, Consigning and transporting dangerous goods packed in limited quantities.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Overpacks

- **A**n enclosure containing one or more Dangerous Goods packages – e.g.:
  - pallet secured by shrink wrapping or similar,
  - protective outer packaging such as a crate.
- The word “OVERPACK” should be displayed in lettering at least 12 mm high.
  - NOT required if the overpack is intended only for transport by road or rail within Australia.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Overpacks

- Packages in an overpack must be secured to minimise damage during transport.
- Incompatible dangerous goods must not be transported together in an overpack, unless limited quantity provisions are met.
- Overpack must be labelled with proper shipping name, UN number and marks for all DGs,
  - OR
- With the Limited Quantity mark.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Overpacks

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Intermediate packaging

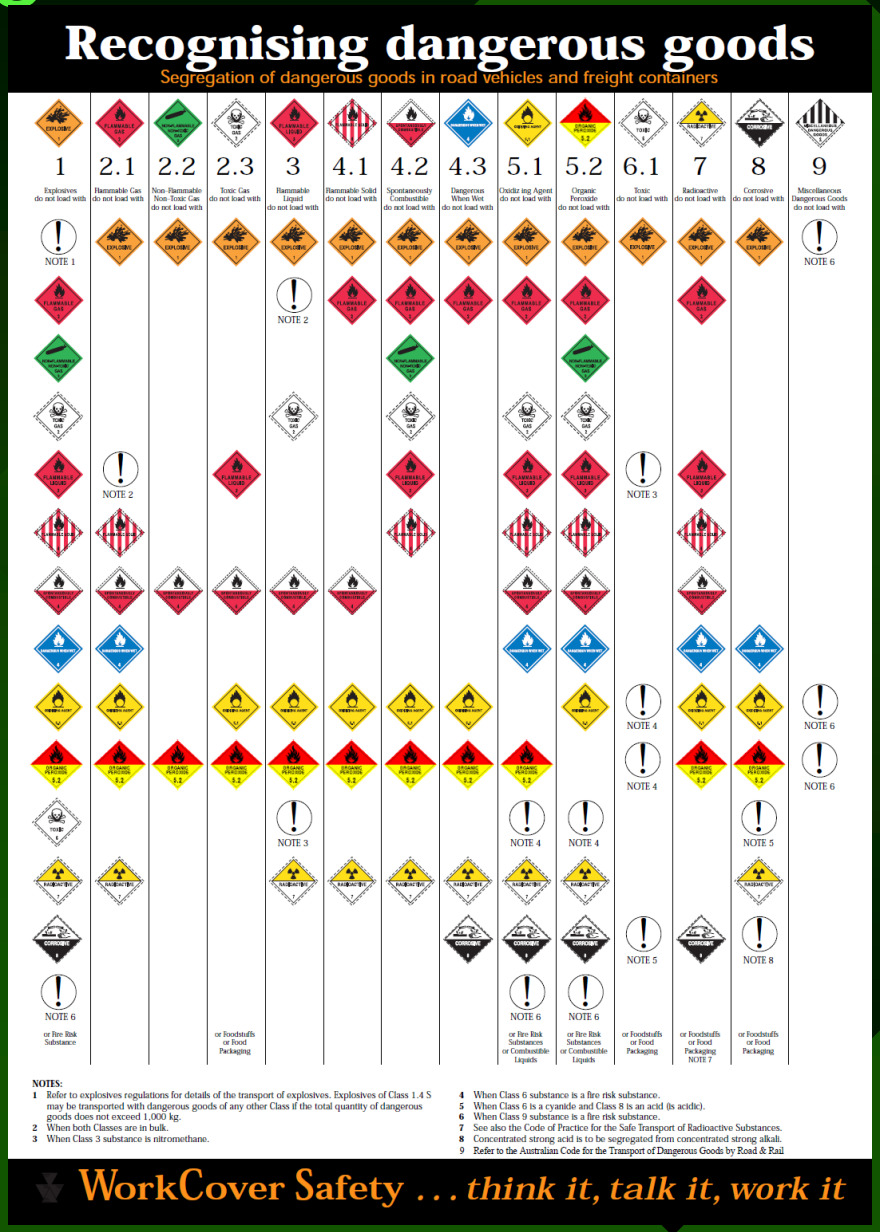
- Compulsory for limited quantities …
  - … of class 8, PGII in glass, porcelain or stoneware
  - … in inner packagings that are liable to break or be easily punctured, e.g. glass, porcelain, stoneware or certain plastics.
    - ADG7.7 clause 3.4.2.3
- Absorbent material required for liquids

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Intermediate packaging

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Segregation in Placarded Loads



Licencing

- A DG driver's licence AND a DG vehicle licence are required to transport DGs:
  - In a receptacle with capacity > 500 L or KG
  - A licence is not required to transport DGs in IBCs with a total capacity > 3,000 L that are not packed or unpacked on the vehicle.

