



Storing up to 2,000 L of Flammable Liquid in Closed Packages

August 2016

These interpretive guidelines help people understand how to store up to 2,000 L of flammable liquids.

They consolidate existing requirements into a single document.

These guidelines will be further updated when the Health and Safety at Work (Hazardous Substances) Regulations come into effect in 2017.

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INTRODUCTION

IN THIS SECTION:

- 1.1 Purpose of these guidelines
- 1.2 Scope of these guidelines

1.1 PURPOSE OF THESE GUIDELINES

These guidelines outline the requirements for buildings and storage areas holding flammable liquids with a hazard classification of 3.1A, 3.1B or 3.1C, and which are held in closed packages in a total quantity up to 2,000 L.

The requirements for the storage of flammable liquids are contained in a number of instruments. These guidelines consolidate those requirements and have been compiled from the following:

- > Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
- > Hazardous Substances (Emergency Management) Regulations 2001
- > Hazardous Substances (Identification) Regulations 2001
- > Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004
- > Site and Storage Conditions for Class 3.1 Flammable Liquids¹
- > HSNO Code of Practice 51: Selection of Fire Doors where Flammable Liquids are Stored and Used.

WHAT IS A 'FLAMMABLE LIQUID'?

In these guidelines 'flammable liquid' means a substance that has a flammable classification of 3.1A, 3.1B or 3.1C under the HSNO Act.² These hazard classifications are defined in Table 1.

HSNO CLASS	FLASHPOINT	BOILING POINT	EXAMPLES
3.1A	< 23 °C	≤ 35 °C	> petrol > pentane
3.1B	< 23 °C	>35 °C	> methylated spirits > ethanol > methyl ethyl ketone (MEK)
3.1C	≥ 23 °C but less than 60 °C	-	> mineral turpentine > light organic solvent-based preservative (LOSP) > butanol

Table 1: Classes 3.1A, 3.1B and 3.1C

1.2 SCOPE OF THESE GUIDELINES

These guidelines cover storing flammable liquids in closed packages in:

- > storage cabinets (Section 3)
- > outdoor storage areas (Section 4.2)
- > stand-alone freight containers and buildings with non-combustible cladding (Section 4.3)
- > stand-alone buildings (Sections 4.4 and 4.5)
- > storerooms in a building (Section 5).

¹ www.epa.govt.nz/hazardous-substances/approvals/group-standards/Pages/site-storage.aspx

² HSNO Act means the Hazardous Substances and New Organisms Act 1996.

These guidelines also set out controls relating to:

- > prevention of ignition
- > secondary containment (for containing spills)
- > fire extinguishers
- > signage
- > notification to WorkSafe
- > approved handlers
- > hazardous atmosphere zones
- > emergency response plans
- > site plans
- > electrical inspection
- > test certification.

EXCLUDED FROM SCOPE

The following matters are excluded from the scope of these guidelines:

- > storage of diesel (a class 3.1D substance)
- > the storage of more than 2,000 L of flammable liquids
- > storage of flammable liquids in workrooms or other situations where the packages are open

- > storage in tanks or intermediate bulk containers (IBCs).

FURTHER INFORMATION

For information on storing 2,000 L or more of flammable liquids, please refer to *Schedule 10 of Gazette Notice No.35, Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004*³ or *Site and Storage Conditions for Class 3.1 Flammable Liquids*.⁴

For further information on the storage of flammable liquids on farms please refer to the WorkSafe Good Practice Guidelines, *Working safely with chemicals and fuels on farms*.

It should be noted that flammable liquids may have other hazard classifications, such as 6.1 (acute toxicity) and 9.1 (environmental toxicity). These hazards need to be taken into account when considering compatibility and storage options. For example, the thresholds for signage or secondary containment may be lower. For further information you should check the Safety Data Sheet for the substance concerned.

