

CHEM services

Chemical Hazards and Emergency Management (CHEM) services



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Department of Emergency Services

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Premises Classification for the Storage and Handling of Dangerous Goods

under the
Dangerous Goods Safety Management Act 2001

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Block C, Level 2, Emergency Services Complex, Cnr Park and Kedron Park Roads, KEDRON Qld 4031

GPO Box 1425, BRISBANE Qld 4001

Telephone: (07) 3247 8444 Facsimile: (07) 3247 8433

Website: www.emergency.qld.gov.au/chem

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1. Introduction

This information paper provides assistance to occupiers to determine the classification of their premises under the *Dangerous Goods Safety Management 2001 Act* (DGSM Act). The determination of site classification is one of the first steps that must be carried out to determine the extent of legal obligations under the DGSM legislation.

Obligations under the DGSM legislation increase as the quantity of dangerous goods and combustible liquids stored and handled increases. Premises are classified into one of four categories according to the quantity of dangerous goods and combustible liquids present, as follows:

- small quantities → ‘Other’ places¹
- medium quantities → Dangerous Goods Locations (DGLs)
- large quantities → Large Dangerous Goods Locations (Large DGLs)
- very large quantities → Major Hazard Facilities (MHFs)

The prescribed quantities by which premises are classified as DGLs and Large DGLs are specified in Schedule 1 of the DGSM Regulation whereas the prescribed quantities for MHFs are set out in Schedule 2 of the Regulation. In this paper, these prescribed quantities are often referred to as thresholds.

This hierarchy of premises types is illustrated in Figure 1.

This paper focuses on classification for DGLs and Large DGLs².

As an occupier, you need to determine under which of these types your premises may be classified. To do this, you need to determine the quantities of all stated dangerous goods and combustible liquids at the premises by class, type and packing group. Compare the actual quantities with the prescribed quantities in the tables to determine which thresholds your premises exceed.

This will determine which of the DGSM obligations you need to comply with. A summary of the obligations for each type of premises under the DGSM legislation is given in Table 1.

It should be noted that Large DGLs are a specific type of DGL, so that any reference to DGLs also refers to Large DGLs. The obligations of occupiers of DGLs also apply to occupiers of Large DGLs.

¹ ‘Other places’ are places where stated dangerous goods or combustible liquids are stored or handled in quantities less than the prescribed quantities for a dangerous goods location.

The term includes:

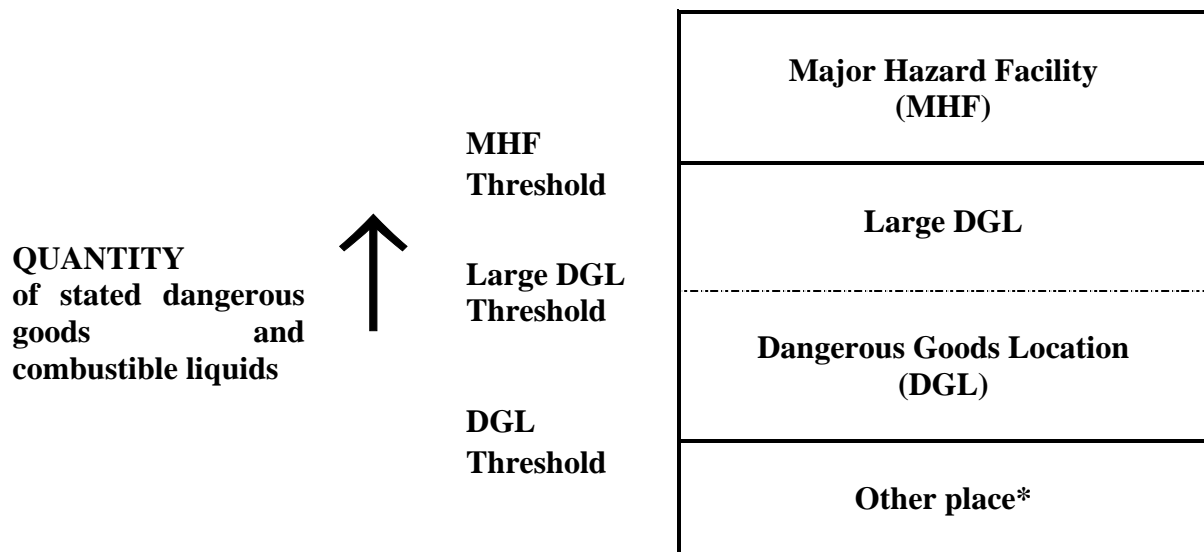
- ▶ ‘minor storage workplaces’ (as referred to in section 3.1 of the CHEM services publication “Safe Storage and Handling of Dangerous Goods: Guidelines for Industry”); and
- ▶ ‘rural places’ (as defined on page 2 and in footnote 3).

Division 4 of Part 3 of the DGSM Regulation applies to such places.

² As very few sites have sufficient quantities of dangerous goods to be classified as a MHF, this process is not discussed here. If, after reviewing Schedule 2 of the Regulation, you suspect that your premises may be a Possible MHF, contact CHEM services for advice.

