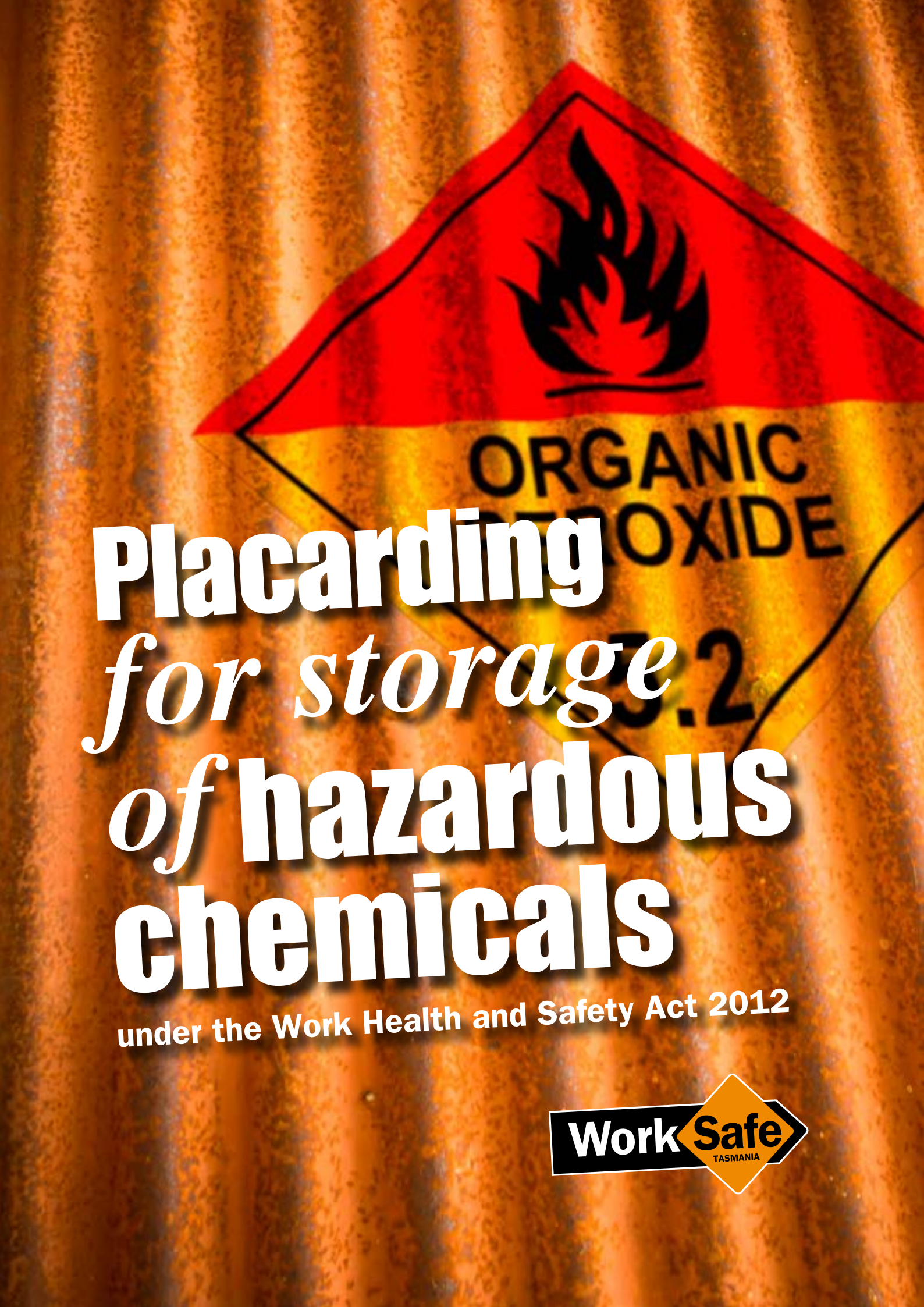



# Placarding *for storage of* hazardous chemicals

under the Work Health and Safety Act 2012

WorkSafe TASMANIA

# Contents





# 1. What is this guide about?

This guide will help the person conducting a business or undertaking (PCBU) at a workplace where hazardous chemicals are stored to determine:

- when hazardous chemical placarding is required
- the types of placards needed.

You should read this guide in conjunction with the:

- Work Health and Safety Act 2012 (the Act)
- Work Health and Safety Regulations 2012 (the Regulations).