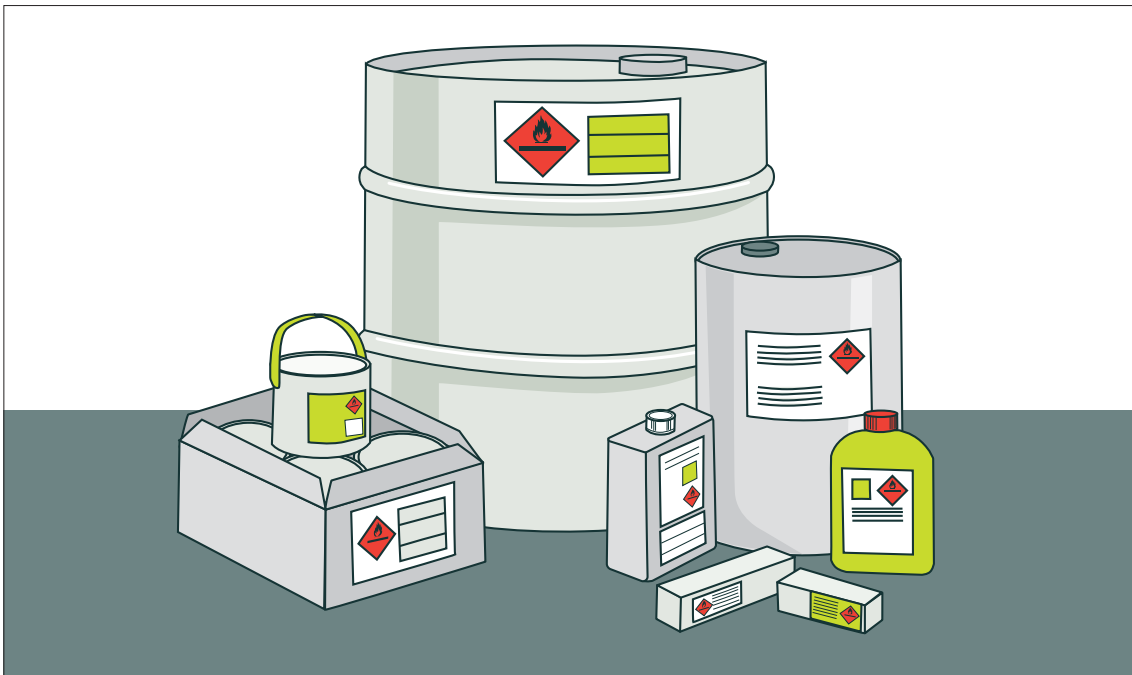


Figure 1: Various types of closed packages

³ [www.dia.govt.nz/Pubforms.nsf/NZGZT/HazardSubstances35Mar04.pdf/\\$file/HazardSubstances35Mar04.pdf](http://www.dia.govt.nz/Pubforms.nsf/NZGZT/HazardSubstances35Mar04.pdf/$file/HazardSubstances35Mar04.pdf)

⁴ www.epa.govt.nz/hazardous-substances/approvals/group-standards/Pages/site-storage.aspx

02/

MATTERS APPLICABLE TO ALL FORMS OF STORAGE

IN THIS SECTION:

- 2.1 Preventing ignition**
- 2.2 Secondary containment**
- 2.3 Fire extinguishers**
- 2.4 Signage**
- 2.5 Notification**
- 2.6 Approved handlers**
- 2.7 Hazardous atmosphere zones**
- 2.8 Segregation of incompatible substances**
- 2.9 Emergency response plans**
- 2.10 Site plans**
- 2.11 Certification**

The following matters apply to the storage of flammable liquids:

- > prevention of ignition
- > secondary containment (for containing spills)
- > fire extinguishers
- > signage
- > notification to WorkSafe
- > approved handlers
- > hazardous atmosphere zones
- > segregation
- > emergency response plans
- > site plans
- > test certification.

Sources of ignition include, but are not limited to:

- > open flames
- > lightning
- > hot surfaces
- > radiant heat
- > smoking
- > cutting and welding
- > spontaneous ignition
- > frictional heat or sparks
- > static electricity
- > electrical arcs and sparks
- > stray currents
- > ovens, furnaces, and other heating equipment
- > mobile phones and cameras
- > automotive vehicles
- > material-handling equipment.

2.1 PREVENTING IGNITION

In locations where flammable liquids are held, precautions must be taken to prevent ignition by eliminating or controlling sources

