



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

Dangerous Goods Safety Guide

Safety equipment for road vehicles transporting dangerous goods

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Introduction

When placard loads of dangerous goods are transported by road, certain personal protective equipment (PPE) and other safety equipment are required by the Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007 and the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG). This is to ensure that, in the event of an accident or incident, the personnel transporting the dangerous goods:

- have a reasonable degree of protection
- if practicable and safe to do so, can effectively respond to either control the situation or mitigate the effects while waiting for the arrival of emergency services or the approved emergency responder.

This Guide assists vehicle owners, prime contractors and drivers transporting dangerous goods on Western Australian roads to meet their obligations regarding the provision of safety equipment.

Minimum requirements

Table 1 details the PPE and other safety equipment that must be included on vehicles transporting placard loads of dangerous goods.

Double-sided reflector signals complying with the latest edition of Australian Standard AS 37905 *Portable warning triangles for motor vehicles* are mandatory on all vehicles carrying placard loads.

Other items may be required depending on the load. For example, appropriate electric torches complying with the latest edition of Australian Standard AS/NZS 60079.11 *Explosive atmospheres – Equipment protection by intrinsic safety* are required for some dangerous goods.

All safety equipment must be stowed in an accessible position in the vehicle except for respiratory protective equipment, which must be carried securely and in an accessible position in the vehicle cabin.

Respiratory protective equipment

The minimum respiratory protective equipment requirement is a compressed air or compressed oxygen self-contained breathing apparatus, or chemical oxygen self-contained self-rescuer and providing breathable air for not less than 15 minutes. It must be certified to comply with AS/NZS 1716 *Respiratory protective devices* and maintained in accordance with AS/NZS 1715 *Selection, use and maintenance of respiratory protective equipment*.

Respiratory protection equipment is not required where the dangerous goods will not give rise to harmful vapours, gases or dust, even in an emergency.

Where a driver attends to the loading or transfer of goods, fully protective self-contained breathing apparatus may be required by health and safety legislation.

Fire extinguishers

Fire extinguishers are mandatory on all vehicles carrying placard loads of dangerous goods. As listed in Table 2, the number, type and size of extinguishers required vary with the nature of the load.

Fire extinguisher/s must:

- comply with AS/NZS 1841.1 *Portable fire extinguishers, Part 1: General requirements* and AS/NZS 1850 *Portable fire extinguishers - Classification, rating and performance testing* and AS1851 *Routine service of fire protection systems and equipment*
- comply with AS/NZS 1841.4 *Portable fire extinguishers, Part 4: Specific requirements for foam type extinguishers* or AS/NZS 1841.5 *Portable fire extinguishers, Part 5: Specific requirements for powder type extinguishers* as appropriate for the vehicle and load being carried, and
- be located so as to be readily accessible for use.

Where two or more fire extinguishers are required for the load area of a vehicle, one should be located on the left (near) side towards the rear of the vehicle and, wherever practicable, another should be mounted on the right (off) side towards the front of the vehicle.

Where only one fire extinguisher is required for a vehicle, it should be located, where practicable:

- on the discharge side of a road tank vehicle, or
- near the driver's door for all other vehicles.

Fire extinguishers should be maintained in accordance with the latest edition of Australian Standard AS 1851 *Maintenance of fire protection systems and equipment*. This Standard nominates regular inspections at six monthly, yearly and five yearly intervals.

Other equipment

Although not specified in the regulations or ADG, a shovel or spade is recommended where it may be useful for cleaning up or emergency bunding of a spill.

Note: For flammable dangerous goods, the potential for spark generation must be considered when choosing an appropriate tool.

Table 1 Minimum requirements for safety equipment for road vehicles transporting placard load of dangerous goods

Class, Division or Subsidiary Risk	Three double-sided reflector signals complying with AS 3790	Eyewash kit filled and ready for use (250 mL minimum) [d]	Respiratory protective equipment for escape purposes	Gas tight goggles or full face shield as appropriate	Chemically resistant gloves or gauntlets	Thermally insulated gloves or gauntlets	Chemically resistant suit or coveralls	Chemically resistant boots	Any electric torch	Electric torch complying with AS/NZS 60079.11 or other recognised code
2.1[a]	Yes	No	No	[c]	No	Yes	No	No	No	Yes
2.2	Yes	No	No	[c]	No	Yes	No	No	Yes	No
2.3	Yes	Yes	[b]	Yes	No	Yes	No	No	Yes	No
3	Yes	Yes	No	No	Yes	No	No	No	No	Yes
4	Yes	Yes	No	No	Yes	No	No	No	No	Yes
5.1 solids	Yes	Yes	No	No	Yes	No	No	No	Yes	No
5.1 liquids	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No
5.2	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
6.1	Yes	Yes	[b]	Yes	Yes	No	Yes	Yes	Yes	No
8	Yes	Yes	[b]	Yes	Yes	No	Yes	Yes	Yes	No
9	Yes	Yes	No	No	Yes	[e]	No	No	Yes	No