You can find these at the WorkSafe Tasmania website at www.worksafe.tas.gov.au by choosing the 'WHS Laws' tab.

We welcome your feedback on this guide: wst.licensing@justice.tas.gov.au

This guide was produced by staff from WorkSafe Tasmania.

# 2. Acknowledgement

WorkSafe Tasmania acknowledges this guide is based on material from Workplace Health and Safety Queensland: www.justice.qld.gov.au

# 3. Definitions

**ADG Code** means the Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th edition, approved by the Australian Transport Council. You can find it at the National Transport Commission website at www.ntc.gov.au under the 'Safety and Compliance' tab.

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

**Bulk hazardous chemical** means any quantity of a hazardous chemical that is:

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



*Static tanks and transportable containers such as isotainers and intermediate bulk containers (IBCs) are examples of hazardous chemicals containers requiring a bulk placard*

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

**Flammable liquid Category 4** is equivalent to a C1 combustible liquid having a flash point of more than 60 degrees Celsius and less than or equal to 93 degrees Celsius. An example is diesel fuel.

**Goods too dangerous to be transported (GTDTBT)** are goods listed in Appendix A of the ADG Code. GTDTBT are inherently unstable, but it may be possible to transport them after combining them with other materials to overcome the instability.

**Hazardous chemical** means a substance, mixture or article that satisfies the criteria for a hazard class in the Globally Harmonised System (GHS), as defined in the Regulations.

**Packaged hazardous chemical** means a Schedule 11 hazardous chemical in a container with:

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

The term refers to the complete product, consisting of the goods and their packaging for transport.




*Gas cylinders, steel drums, and various bottles and small containers are examples of packages*

**Subsidiary risk** is the Class or Division number of any important risks, identified by Table 3.2.3 of the ADG Code for the hazardous chemical.

**UN number** is a four digit serial number assigned under the United Nations system, as a unique identifier for the hazardous chemical.



# 4. Placard requirements

## 4.1 Why are placards required?

If emergency services respond to an incident at your workplace, they will need to know about potential hazards they might face.

For effective and efficient action, they need information about the type, quantity and locations of the hazardous chemicals that are present.

Placards serve to:

- alert emergency service personnel, workers, contractors and visitors to the presence of hazardous chemicals
- identify hazardous chemicals stored in bulk (including tanks)
- identify significant quantities of hazardous chemicals in packages
- identify the dangers of the hazardous chemicals at the workplace
- identify the required emergency actions for hazardous chemicals in bulk (including tanks).

They are an important part of an overall safety management strategy for any workplace that uses, stores and handles hazardous chemicals.

## 4.2 What has changed with the new laws?

On 1 January 2013, new legislation was introduced to manage hazardous chemicals in workplaces:

- Work Health and Safety Act 2012
- Work Health and Safety Regulations 2012.

Part 7.1 of the Regulations contain the placarding requirements, in particular:

- regulations 349 and 350
- Schedules 11 and 13.

The new requirements are similar to the previous Dangerous Substances (Safe Handling) Act 2005.

The main differences are:

- Globally Harmonised System (GHS) categories are used in the placarding and manifest table - see Schedule 11 of the Regulations
- the prescribed placarding quantity for flammable gases, such as LP gas and acetylene in cylinders at a workplace, is reduced from 500 L to 200 L
- the prescribed placarding quantity for industrial gases, such as compressed nitrogen, argon or oxygen in cylinders, is reduced to 1000 L
- most Class 9 dangerous goods are no longer included in Schedule 11 of the Regulations.

You must use class labels from the ADG Code to placard hazardous chemical storages. GHS pictograms are not to be used.

You can refer to Appendix 1 for the ADG Code class labels with the comparable GHS hazard categories.

## 4.3 Types of placards

Types of placard under the Regulations include:

- outer warning placards, also known as a HAZCHEM sign
- information placards for bulk hazardous chemicals
- information placards for packaged hazardous chemicals.


*Example of outer warning placard (HAZCHEM sign)*


*Example of packaged hazardous chemical placard for flammable liquid category 4*

*Example of placard location for intermediate bulk containers (IBCs)*

*Example of placard location for outdoor tank (bulk)*

Some types of storage will need modified placarding, where the risk is different to the majority of other hazardous chemicals stored:

- Goods too dangerous to be transported (GTDTBT) – higher risk
- Flammable Liquids Category 4 (for example, diesel) which do not share a spill compound with other flammable liquid classes – lower risk.