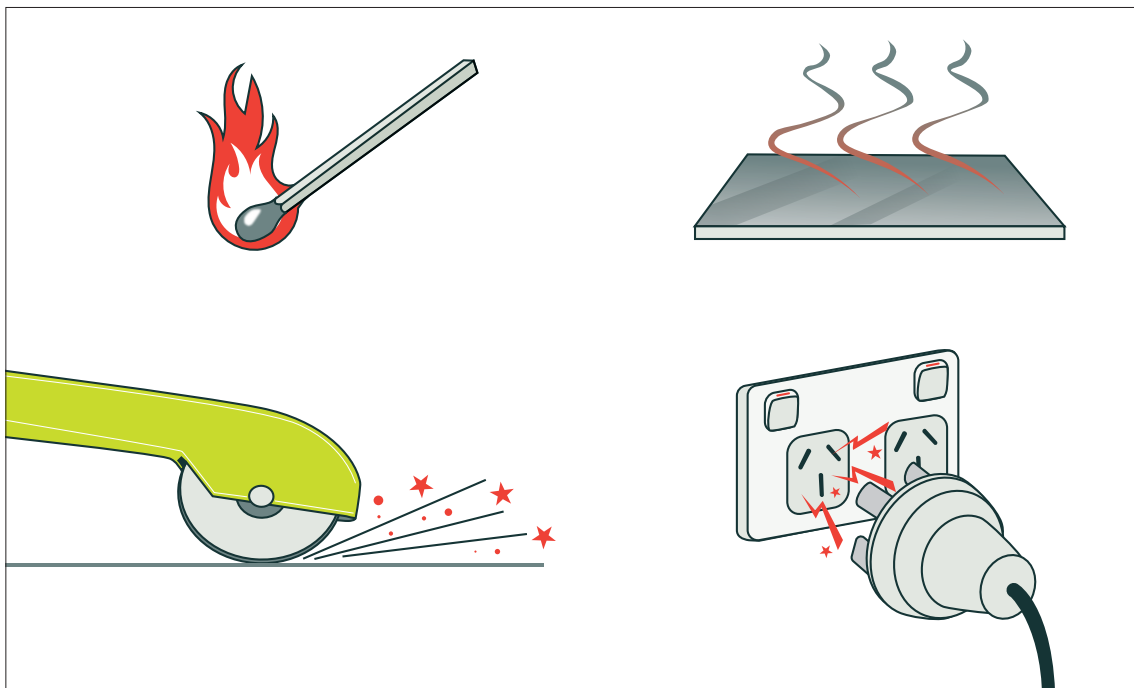


Figure 2: Examples of ignition sources

Electrical lighting, power circuits and equipment within the store and in close proximity of the store must be protected against igniting a flammable vapour (often referred to as ‘flame proof’ or ‘intrinsically safe’).

2.2 SECONDARY CONTAINMENT

Secondary containment⁵ is required if there are held, or are reasonably likely to be held on occasion, an aggregate quantity of flammable liquids greater than the amounts specified in Table 2.

HSNO CLASSIFICATION	QUANTITY
3.1A	100 L
3.1B	1,000 L
3.1C	10,000 L

Table 2: Quantities that activate emergency plan and secondary containment requirements

The minimum required capacity of the secondary containment is shown in Table 3.

HSNO CLASSIFICATION	CONTAINER SIZE	SECONDARY CONTAINMENT REQUIRED
3.1A, 3.1B or 3.1C	≤ 60 L	at least 50% of the maximum storage quantity
	> 60 L to 450 L	at least 100% of the maximum storage quantity
	≥ 450 L	at least 110% of the maximum storage quantity

Table 3: Capacity of secondary containment where up to 2,000 L is being stored above ground

2.3 FIRE EXTINGUISHERS

Every place where flammable liquids are stored must have the number of fire extinguishers specified in Table 4.

HSNO CLASSIFICATION	TOTAL QUANTITY	NUMBER OF FIRE EXTINGUISHERS
3.1A	≥ 50 L	1
	≥ 200 L	2
3.1B	≥ 250 L	2
3.1C	≥ 500 L	2

The numbers of fire extinguishers are not cumulative. For example if you have 200 L of a 3.1A flammable liquid and 250 L of a 3.1B flammable liquid, two fire extinguishers are required rather than four.

The fire extinguisher(s) must be located within 30 metres of the location of the flammable liquids.

There should be one fire extinguisher located next to the door to the store. It must be kept in a secure location outside the store.

Fire extinguishers must have a minimum rating of 30B.

Table 4: Quantities that activate fire extinguisher requirements

⁵ Places where hazardous liquids are stored must have a secondary containment system in place so that the liquids held in the place will be contained if they escape from the packages in which they are being held and from which they can be recovered.

2.4 SIGNAGE

SIGNS ON STORAGE CABINETS

Signs must be located on flammable liquids storage cabinets. These signs must:

- > be clearly visible when the cabinet doors are closed
- > be marked with:
 - a class 3 hazardous substances label with sides of at least 250 mm nominal length
 - a sign in lettering at least 50 mm high, bearing the words ‘NO SMOKING, NO SOURCES OF IGNITION WITHIN 3 m’.