Placard load (other than LQ/DC)

- Dangerous goods in a receptacle with a capacity of >500 L or Kg, OR
- Aggregate quantity of DGs of ≥250 L or Kg that includes —
  - Division 2.1 Flammable Gases (except aerosols), OR
  - Division 2.3 Toxic Gases; OR
  - Dangerous goods in any class of Packing Group I, OR
- Division 6.2
  - Class A – all quantities
  - Other classes – ≥ 10 KG/L, OR
- Aggregate quantity of DGs (other than LQ) of ≥1,000 L or Kg

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding of Package Vehicles

- A vehicle carrying a Placard Load must be placarded with:
  - If one Class:
    - A Class Label (and sub-hazard if applicable) at the FRONT & REAR
  - If more than one Class:
    - Mixed Class Label
      - OR
    - all Individual Class Labels
- Non-placard loads may be placarded

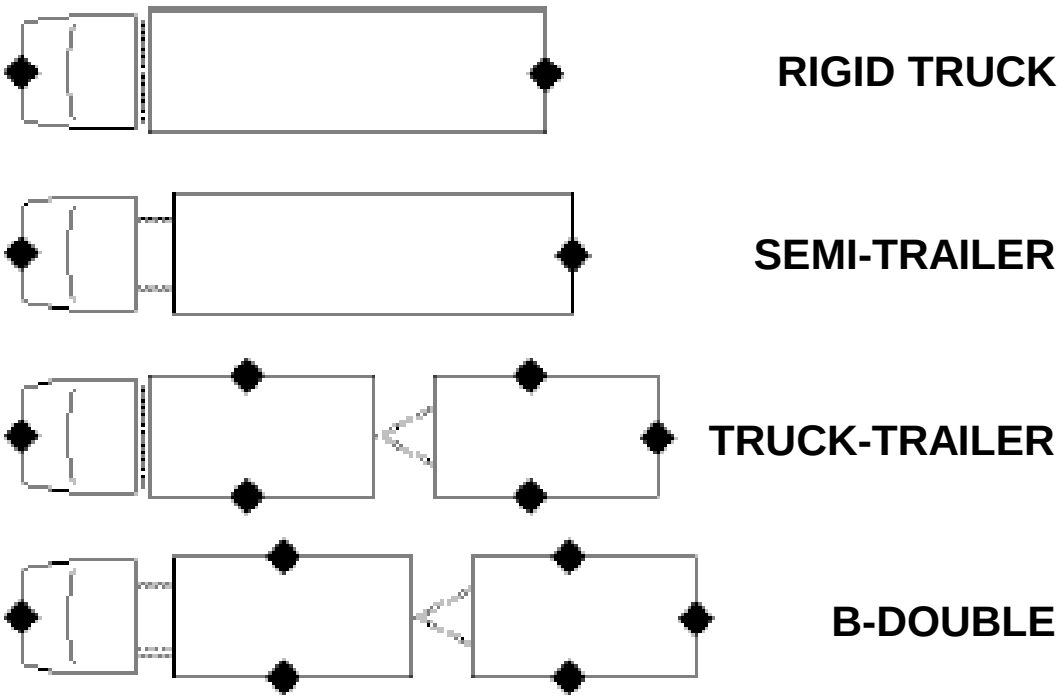
AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Vehicle Placarding – Packaged DGs

Figure 5.3.6(a): Road vehicles and combination road vehicles transporting dangerous goods in:

(i) cylinders, packages, large packages, overpacks; or

(ii) pressure drums, tubes or IBCs each ≤ 500 kg(L).



AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding of Bulk Vehicles

- Rule 1:
  - All vehicles carrying Bulk Dangerous Goods must be placarded
- Rule 2:
  - The placards must be clearly visible at all times during transport

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarded Bulk Vehicles

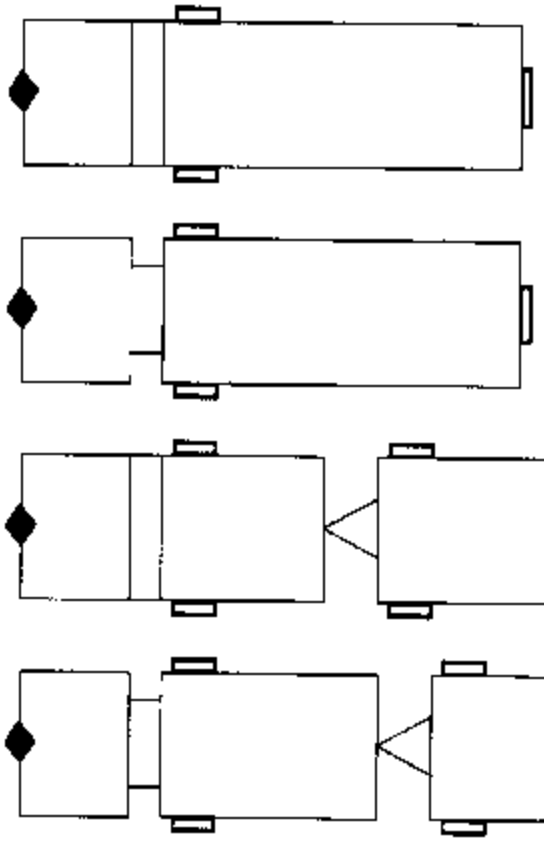
Bulk Dangerous Goods

- Front of the vehicle
  - Class label (and sub-hazard if applicable)
  - If more than one class,
    - The mixed Class Label, or
    - Individual Class Labels
- Both sides and the rear
  - Emergency information panels - either;
    - Individual EIP
    - Mixed load (refined petroleum product) EIP, or
    - Multi-load EIP

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Vehicle Placarding
Bulk DGs (including IBCs)

(b) Road Tank Vehicle or Combination transporting Dangerous Goods in Bulk



RIGID TRUCK

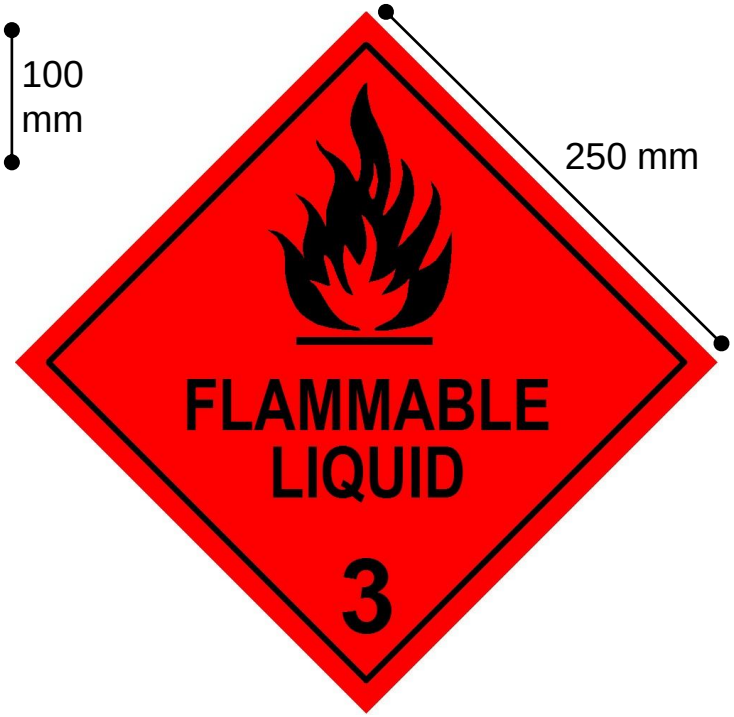
SEMI-TRAILER

TRUCK-TRAILER

B-DOUBLE

Emergency Information Panel (EIP)

PETROL 100 mm



600 mm

UN No.

100 mm **1203**

HAZCHEM

100 mm **3YE**

IN EMERGENCY, DIAL
000, POLICE OR FIRE BRIGADE

SPECIALIST ADVICE
XYZ FUEL COMPANY
1800-005-411

800 mm

Emergency Information Panel (EIP)

NITRIC ACID, 50 mm
RED FUMING 50 mm

UN No.
2032

HAZCHEM
2PE

IN EMERGENCY, DIAL
000, POLICE OR FIRE BRIGADE

SPECIALIST ADVICE
ABC CHEMICAL COMPANY
1800-116-522

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding Mixed Load Vehicles

Dangerous Goods in both Bulk and Packages aboard same vehicle

- Same Class
  - Mark as for bulk of that Class
- Different Classes
  - Front and rear – mixed Class Label
  - Both sides and rear
    - Emergency information panels appropriate to the bulk Dangerous Goods aboard

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Use of Multi-Load EIPs

- Where a multi-compartment tanker contains Dangerous Goods that are not the same –
  - All EIPs to be Multi-load
- Where a vehicle carries portable bulk containers holding different Dangerous Goods –
  - Enclosed vehicle – All Panels Multi-load
  - Open vehicle – Rear panel Multi-load (provided EIPs on containers visible from sides)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Mixed Load EIP

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

UN No.