Containers which are regularly transported may also require a different type of placarding; for example, intermediate bulk containers (IBC).

You will find more detailed information about placards in parts 5, 6 and 7 of this guide.

## 4.4 Placard location and maintenance

Outer warning placards must be located at each entrance where emergency service organisation may enter the workplace.

For hazardous chemicals stored in an indoor area, you must placard:

- as close as you can to the main entrance of the building
- at the entrance to each room or walled section of the building where the hazardous chemicals are stored.

For hazardous chemicals in an outdoor area, you must placard for:

- on or adjacent to each container or storage area for bulk hazardous chemicals
- each entrance to a storage area in which packaged hazardous chemicals are stored.

You must ensure that all placards are:

- made of durable and weather-resistant material
- clearly legible by anyone approaching the placard
- separate from any other sign or writing that contradicts, qualifies or distracts attention from the placard.

For areas where the types of hazardous chemicals regularly vary, you may find it more convenient to use frames for slip-in/slip-out labels, such as those used on vehicles transporting dangerous goods.

In locations where the public may have access to the placards, labels that attach more permanently will be required.

## 4.5 Exemptions for placards at retail fuel outlets

If your workplace is a retail fuel outlet, some types of placards may not be required.

A placard is not required for an underground tank containing a flammable liquid, providing the:

- tank is at a retail outlet
- flammable liquid stored is used to refuel a vehicle.

Outer warning placards are not required at retail service stations that:

- sell only LP Gas, petrol and diesel for refilling vehicles
- do not have any other hazardous chemicals present that require a placard, including LP Gas exchange or decanting in excess of 500 litres.

Exemptions only apply at retail outlets. You will need to placard if your workplace is a production facility, works depots, fuel distributor or similar.

If you think an exemption might apply, you should check regulations 349 and 350 of the Regulations.

# 5. Outer warning placards

## 5.1 Format

You must display an outer warning placard at a workplace when the quantity of hazardous chemicals present exceeds Schedule 11 of the Regulations.

Outer warning placards must:

- display the word 'HAZCHEM' in red letters on a white or silver background
- conform to the format and dimensions in figure 1.


*Figure 1. Form and minimum dimensions of an outer warning placard*

Refer to Appendix 1 for a table of the types of hazardous chemicals and their placard quantities.



# 6. Hazardous chemicals in bulk

## 6.1 How to calculate quantities in bulk

For solids: mass in kilograms the bulk container is designed to hold.

For liquids: design capacity of the bulk container in litres.

For gases: total water capacity of the bulk container in litres.

If not in container (for example, in a stockpile): the undivided mass of the goods in kilograms.

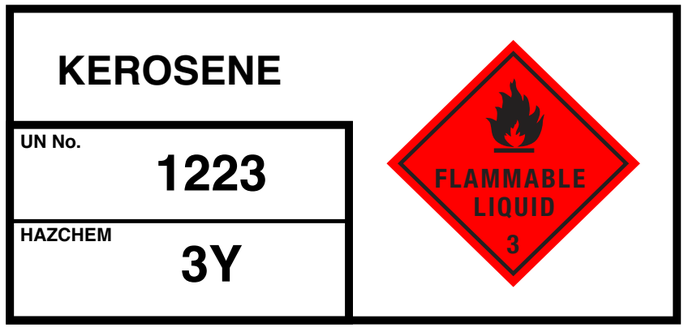
## 6.2 Format

Unless confirmed to be free of hazardous chemicals, you must placard bulk containers with specific information placards.

Placards are similar to the full-size Emergency Information Placards required by the ADG Code for bulk transport, without the emergency contact details

The placard must contain the following information about the hazardous chemical:

- the proper shipping name
- UN number
- HAZCHEM code
- ADG Code class label
- subsidiary risk label (if applicable). For more than one subsidiary risk, the width of the area on the right hand side for the subsidiary risk label may be extended.




*Example of bulk placarding*

This information is available from the product's Safety Data Sheet and the ADG code.

The placard must meet the following specifications, as shown in figure 2:

- lettering must be black on white background
- lettering must be at least 100 mm high. If two lines are used, then it may be 50 mm high
- the class and subsidiary risk label must be in the form and colouring of the ADG Code
- the class label must have sides of at least 250 mm.
- where there is a subsidiary risk, the main class label must have sides of at least 200 mm and the subsidiary risk label(s) must have sides of at least 150 mm. For more than one subsidiary risk, the width of the area on the right hand side for the subsidiary risk label may be extended.