SIGNS ON STORES AND OUTSIDE STORAGE AREAS

Signs are needed on outside stores and storage areas when there is held, or likely to be held, a quantity of a flammable liquid greater than the amount specified in Table 5.

HSNO CLASSIFICATION	TOTAL QUANTITY
3.1A	50 L
3.1B and Petrol	250 L
3.1C	1,000 L

Table 5: Quantities that activate signage requirements

Note: Other hazard classes must also be included in the signage.

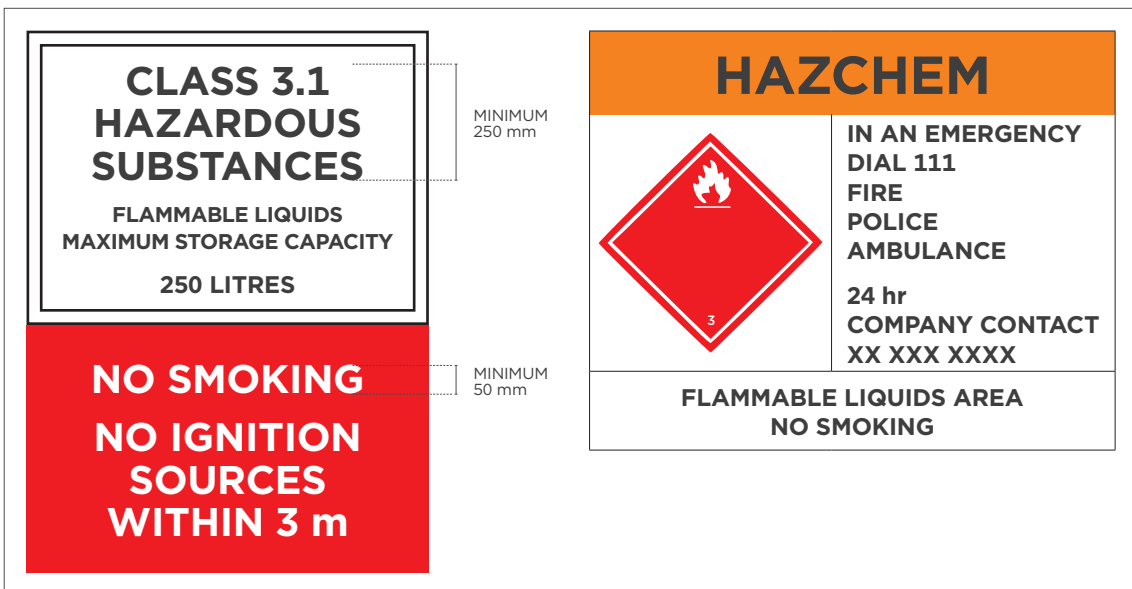


Figure 3: Examples of signs

SIGNS NEAR OUTDOOR AREAS WHERE FLAMMABLE LIQUIDS ARE STORED

If flammable liquids are located in an outdoor area, signs must be positioned immediately next to that area. The signs must:

- > indicate that flammable liquids are present
- > describe the precautions necessary to prevent unintended ignition of the flammable liquids.

SIGNS ON BUILDINGS WHERE FLAMMABLE LIQUIDS ARE STORED

If flammable liquids are located in a building (but not in a particular room or compartment within it), signs must be positioned at every vehicular and pedestrian access to the building, and every vehicular and pedestrian access to sites where the building is located.

The signs must indicate that flammable liquids are present.

On farms where no more than 2,000 litres of petrol is located (and which are not less than 4 hectares in area) signs are not required at every vehicular and pedestrian access to the land where the store is located.

SIGNS ON ROOMS WHERE FLAMMABLE LIQUIDS ARE STORED

If flammable liquids are located in a particular room or compartment within a building, signs must be positioned at each entrance to the room or compartment as well as at each vehicular and pedestrian access. The signs at the entrance to the room or compartment must:

- > indicate that flammable liquids are present
- > describe the precautions necessary to prevent unintended ignition of the flammable liquids.

2.5 NOTIFICATION

If the place where flammable liquids are stored holds a quantity that exceeds those listed in Table 6, the person in charge of the place must notify an enforcement officer responsible, at least 30 working days before the commissioning of the place as a place for accommodating flammable liquids, of—

- a. the street address of the place in which the hazardous substance location is located
- b. the maximum quantity and hazard classification of each flammable liquid that the hazardous substance location is designed or constructed to accommodate.