MULTI-LOAD

HAZCHEM

3YE

IN EMERGENCY, DIAL

000, POLICE OR FIRE BRIGADE

SPECIALIST ADVICE

XYZ FUEL COMPANY

1800-005-411

Placements of EIPs

Side Panels

- On a vehicle (includes tankers):
  - As close as possible to the front
- On a Bulk Container or Freight Container:
  - Any position

Rear Panel

- Any position as long as clearly visible

All EIPs must be in a substantially vertical plane

Lower edge at least 450mm above the ground

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

EIPs on Bulk Containers

- IBCs may have smaller Emergency Information Panels
  - i.e. 400mm x 300mm
- If EIPs attached to a Bulk Container are visible from both sides – no further EIPs needed on the sides of the truck or trailer
- Fully complying EIP, i.e. 800 mm x 600 mm is required on the rear

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding Bulk Containers

- Must be placarded on each side with an emergency information panel (EIP)
- An EIP must also be visible from the rear

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Placarding Freight Containers carrying a Placard Load

Packaged Dangerous Goods

- Same Class and UN No
  - Class and sub-hazard (if applicable) & UN No
- Same Class but different UN Nos
  - Class and sub-hazard (if applicable)
- Different Classes
  - Either or both of –
    - Mixed Class labels
    - Class labels for each of the Dangerous Goods

Bulk Dangerous Goods

  - Emergency information panels

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Removal of EIPs

- EIPs must be removed from containers which have been purged

- Rear EIP on a bitumen spray vehicle may be removed during spraying operations

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Container Placarding for transport by sea and air

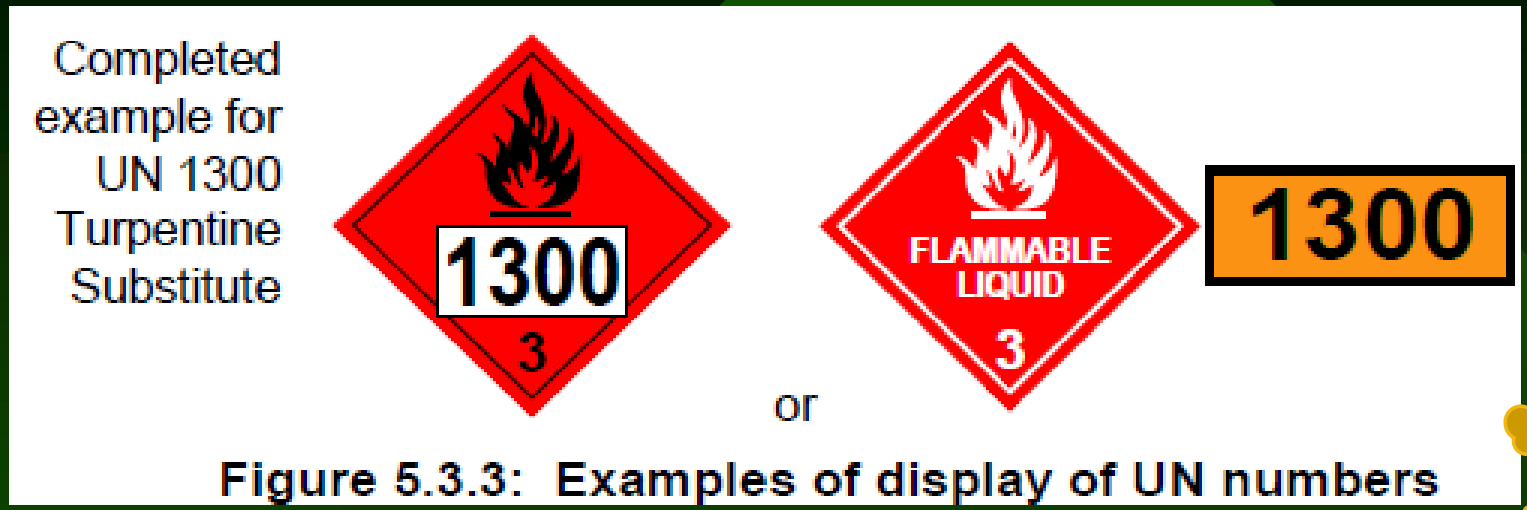


Figure 5.3.3: Examples of display of UN numbers

This type of labelling is required for transport by sea (IMDG Code) and air (IATA / ICAO).