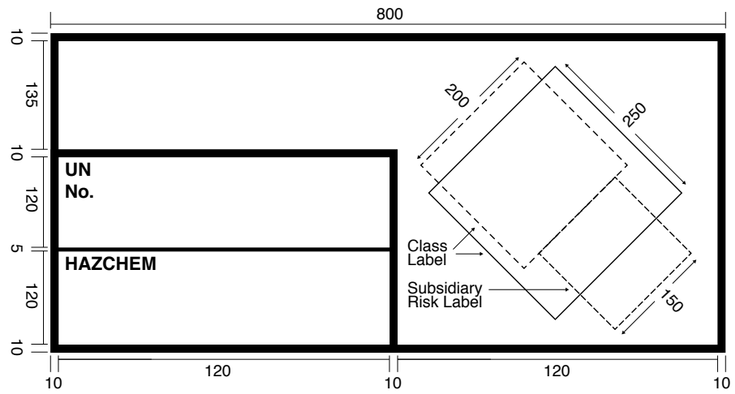



*Figure 2. Form and dimensions for a hazardous chemicals tank placard (in mm)*

## 6.3 Flammable liquids category 4 (combustible liquids)

Providing the liquid does not share a spill compound with other categories of flammable liquids, you must placard as shown in figure 3.


*Figure 3. Placard for flammable liquid category 4 (for example diesel fuel)*

## 6.4 Goods too dangerous to be transported (GTDTBT)

Information placards for GTDTBT in tanks must be in the form and dimensions as shown in Figure 2, with the following adjustment as shown in Figure 4:

- the name of the goods given in Appendix A of the ADG code must be shown in the top left hand area
- the field reserved for the UN number must be left blank
- the field reserved for the HAZCHEM code must be left blank and
- the label displaying the words 'Unstable goods' and 'Too dangerous to transport' shown in Figure 4 must be shown in the field normally reserved for the class label and have sides at least less than 250 mm.


*Figure 4. Form of label for GTDTBT*



# 7. Hazardous chemicals in packages

## 7.1 How to calculate quantities in packages

Unless confirmed to be free of hazardous chemical, all packages should be calculated as 'full'.

For solids: net mass in kilograms of the goods in the package.

For liquids: net capacity in litres of the package.

For gases: the number of litres of water that would be required to fill the cylinder ('water capacity').


*Figure 5. Gas cylinder and a close-up view showing 'water capacity' (WC) value*

In articles or things: net quantity of that part of the article or thing that is hazardous chemicals; for example, the number of litres of acid in a wet-acid battery.

## 7.2 **Format**

You must placard hazardous chemicals in packages when the prescribed placarding quantities in Schedule 11 table are exceeded.


*Figure 6. Example placards for a storage location for hazardous chemicals in packages*

The placard must have a white or silver background and be large enough to accommodate the number of class labels required to be displayed on it.

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

An information placard for a package store does not require a HAZCHEM code.

## 7.3 Flammable liquids category 4 (combustible liquids)

Providing the liquid does not share a spill compound with other categories of flammable liquids, you must placard as shown in figure 3.

## 7.4 Goods too dangerous to be transported (GTDTBT)

Where GTDTBT are stored in packages exceeding the prescribed placarding quantity, you must placard as Figure 4, along with any other applicable class labels.

## 7.5 Intermediate bulk containers (IBCs)

Where a Schedule 11 hazardous chemical is contained in an IBC intended for transport and not intended for use at the workplace:

- the IBC must display a tank placard and
- the storage area must be placarded with the appropriate class label(s) as shown in Figure 6.

# 8. Examples of determining placards for a workplace

## 8.1 Pool shop

A pool shop stores the following hazardous chemicals:

| Proper shipping name | UN number | Class | PG | Quantity (kg or L) | Container type | Placard qty | Exceeded? |
|---|---|---|---|---|---|---|---|
| sodium dichloroisocyanurate | 2465 | 5.1 | II | 300 | package | 250 | Y |
| trichloroisocyanuric acid | 2468 | 5.1 | II | 200 | package | 250 | N |
| calcium hypochlorite | 2880 | 5.1 | II | 300 | package | 250 | Y |
| hydrochloric acid | 1789 | 8 | II | 200 | package | 250 | Y – for combination of PG II and III (1000) |
| hypochlorite solution | 1791 | 8 | III | 900 | package | 1000 | |