See Section 2.11 for information about location test certificates.

HSNO CLASSIFICATION	TOTAL QUANTITY
Petrol	50 L
3.1A (other than petrol)	20 L
3.1B	100 L in packages > 5 L 250 L in packages ≤ 5 L
3.1C	500 L in packages > 5 L 1,500 L in packages ≤ 5 L

Table 6: Quantities that activate notification requirements

2.6 APPROVED HANDLERS

Flammable liquids, when in quantities greater than those listed in in Table 7, must be under the personal control of an approved handler.⁶

HSNO CLASSIFICATION	TOTAL QUANTITY
Petrol	100 L
3.1A (other than petrol)	Any amount
3.1B	250 L in packages 5 L 500 L in packages 5 L

Table 7: Quantities that activate approved handler and site plan requirements

EXEMPTIONS FOR PETROL

Petrol required to be under the personal control of an approved handler may be handled by a person who is not an approved handler if –

- a. where the petrol is being handled, –
 - i. the person has been trained in the hazards associated with the substance and its safe use and handling, including steps to be taken in the event of spillage or other emergency; and
 - ii. an approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person; or
- b. at a refuelling outlet –
 - i. the person is self-service refuelling a vehicle, aircraft or ship with petrol; or
 - ii. the person is self-service filling a container with less than 250 litres of petrol; and
 - iii. an approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by a person; or
- c.
 - i. the petrol is stored and used at a farm of not less than 4 hectares; and
 - ii. the quantity of petrol stored is less than 2,000 L; and
 - iii. the person has been trained in the hazards associated with the substance and its safe use and handling, including steps to be taken in the event of spillage or other emergency.

2.7 HAZARDOUS ATMOSPHERE ZONES

At any place containing flammable liquids in quantities in excess of those specified in Table 8, the person in charge of the flammable liquids must ensure that a hazardous atmosphere zone⁷ is established. A hazardous atmosphere zone is a space which is delineated around the flammable liquids and which could contain flammable vapour. This space must not contain any sources of ignition.

⁶ This is someone who has specific knowledge and experience about how to handle flammable liquids and has received a test certificate from a test certifier.

⁷ For more information on Hazardous Atmosphere Zones see Section 6 Interpretation.

HSNO CLASSIFICATION	TOTAL QUANTITY
3.1A, 3.1B, 3.1C	100 L in closed packages

Table 8: Quantity that activates hazardous atmosphere zone requirements

For information on hazardous atmosphere zones see Code of Practice on Hazardous Atmosphere Zones – AS/NZS 60079.10.1:2009 (HSNOCOP 37-2).

2.8 SEGREGATION OF INCOMPATIBLE SUBSTANCES

The person in charge of a flammable liquid must ensure that incompatible substances are held separately from the flammable substances.

Substances or materials specified in Table 9 are incompatible with flammable liquids.

INCOMPATIBLE SUBSTANCES AND MATERIALS	
Class 1 substances	Explosives (eg fireworks)
Class 2 substances	Flammable gases (including flammable aerosols) (eg LPG, acetylene)
Class 4 substances	Flammable solids (eg zinc dust, magnesium powder, white phosphorus)
Class 5 substances	Oxidisers (eg oxygen, pool chemicals such as calcium hypochlorite)

Table 9: Substances and materials incompatible with flammable liquids

2.9 EMERGENCY RESPONSE PLANS

A place where flammable liquids are stored must have a single emergency response plan if the aggregate quantity of flammable liquids held in it, or is reasonably likely to be held in it, is greater than the quantity specified in Table 10.

HSNO CLASSIFICATION	QUANTITY
3.1A	100 L
3.1B	1,000 L
3.1C	10,000 L

Table 10: Quantities that activate emergency response plan requirements

An emergency response plan must provide for all of the reasonably likely emergencies that may arise from the breach or failure of the controls on flammable liquids.

2.10 SITE PLANS

If a place where flammable liquids is stored holds a quantity that exceeds those listed in Table 6 above, the person in charge of the place must ensure that a site plan is available that shows:

- all locations within the place that contain flammable liquids; and
- all hazardous atmosphere zones and controlled zones within the place.

2.11 CERTIFICATION

A location test certificate is needed when there is held, or reasonably likely to be held on occasion, a total quantity of flammable liquid in closed containers greater than the amount specified in Table 11.