It DOES NOT apply to consignments of dangerous goods being transported only by road or rail within Australia.

Intermodal containers can be transported to and from ports if they have been placarded in accordance with IMDG or IATA Regulations.

See ADG 7.7 part 5.3.2.1.

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

NZ Road Transport Placards

- Loaders and drivers must placard vehicles and freight containers … whenever the load is over 50 kilograms or 50 litres.
- The only exception to this is if the load is dangerous goods in excepted quantities or excepted packages of radioactive material, transported in accordance with clause 2.9 of the rule.
- Examples of dangerous goods placards:

Source: https://nzta.govt.nz/driver-licences/getting-a-licence/licences-by-vehicle-type/transporting-dangerous-or-hazardous-goods/dangerous-goods-carried-by-transport-operators/

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Vehicle Placarding Exercise

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Container Placarding for transport by sea and air

- European and some South American intermodal bulk containers may display a Hazard identification number in the top half of an orange panel, with the 4-digit UN number in the bottom half.
- The first digit indicates the primary hazard, the second and third digit generally indicate secondary hazards.
  - Doubling of a digit indicates an intensification of that particular hazard (i.e. 33, 66, 88)
  - Where the hazard associated with a substance can be adequately indicated by a single figure, this is followed by a zero. (i.e., 30, 40, 50)
  - • A hazard identification number prefixed by the letter 'X', indicates that the substance will react dangerously with water. (i.e., X88)

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Shipping Documentation

- Required for all DG loads except LQ / DC

- Must be:
  - In English
  - In hard copy
  - Carried in an emergency information container

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Shipping Documentation (Cont…)

- DG and non-DG may be entered on the same document; however, DG must be entered first
- On a multi-trailer vehicle (e.g. B-Double), documents should indicate which goods are stored on each unit
- Tankers should carry a run-sheet indicating approximately how much product is remaining

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Shipping Documentation (Cont…)

Documentation is made up of two parts

- **Product Information**
- **Emergency Information**

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Product Information

1. Proper shipping name
2. Class and Sub-hazard (if applicable)
3. UN No.
4. Packing Group
5. Total quantity
6. For Bulk: (Portable)
    - Description of each type of container e.g. ‘IBC’ and number of containers
7. For Packages:
    - Description of each type of package e.g. ‘drum’ and number of packages

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Example transport document

Appendix 1 – Example of acceptable transport document

Consignor: ABC Chemical Company
950 Smith Street
Kwinana WA 6168
Telephone: 1800 999 999 (24 hour access)

Consignee: XYZ Co-op
30 Main Street
Albany WA 6330

Proper shipping name of dangerous goods	Class / Division	Sub-risk	UN number	Packing Group	Type of package or receptacle	Number of packages or receptacles	Quantity (kg or litres)
Petrol	3	N/A	1203	II	Portable tank	1	20,000 L
Chloropicrin	6.1	N/A	1580	I	200 L steel drums	2	400 L
Pesticides, liquid, toxic, flammable, NOS	6.1	3	2903	III	20 L plastic drums	7	140 L

Prepared by: John Smith Vehicle registration: _____ Received by: _____ Date: _____

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Emergency Information

- Approved types include:
  - Dangerous Goods – Initial Emergency Response Guide (HB 76:2010, SAI Global)
  - Australian & New Zealand Emergency Response Guide Book 2021
    - Replaces Australian Emergency Response Guidebook 2018
- Australian emergency contact information MUST be included

AUSTRALIAN ENVIRONMENT BUSINESS NETWORK

Dangerous Goods – Initial Emergency Response Guide

AS 1678.0.0.001

EMERGENCY PROCEDURE GUIDE — TRANSPORT

Fourth edition—December 2004

VEHICLE FIRE

This card is for carriage on all vehicles transporting dangerous goods.
Detailed emergency procedures are provided on the other side of the card.

NOTES:

- This card recommends emergency procedures to be followed in the event of a fire initiating in the vehicle itself or in any non-dangerous goods included in the load.
- Emergency Procedure Guides, appropriate to the dangerous goods being carried, or HB 76, should always be referenced to determine the particular hazards, personal protective equipment (PPE) and correct emergency response for those goods.
- This card provides guidance on the appropriate response to emergencies that can occur even when dangerous goods are not being carried.