Table notes:

- [a] A vehicle transporting unodourised liquefied petroleum gas (LP Gas), butane or propane must additionally be equipped with a gas detector suitable for detection of LP Gas, in accordance with AS 1596 *The storage and handling of LP Gas*.
- [b] The minimum requirement is a compressed air or compressed oxygen self-contained breathing apparatus, or chemical oxygen self-contained self-rescuer, certified to comply with AS/NZS 1716 and providing breathable air for not less than 15 minutes.
 Note 1: Respiratory protection equipment is not required where the dangerous goods will not give rise to harmful vapours, gases or dust, even in an emergency.
 Note 2: Respiratory protection must be maintained in accordance with AS/NZS 1715.
 Note 3: Where a driver attends to the loading or transfer of goods, a self-contained breathing apparatus (SCBA) complying with AS 1715 with a duration of greater than 15 minutes may be required by other (e.g. work health and safety) legislation.
- [c] Yes – if the goods are in receptacles with a capacity > 500 L or the goods are cryogenic liquids.
 No – otherwise
 ‘Gas tight goggles’ means face hugging goggles with increased facial seal.
- [d] Where an eyewash kit is required, it must be at least 250 ml capacity, filled and ready to use.

[e] Yes – if the goods are elevated temperature substances or dry ice.

No – otherwise.

Note 4: Where an item of personal protective or safety equipment is required based on the primary hazard or subsidiary hazard of any item of dangerous goods in the load, that item must be carried, except that where thermally insulated gloves or gauntlets are required and carried, any requirement for chemically resistant gloves or gauntlets may be ignored.

Note 5: Under other legislation, it may be necessary to carry additional personal protective equipment where it is specified for the purpose on the safety data sheet.

Table 2 Minimum fire extinguisher requirements for road vehicles transporting a placard load of dangerous goods

	Dangerous goods being transported	Fire extinguisher requirements
1.	<p>All types of dangerous goods packed in:</p> <ul style="list-style-type: none"> • packages, drums, overpacks, segregation devices • intermediate bulk containers (IBCs) containing non-flammables – any quantity • IBCs containing flammables with up to (and including) 10,000 L total capacity or containing up to (and including) 10,000 kg in total 	1 x 30B dry powder that is to be placed in the cabin (see Note 3), or at the front of any trailer transporting a placard load
2.	<p>Non-flammable goods packed in:</p> <ul style="list-style-type: none"> • pressure drums, tubes, multiple element gas containers (MEGCs), tanks, bulk containers (solids) 	<ul style="list-style-type: none"> • 1 x 60B dry powder, or 2 x 30B dry powder, in the load area • 1 x 10B dry powder in the cabin (see Note 3)
3.	<p>Flammable goods packed in:</p> <ul style="list-style-type: none"> • Pressure drums, tubes, MEGCs, tanks, bulk containers (solids) • IBCs > 10,000 L total capacity or containing > 10,000 kg in total 	<ul style="list-style-type: none"> • 2 x 60B dry powder, or 1 x 80B dry powder and 1 x 20B foam, in the load area • 1 x 10B dry powder in the cabin (see Note 3)

Table notes

Note 1: In this table “flammable goods” means dangerous goods of Division 2.1, Class 3 or Class 4, or having a subsidiary hazard of 2.1, 3 or 4.

Note 2: In cases of combination vehicles, these directions apply to every separate trailer transporting a placard load.

Note 3: If more than one dry powder fire extinguisher is required in the load area, one may be replaced with a foam or water fire extinguisher of at least 9L capacity. If a foam or water fire extinguisher is used it must be suitable for the types of fire scenarios likely to be encountered and selected with the aim of preventing the spread of fire to the load.

Note 4: A foam or water firefighting system designed for the load using compressed air, electric pumps or other means, may be used in place of portable fire extinguishers in the load area. The firefighting system must be operational even when the engine of the vehicle is turned off and must be suitable for the types of fire scenarios likely to be encountered with the aim of preventing the spread of fire to the load.