HSNO CLASSIFICATION	TOTAL QUANTITY
Petrol	50 L
3.1A (other than petrol)	20 L
3.1B	100 L in packages 5 L 250 L in packages 5 L
3.1C	500 L in packages 5 L 1500 L in packages 5 L

Table 11: Quantities that activate location test certificate requirements

A test certificate is not required for the storage of less than 2,000 L of petrol:

- a. on a farm that is larger than 4 hectares if the storage location meets certain requirements⁸ or
- b. where the proposed or actual duration of the storage is for a continuous period of less than 14 days.

Location test certificates must be obtained from a test certifier approved to issue such certificates. A list of approved test certifiers is available on the EPA website: www.epa.govt.nz

TEST CERTIFICATION REQUIREMENTS

The person in charge of a hazardous substance location where flammable liquids are present must make sure that the location has a current test certificate certifying that:

- a. the appropriate level of secondary containment is provided (see 2.2)
- b. the appropriate number of fire extinguishers are in place (see 2.3)
- c. the hazardous substance location has the correct signage in place (see 2.4)
- d. the location has been notified to an enforcement officer (see 2.5)
- e. where the substances are required to be under the control of an approved handler (see 2.6):
 - i. the person in charge of the hazardous substance location is an approved handler for such flammable liquids, or can demonstrate that a person is available who is an approved handler for such substances; and
 - ii. the flammable liquids can be secured so that a person cannot gain access to the flammable liquids without tools, keys, or any other device used for operating locks
- f. if required, a hazardous atmosphere zone has been established (see 2.7) and the extent of the zone is documented
- g. the flammable liquids are separated from incompatible substances (see 2.8)
- h. if required, an emergency response plan is in place (see 2.9)
- i. if required, a site plan is available (see 2.10)
- j. the site meets the minimum separation distance requirements (see 4.1).

⁸ For information on these requirements see *Good Practice on Guidelines on Above Ground Fuel Storage on Farms*.

03/

STORAGE CABINETS

IN THIS SECTION:

- 3.1 Package requirements**
- 3.2 Construction**
- 3.3 Location**
- 3.4 Preventing ignition**

The use of storage cabinets is permitted when the total quantity of flammable liquids in each cabinet is 250 L or less and the following criteria are met.

3.1 PACKAGE REQUIREMENTS

Each package containing a flammable liquid must:

- > not contain more than 20 L
- > be able to be placed in the cabinet and removed from the cabinet without persons entering the cabinet
- > be closed, or fitted with a closed tap.

3.2 CONSTRUCTION

Cabinets must conform to Clause 4.9 of Australian Standard AS1940: *The storage and handling of flammable and combustible liquids*. The requirements of this standard include specifications for the walls, floor, roof, doors and secondary containment.

3.3 LOCATION

There must be:

- > no more than three storage cabinets located on a building's ground floor level⁹
- > a minimum of three metres separation distance between storage cabinets where there are two or more storage cabinets on the same floor level

Where the premises are used for industrial or commercial use only, one storage cabinet on each floor above the ground floor is allowed.

Cabinets must be located so that they do not impede escape of persons in an emergency.

Where a storage cabinet is used for outdoor storage, provision should be made to prevent corrosion and weather or traffic damage.

Stores in buildings are not permitted to hold

flammable liquids in cabinets in addition to the maximum quantity of flammable liquids that are specified for that building type.

3.4 PREVENTING IGNITION

There must be no ignition sources¹⁰ within a storage cabinet.

Ignition sources and combustible materials must be excluded from:

- > the area outside a storage cabinet to a distance of three metres, measured laterally
- > floor level to a height of one metre above any opening into a cabinet, including the door.

Smoking must be prohibited inside the store and within a 3 m radius outside the door to the building or storeroom.



Figure 4: Up to 250 L of flammable liquids in closed packages can be kept in a storage cabinet

⁹ Where split-levels and/or open mezzanines exist, they must be regarded as part of the ground level for the purpose of calculating the number of cabinets.

¹⁰ For information on Ignition Sources see 2.1.

04/

STORAGE OF FLAMMABLE LIQUIDS IN OPEN AREAS OR STAND-ALONE STRUCTURES

IN THIS SECTION:

- 4.1 Location**
- 4.2 Type A buildings - outdoor storage areas**
- 4.3 Type B buildings - stand-alone freight containers and buildings with non-combustible cladding**
- 4.4 Type C buildings - stand-alone fire rated buildings**
- 4.5 Type D buildings - stand-alone fire rated buildings**

Flammable liquids in closed packages can be stored externally in:

- > outdoor storage areas or platforms (type A buildings)
- > stand-alone freight containers and buildings with non-combustible cladding (type B buildings)
- > stand-alone fire rated buildings (type C and D buildings).