You are required to placard

- hazardous chemicals in packages placard for Class 5.1 and 8 at the storage area


- outer warning placard – quantity of hazardous chemicals stored exceeds Schedule 11

## 8.2 Chemical supplier

A company which supplies chemicals for dry cleaning and laundry facilities stores the following hazardous chemicals:

| Proper shipping name | UN number | Class | PG | Quantity (kg or L) | Container type | Placard qty | Exceeded? |
|---|---|---|---|---|---|---|---|
| Freon (Gas under pressure) | 1078 | 2.2 | n/a | 1200 | package | 1000 | Y |
| White spirit (in cabinet) | 1300 | 3 | III | 200 | package | 1000 | N |
| Hydrogen peroxide | 2014 | 5.1 | II | 500 | package | 250 | Y |
| Perchloroethylene | 1897 | 6.1 | III | 1200 | package | 1000 | Y |
| Hydrochloric acid | 1789 | 8 | II | 100 | package | 250 | Y for a combination of PG II and III (>1000 L) |
| Sodium hydroxide | 1824 | 8 | II | 100 | package | 250 | |
| Sodium hypochlorite | 1791 | 8 | III | 800 | package | 1000 | |
| Phosphoric acid | 1805 | 8 | III | 100 | package | 1000 | |
| Diesel fuel | combustible liquid | | | 12,000 | underground tank | 10,000 | Y |

You are required to placard:

- hazardous chemicals in packages for Class 2.2, 5.1, 6.1 and 8 at the storage area


- outer warning placard – quantity of hazardous chemicals stored exceeds Schedule 11


- combustible liquid placard for flammable liquid category 4 in bulk (underground tank)

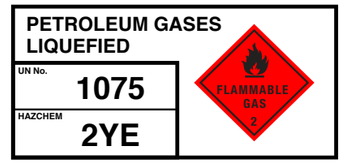

## 8.3 Service station

A retail service station stores the following hazardous chemicals, all of which are used for refuelling vehicles:

| Propershipping name | UN number | Class | PG | Quantity (kg or L) | Container type | Placard qty | Exceeded? |
|---|---|---|---|---|---|---|---|
| LP Gas | 1075 | 2.1 | n/a | 3000 | aboveground tank | 200 | Y |
| Petrol | 1203 | 3 | II | 30,000 | underground tank | 2500 | Y |
| Diesel fuel | combustible liquid | | | 20,000 | aboveground tank | 10000 | Y |

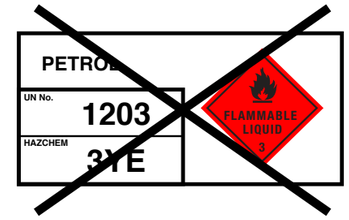
You are required to placard:

- hazardous chemicals in bulk placard for Class 2.1




- combustible liquid placard for flammable liquid category 4 in bulk (aboveground tank)


You do not need to placard for the petrol tank as it is underground at a retail outlet and is used for the refuelling of vehicles.




An outer warning placard is not required, even though the workplace exceeds Schedule 11 quantities. This is because it is a retail service station, where all the hazardous chemical storages are used for the refuelling of vehicles.

# 9. Appendix 1 — Placard quantities

| Item | Description of hazardous chemical | | Equivalent dangerous good[1] | Placard quantity | Placard to display |
|---|---|---|---|---|---|
| 1 | Flammable gases | Category 1 | 2.1 (except aerosols) | 200 L |  |
| 2 | Gases under pressure | With acute toxicity categories 1,2,3 or 4<br>Note—Category 4 only up to LC50 of 5000 ppmV | 2.3 | 50 L |  |
| 3 | | With skin corrosion categories 1A, 1B, 1C | 2.3/8 | 50L | |
| 4 | | Aerosols | 2.1<br>or<br>2.2 | 5000L |  <br>If any 2.1 present, else 2.2 (green class label) shown below |
| 5 | | Not stated elsewhere in this table | 2.2 (except aerosols)<br>or<br>2.2/5.1 (oxidizing gas) | 1000 L |  <br>or<br>  |
| 6 | Flammable liquids | Category 1 | 3 PG I | 50 L |  |
| 7 | | Category 2 | 3 PG II | 250 L | |
| 8 | | Category 3 | 3 PG III | 1000 L | |
| 9 | | Any combination from 6 to 8 where none of the items exceeds the quantities in column 4 on their own | 3 | 1000 L | |
| 10 | | Category 4 | Combustible Liquids (flash point ≤ 93OC)2 | 10 000 L | COMBUSTIBLE LIQUID |
| 11 | Self-reactive substances | Type A | Goods too Dangerous to be Transported<br><br>(GTDTBT) | 5 kg or L |  |
| 12 | | Type B | 4.1 | 50 kg or L |  |
| 13 | | Type C to F | 4.1 | 250 kg or L | |
| 14 | Flammable solids | Category 1 | 4.1 PG II | 250 kg | |
| 15 | | Category 2 | 4.1 PG III | 1000 kg | |
| 16 | | Any combination from 12 to 15 where none of the items exceeds the quantities in column 4 on their own | 4.1 | 1000 kg or L | |