EMERGENCY CONTACTS

POLICE OR FIRE BRIGADE: DIAL 000—IF INEFFECTIVE DIAL 1100 (EXCHANGE)
POISONS INFORMATION CENTRE: 13 11 26

Organization	Location	Telephone	Ask for
		Include area code in brackets	

FIRST AID

INHALED	If overcome by smoke or fumes, remove victim to fresh air. # Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Obtain immediate medical care.
EYES	Hold eyelids open and flush with clean, running water (if available) for at least 15 minutes. Remove any contact lenses. Obtain immediate medical care.
FIRE BURNS	Immerse or flood affected area with cold water for at least 15 minutes. Bandage lightly with sterile dressing. Treat for shock if necessary. Do not forcibly separate skin from any adhering material. Obtain immediate medical care.

Any personal items should be put in secure place for safe keeping and must be returned to their owner.

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READ OTHER SIDE →

EMERGENCY PROCEDURES

IF THIS HAPPENS	DO THIS
ENGINE FIRE	Shut off engine and any electrical equipment and leave 'off'. Use fire extinguisher provided in the vehicle. Inject the contents through any available opening, without raising the bonnet if possible. If necessary, extinguish blaze with sand, earth, or large amounts of water. If unable to control fire, evacuate the immediate area and keep upwind. Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load. Warn other traffic.
CABIN FIRE	Shut off engine and any electrical equipment and leave 'off'. If safe to do so, remove burning materials. Beware of toxic fumes from burning upholstery. Use fire extinguisher provided in the vehicle. If necessary, extinguish blaze with sand, earth, or large amounts of water. If unable to control fire, evacuate the immediate area and keep upwind. Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load. Warn other traffic.
CARGO FIRE	Shut off engine and any electrical equipment and leave 'off'. Where the cargo requires special procedures, refer to the HAZCHEM code on the EPG card or HB 76 for the substances involved. Use personal protective equipment (PPE) on vehicle. Use fire extinguisher provided with the vehicle. If necessary, extinguish blaze with sand, earth, or (if HAZCHEM code permits) large amounts of water. If safe to do so, remove burning materials from cargo or remove other materials form area of fire. If not, keep goods cool by spraying with water. If unable to control fire, evacuate the immediate area and keep upwind. Contact police and local fire brigade. Tell them location, material, quantity, UN Number and emergency contact, as well as condition of vehicle and any damage observed. Warn other traffic.
TYRE FIRE **(Options to be considered)**	Stop vehicle. Assess fire and its extent in relation to load and hazards. Use fire extinguisher provided in the vehicle. Consider flooding the tyre with water, if available. If possible, change tyre and place it at least 15 m from the vehicle, in an area free from combustible material; the tyre could re-ignite later. ***If fire cannot be put out or tyre cannot be removed:*** • If tyre is on prime mover, and if safe to do so, consider dropping the trailer and carefully driving the prime mover to a nearby safe location. • Consider driving again, carefully, until burning rubber is thrown off. ***If fire persists after the above measures have been taken:*** • Evacuate the immediate area and keep upwind. • Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load. • Warn other traffic.
BRAKE OVERHEATING	Stop vehicle. Assess fire, if any, and its extent in relation to the load and its hazards. Allow brake to cool. **Only use extinguisher or water if there is a fire or immediate danger of fire.** Do not drive vehicle until the braking system has been inspected by a competent person and, if necessary, repaired. ***If an uncontrollable fire develops:*** • Evacuate the immediate area and keep upwind. • Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load. • Warn other traffic.

READ OTHER SIDE

Australian & New Zealand Emergency Response Guide Book 2021

GUIDE 125 Gases - Corrosive

POTENTIAL HAZARDS

HEALTH

- TOXIC; may be fatal if inhaled, ingested or absorbed through skin.
- Vapours are extremely irritating and corrosive.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

FIRE OR EXPLOSION

- Some may burn but none ignite readily.
- Vapours from liquefied gas are initially heavier than air and spread along ground.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.
- For UN1005: Anhydrous ammonia, at high concentrations in confined spaces, presents a flammability risk if a source of ignition is introduced.

PUBLIC SAFETY

- CALL EMERGENCY RESPONSE Telephone Number on Transport Documents first. If Transport Documents are not available or no answer, refer to appropriate emergency service.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 metres (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 metres (1 mile) in all directions; also, consider initial evacuation for 1600 metres (1 mile) in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

- Dry chemical or CO_2.

Large Fire

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Do not get water inside containers.
- Damaged cylinders should be handled only by specialists.