4.1 LOCATION

Storage structures must be located so that there is separation from areas of High Intensity Land Use (HILU)¹¹. The minimum permissible separation distance is calculated in relation to the total quantity of flammable liquids held in the store and the size of the packages these substances are held in.

For the storage of package sizes up to 60 L of flammable liquids, see Table 12.

For the storage of package sizes of more than 60 L see Table 13.

MINIMUM SEPARATION DISTANCE FROM AN AREA OF HILU	TOTAL QUANTITY OF FLAMMABLE LIQUIDS IN PACKAGES UP TO 60 L		
	Type A or B building	Type C building	Type D building
0 m	250 L	1,000 L	20,000 L
1 m	500 L		
2 m	750 L	2,000 L	
3 m	2,000 L		

Table 12: Minimum separation distance for buildings holding packages up to 60 L

MINIMUM SEPARATION DISTANCE FROM AN AREA OF HILU	TOTAL QUANTITY OF FLAMMABLE LIQUIDS IN PACKAGES OF MORE THAN 60 L		
	Type A or B building	Type C building	Type D building
0 m			2,000 L
2 m		500 L	
3 m	250 L	2,000 L	
4 m			
6 m	1,000 L		
15 m	10,000 L		

Table 13: Minimum separation distance for buildings holding packages of more than 60 L

¹¹ For more information on HILU see Section 6 Interpretation.

4.2 TYPE A BUILDINGS – OUTDOOR STORAGE AREAS

Outdoor storage areas include:

- > storage of drums in a concrete bund
- > storage on a platform.

CONSTRUCTION

An outdoor storage area for flammable liquids must have a platform or base designed for the expected loading or otherwise shown to be adequate for the loading. It must be constructed from non-combustible materials.

The store:

- > must be secured, or be in a secured area, to prevent unauthorised persons gaining access
- > may have a shelter or roof (which must be non-combustible).

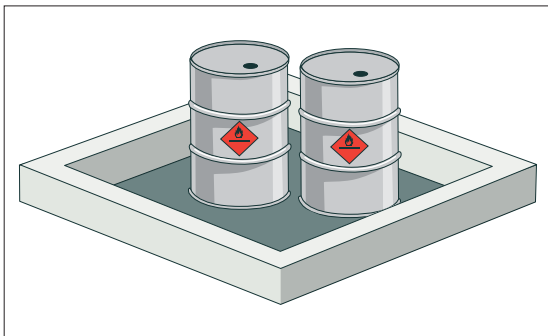


Figure 5: Storage of drums in a concrete bund and on a platform

4.3 TYPE B BUILDINGS – STAND-ALONE FREIGHT CONTAINERS AND BUILDINGS WITH NON-COMBUSTIBLE CLADDING

CONSTRUCTION

A store that is a type B building:

- > must have non-combustible cladding, such as steel or equivalent materials
- > may be constructed from a wooden or steel frame.

The door to a store must:

- > have a non-combustible cladding as a minimum
- > enable escape for persons inside the store
- > be self-closing in the event of a fire near the doorway
- > be kept closed except where goods are being placed in, or removed from, the store.

LOCATION

The store must be stand-alone and separated from areas of HILU as indicated in 4.1 above.

There should not be any combustible materials outside the store within three metres of the doorway.



Figure 6: Typical examples of type B stores are freight containers and concrete structures with walls <100 mm thick

4.4 TYPE C BUILDINGS – STAND-ALONE FIRE RATED BUILDINGS

CONSTRUCTION

A store that is a type C building must have:

- > a floor and walls which have a minimum Fire Resistance Rating (FRR)¹² of 120/120/120 and be designed for the loading, such as being constructed from materials such as brick, block or reinforced concrete
- > a roof constructed from a wooden and steel frame or equivalent construction with non-combustible cladding
- > doors with a minimum FRR of -/120/60.

LOCATION

The store must be stand-alone and separated from areas of HILU as indicated in 4.1.

There should not be any combustible materials outside the store within three metres of the doorway.



Figure 7: Type C buildings – stand-alone fire rated buildings

4.5 TYPE D BUILDINGS – STAND-ALONE FIRE RATED BUILDINGS

CONSTRUCTION

A store that is a type D building must have:

- > a floor and walls designed for the loading, being constructed from materials such as concrete block or reinforced concrete
- > a roof constructed from a structurally strong materials, such as brick, block concrete and reinforced concrete
- > floors, walls and roofs with a minimum FRR of 240/240/240
- > doors with a minimum FRR of -/240/60.