| Item | Description of hazardous chemical | | Equivalent dangerous good[1] | Placard quantity | Placard to display |
|---|---|---|---|---|---|
| 17 | Pyrophoric liquids and solids | Category 1 | 4.2 PG I | 50 kg or L |  |
| 18 | Self-heating substances and mixtures | Category 1 | 4.2 PG II | 250 kg or L | |
| 19 | | Category 2 | 4.2 PG III | 1000 kg or L | |
| 20 | | Any combination from 17 to 19 where none of the items exceeds the quantities in column 4 on their own | 4.2 | 1000 kg or L | |
| 21 | Substances which in contact with water emit flammable gas | Category 1 | 4.3 PG I | 50 kg or L |  |
| 22 | | Category 2 | 4.3 PG II | 250 kg or L | |
| 23 | | Category 3 | 4.3 PG III | 1000 kg or L | |
| 24 | | Any combination from 21 to 23 where none of the items exceeds the quantities in column 4 on their own | 4.3 | 1000 kg or L | |
| 25 | Oxidising liquids and solids | Category 1 | 5.1 PG I | 50 kg or L |  |
| 26 | | Category 2 | 5.1 PG II | 250 kg or L | |
| 27 | | Category 3 | 5.1 PG III | 1000 kg or L | |
| 28 | | Any combination from 25 to 27 where none of the items exceeds the quantities in column 4 on their own | 5.1 | 1000 kg or L | |
| 29 | Organic peroxides | Type A | GTDTBT | 5 kg or L |  |
| 30 | | Type B | 5.2 | 50 kg or L |  |
| 31 | | Type C to F | 5.2 | 250 kg or L | |
| 32 | | Any combination from 30 to 31 where none of the items exceeds the quantities in column 4 on their own | 5.2 | 250 kg or L | |
| 33 | Acute toxicity | Category 1 | 6.1 PG I | 50 kg or L |  |
| 34 | | Category 2 | 6.1 PG II | 250 kg or L | |
| 35 | | Category 3 | 6.2 PG III | 1000 kg or L | |
| 36 | | Any combination from 33 to 35 where none of the items exceeds the quantities in column 4 on their own | 6.1 | 1000 kg or L | |
| 37 | Skin corrosion | Category 1A | 8 PG I | 50 kg or L |  |
| 38 | | Category 1B | 8 PG II | 250 kg or L | |
| 39 | | Category 1C | 8 PG III | 1000 kg or L | |
| 40 | Corrosive to metals | Category 1 | 8 PG III | 1000 kg or L | |
| 41 | | Any combination from 37 to 40 where none of the items exceeds the quantities in column 4 on their own | 8 | 1000 kg or L | |

Table note – next page

## 9.1 Table notes

(a) Information is provided as a guide only. If the GHS category is not listed on the hazardous chemical Safety Data Sheet you will need to confirm it with the manufacturer or supplier.

It may also be of benefit to reference 'Guidance on the Classification of Hazardous Chemicals under the WHS Regulations' produced by Safe Work Australia. Go to the Safe Work Australia website at www.safeworkaustralia.gov.au and search for that title.

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

For example, for placarding, a spill compound containing 1000 L of flammable liquid category 2 (for example, petrol) and 1000 L of flammable liquid category 4 (for example, diesel) is considered to contain 2000 L of flammable liquid category 2.

**1300 366 322**
www.worksafe.tas.gov.au

For more information contact
Phone: 1300 366 322 (within Tasmania)
(03) 6166 4600 (outside Tasmania)
Fax: (03) 6233 8338
Email: wst.licensing@justice.tas.gov.au

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