Fire involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Fully encapsulating, vapour-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapours or divert vapour cloud drift. Avoid allowing water runoff to contact spilled material.
- Isolate area until gas has dispersed.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 000 (Australia) or 111 (New Zealand) or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with Hydrogen fluoride, anhydrous (UN1052), flush with large amounts of water. For skin contact, if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available. For eyes, flush with water or a saline solution for 15 minutes.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

Transfer of Bulk Dangerous Goods

- Positioning vehicles for transfer
- Control of ignition sources during transfer of flammables
- Bonding
- Filling levels
- Prevention of movement during transfer
- Person to remain at vehicle
- No person in cabin

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Transfer of Bulk Dangerous Goods

Is the Responsibility of the Transferor – who is usually the Driver

Now includes transfer of bulk solids

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Ullage Space in Container

- Any transport tank containing liquid either:
  - Single compartment of more than 8600 litres or
  - Multiple compartments any one of which exceeds 8600 litres
- Must not be driven with an ullage space of between 20% and 85%
- This rule does not apply to Class 2 Dangerous Goods or Cutback Bitumens

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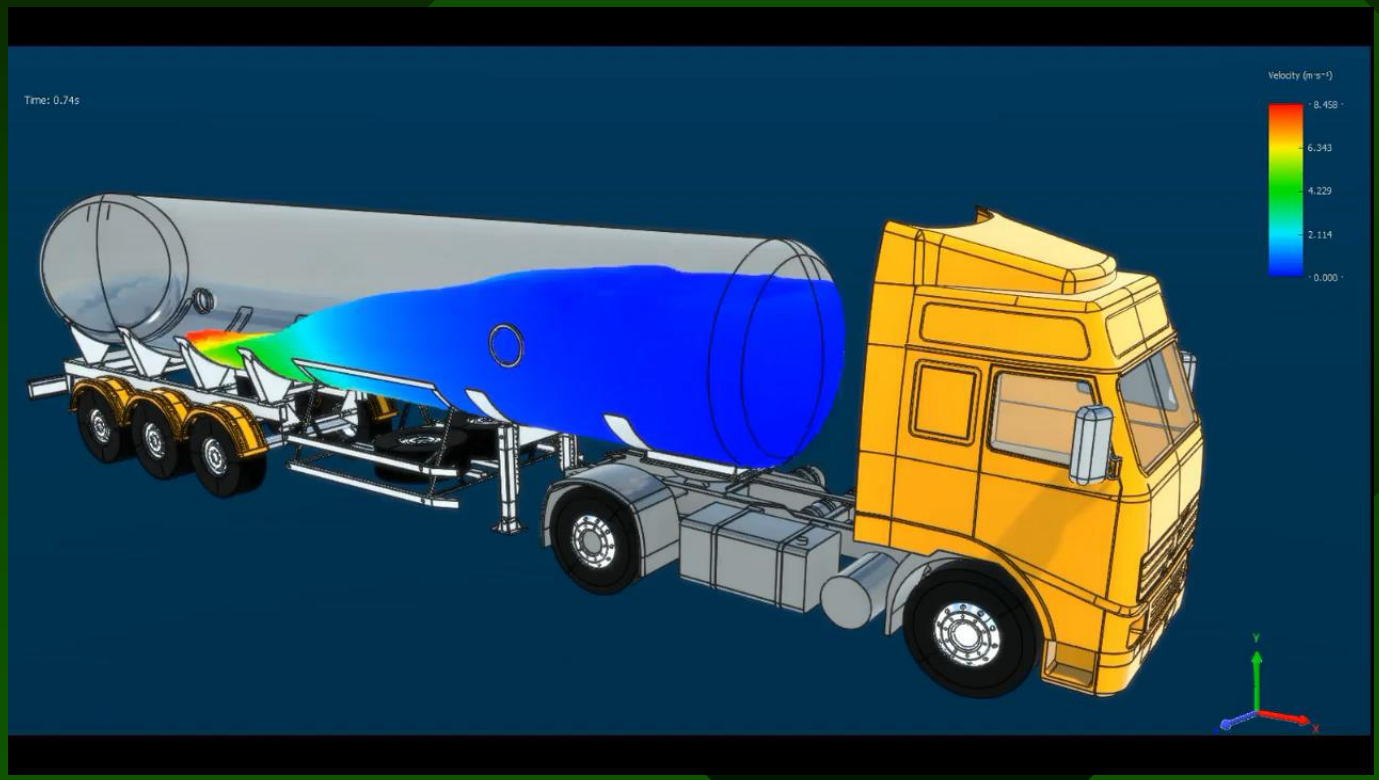
Ullage Space in Container



Source: https://www.linkedin.com/posts/alex-gover-3a2a87139_a-unique-look-at-the-fluid-dynamics-in-a-ugcPost-6565175346348474368-JBb4

Positioning of Vehicle

Two options:

1. Position so it can be driven away in a forward direction –
   - or, if not possible,
2. so it can be driven away with minimal manoeuvring

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Before Transfer

- Ensure

  1. There is sufficient space in the tank to take what is being delivered

  2. Transfer hose is connected to the correct fill point

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Hoses

- No hoses to be run across areas accessible to vehicles, unless access is stopped.