LOCATION

The store must be stand-alone and separated from areas of HILU as indicated in 4.1.

There should not be any combustible materials outside the store within three metres of the doorway.

¹² For more information on FRR see Section 6 *Interpretation*.

05/

STOREROOMS IN A BUILDING

IN THIS SECTION:

- 5.1 Fire Rating 60/60/60**
- 5.2 Fire rating 120/120/120**
- 5.3 Type D building**
- 5.4 Doors**

When located in a storeroom in a building (ie not in a stand-alone building) flammable liquids in quantities greater than 250 L must be stored in manner set out in this section.

The storeroom is a separate structure within the building and may have its own walls and ceiling. However, one or more of the exterior walls of the building may form both the exterior wall of the building and the exterior wall of the store.

The allowable capacity of a storeroom depends on the FRR of the walls and ceilings.

5.1 FIRE RATING 60/60/60

A storeroom where the walls and ceiling have a FRR of 60/60/60 may be used to store up to 450 L of flammable liquids in containers with a capacity of 20 L or less.

The door to the storeroom may open to the interior of the building and must have a minimum FRR of -/60/60.

5.2 FIRE RATING 120/120/120

A storeroom where the walls and ceiling have a FRR of 120/120/120 may be used to store up to 2,000 L of flammable liquids in containers with a capacity of 60 L or less except that one container of a maximum capacity of 250 L may be located in the store.

5.3 TYPE D BUILDING

A Type D building which is a store in building 240/240/240 may be used to store 2,000 L of flammable liquids in closed packages.

5.4 DOORS

The door to a storeroom in a building may open into the building if:

- > the door is self-closing in the event of a fire near the doorway
- > the door is kept closed except where goods are being placed in, or removed from, the store
- > the door opens towards the outside of the storeroom
- > there are no combustible materials within three metres of the doorway outside the store.

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INTERPRETATIONS

The table below gives interpretations of terms used in these guidelines.

TERM	DEFINITION
Area of High Intensity Land Use (HILU)	<p>An area of High Intensity Land Use –</p> <ol style="list-style-type: none"> 1. Includes: <ol style="list-style-type: none"> a. an area of regular habitation, and b. a structure made of or containing combustible materials that would sustain a significant fire,¹³ and c. a high density traffic route, but 2. does not include a small office constructed of non-combustible materials associated with a hazardous substance location that is used by persons authorised to be at the location by the person in charge of that location.
Area of regular habitation	Includes any dwelling, hospital, school, airport, commercial premises, office, or other area where people regularly congregate.
Controlled zone	<p>A controlled zone is an area abutting a hazardous substance location that is regulated so that:</p> <ol style="list-style-type: none"> 1. within the zone, the adverse effects of a hazardous substance are reduced and prevented, and 2. beyond the zone, members of the public are provided with reasonable protection from those adverse effects.
Fire-Resistance Rating (FRR)	<p>The minimum period of time for which an element (one side of which is subjected to a fire) continues to perform its structural function and does not permit the spread of fire. Fire-Resistance Rating is graded with the following format: A/B/C, where:</p> <p>A = Structural adequacy B = Integrity C = Insulation</p> <p>For example, 60/60/60 FRR means the building element has a 60 minute structural adequacy rating, 60 minute integrity rating, and 60 minute insulation rating.</p> <p>Non-structural elements, such as doors, have a Fire-Resistance Rating written as -/60/60 FRR, or similar.</p> <p>Fire testing must be in accordance with the Building Act requirements.</p>
Hazardous Atmosphere Zone	<p>Hazardous atmosphere zones are used to delineate where flammable vapours may be present. If vapours are present, special precautions must be taken to prevent ignition.</p> <p>A hazardous atmosphere zone surrounds a flammable substance and identifies the extent of any source (or potential source) of release of gas or vapour. Within the zone there must be controls to prevent unintended ignition.</p> <p>A hazardous atmosphere zone is used primarily to decide on the type of electrical equipment that is acceptable within that zone. Any items of electrical equipment within a hazardous atmosphere zone must be specifically rated for that zone (eg flameproof or intrinsically safe) and must be inspected by an electrical inspector at least every 4 years.</p>

¹³ In this context a structure made of or containing combustible materials relates to the structure itself ie. a steel structure holding drums of solvent is not included in this definition.

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