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Ignition Sources

- No smoking or carrying of matches or lighters, on vehicles carrying Dangerous Goods of Classes (or with sub-hazards) of 2.1, 3, 4 or 5 in bulk

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Ignition Sources during Transfer

- Every hose connection point must be separated from ignition sources by not less than:
  - 10 metres for Class 2.1
  - 15 metres for Class 3, being filled *into* a tanker
  - 8 metres for Class 3, being discharged *from* a tanker
  - 8 metres for Class 4 or 5

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Electrical Bonding – Class 3

- Receiving tank to be electrically bonded to discharging tanker
- Bonding lead to be connected when tank being filled or emptied
- Exception – underground tanks

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Vehicle Engines

- For Class (or sub-hazard) 2.1, 3 or 4, the vehicle engine must be stopped before hose connections are made.
- For all Dangerous Goods, the engine must remain stopped during discharge …
  - … UNLESS required for pumping.

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During Transfer

- No person in the cabin
- Person must remain at the vehicle, where the operation can be observed and all valves and equipment can be operated.

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After Transfer

- Make sure all valves have been closed and closures replaced

Walk around vehicle

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URL - additional information

- Australian Dangerous Goods Code (ADG)
  - http://www.ntc.gov.au/heavy-vehicles/safety/australian-dangerous-goods-code/
- Safe Work Australia
  - www.safeworkaustralia.gov.au
- National Transport Commission – ADG Code
  - https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code
- UN Model Regulations for the Transport of Dangerous Goods
  - https://unece.org/info/publications/pub/364867
- Global Harmonisation System (GHS) – UNECE
  - https://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html
- Labelling of Agricultural and Veterinary chemicals
  - https://apvma.gov.au/registrations-and-permits/labelling-codes
- Poisons Schedule (SUSMP)
  - https://www.tga.gov.au/publication/poisons-standard-susmp

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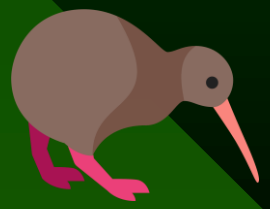
URL - additional information

- EPA NZ – Hazardous substances classification
  - https://www.epa.govt.nz/industry-areas/hazardous-substances/new-zealands-new-hazard-classification-system/
- WorkSafe New Zealand – Hazardous Substances
  - https://www.worksafe.govt.nz/topic-and-industry/hazardous-substances/
- Hazardous Substances Toolbox
  - https://www.hazardoussubstances.govt.nz/
- NZ Land Transport Agency
  - https://nzta.govt.nz/resources/rules/dangerous-goods-2005-index/
- NZ Health and Safety at Work (Hazardous Substances) Regulations
  - https://www.legislation.govt.nz/



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Australian & New Zealand Standards

- AS 1940–2017 The storage and handling of flammable and combustible liquids
- AS 2243.2:2021 Safety in laboratories, Part 2: Chemical aspects and storage
- AS 3780–2008 The storage and handling of corrosive substances
- AS/NZS 3833:2007 The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers
- AS 4332–2004 (R2016) The storage and handling of gases in cylinders
- AS/NZS 4452:1997 The storage and handling of toxic substances
- AS/NZS 4681:2000 The storage and handling of Class 9 (miscellaneous) dangerous goods and articles
- AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods
- NZS 5433:2020 Transport of dangerous goods on land
- SNZ HB 5433:2021 UN dangerous goods list

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Sources of information

- Physical inspection
- Internal and external audits
- Employee knowledge and expertise
- Trade journals
- WorkSafe alerts and publications
- Incident /injury records
- Industry associations

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Sources of information

- Product information
- Technical data sheets
- Manufacturers instruction manuals
- Personal contacts
- By asking ‘What if ?’
- Brainstorming

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AEBN SERIES 2: Dangerous Goods and Hazardous Substances Workshop Webinar

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Presented by

Australian Environment Business Network (AEBN)
National Office
100 Douglas Pde Williamstown Vic 3016 (PO Box 588 Altona Vic 3018)
T +61 3 9397 2511 | E aebn@aebn.com.au

www.aebn.com.au