Rural places³ are exempted from the classification as DGLs or Large DGLs. Division 4 of Part 3 of the DGSM Regulation applies to such places. Occupiers of rural places can also find guidance in the ‘Code of Practice for the Storage and Use of Chemicals at Rural Workplaces’, published by DWHS.

There are additional requirements that apply to MHFs in relation to the holistic management of risks at these facilities. These requirements are not addressed in this publication but relevant guidelines are available from CHEM services’ website (www.emergency.qld.gov.au/chem).



* see footnote 1 on previous page.

Figure 1: Hierarchy of premises types

1.1 Implications for flammable and combustible liquids licence

Premises which store flammable or combustible liquids above the minor storage exemption limits of table 2.1 of AS 1940: “Storage and Handling of Flammable and Combustible Liquids”, must obtain a licence for this activity from their Local Government – see Part 4 of the DGSM Regulation. The AS 1940 minor storage exemption limits differ from the DGSM thresholds, and should not be confused with them.

1.2 Environmentally Relevant Activities

Premises that exceed the thresholds for Environmentally Relevant Activities (ERAs) may need an approval or licence from their Local Government or the Environmental Protection Agency.

³ A ‘rural place’ means a place:

- (a) that has an area of 5 ha or more; and
- (b) used by its occupier for agricultural, horticultural, floricultural, aquacultural or pastoral purposes; and
- (c) at which there are no stated dangerous goods or combustible liquids being stored for resale.

Table 1: Obligations for occupiers of Large DGLs, DGLs and minor storage workplaces

DGSM Requirement	Reference	'Other' workplaces	DGLs	Large DGLs (see Note)
General Safety Obligation	Act, Part 2, s.16	✓	✓	✓
Management systems				
- Hazard identification and risk assessment	Regulation, Part 3, Division 4	✓		
	Regulation, Part 3, Division 1		✓	✓
- Induction, information, supervision, education and training	Regulation, Part 3, Division 4	✓		
	Act, Part 2, Division. 2, s.23(1)		✓	✓
	Regulation, Part 3, Division 1		✓	✓
- Safety Management System	Act, Part 2, Division. 2, s.23(1)		✓	✓
Provision of information				
- MSDS, labels, marking, DG register	Regulation, Part 3, Division 4	✓		
	Regulation, Part 3, Division 1		✓	✓
- Placarding	Regulation, Part 3, Division 1		✓	✓
- Manifest	Regulation, Part 3, Division 2			✓
Prevention and Mitigation measures				
	Regulation, Part 3, Division 4	✓		
	Regulation, Part 3, Division 1		✓	✓
Emergency planning				
	Act, Part 2, Division. 2, s.23(2)			✓
	Regulation, Part 3, Division 2			
Notification (to chief executive regarding possible existence)				
	Act, Part 5, Division 2			✓
	Regulation, Part 3, Division 3 (for MHFs, see Act, Part 4, Division 2)			

NOTE: Requirements for Large DGLs also apply to MHFs. In addition, MHFs have other obligations specific to MHFs, which are not identified in this table or addressed in this paper.

2. Classifying your premises

Classifying your premises may be straightforward or complex.

If you store dangerous goods or combustible liquids in large quantities relative to the thresholds, it may be readily apparent that your premises are a Large DGL. This can be particularly true if the materials are stored in tanks.

Alternatively, if you store only small quantities, it may be readily evident that your premises are an 'other' place.

In such cases, it may not be necessary to conduct the full process detailed below.

The most difficult cases to resolve are likely to be situations involving a range of Classes, types and PGs in packages. In such cases, it may be necessary to conduct a detailed analysis using the process detailed below.

In any case, you need to ensure that you are familiar with the terminology used to classify dangerous goods and combustible liquids, namely:

- for dangerous goods:
 - **Proper Shipping Name:** The name assigned to the DG for identification during transport. This name may be different from the product name.
 - **UN Number:** A 4-digit number assigned to the DG for identification during transport. This number should match the Proper Shipping Name.
 - **Class:** Dangerous goods are assigned to a Class according to the most significant hazard presented by the goods. There are nine hazard classes (numbered 1 to 9), some with sub-classes represented by adding a decimal point and second digit to the class number (e.g. Class 2.3).

Secondary hazards are represented by a subsidiary risk (sub-risk), but this does not play a part in premises classification under DGSM.

- **Packing Group:** The degree of risk presented by the Dangerous goods is represented by the Packing Group (PG), which is expressed in Roman numerals:

PG I = high risk
PG II = moderate risk
PG III = low risk

Packing Group is assigned in most classes, but not for Classes 1, 2 and 7.

- for combustible liquids:
 - **C1:** combustible liquids with flash point in the range 60.5⁰C to 150⁰C
 - **C2:** combustible liquids with flash point greater than 150⁰C

For a given material, this classification data should be available from the supplier of the material, particularly in the MSDS, and also on the label (the label may not indicate PG).

2.1 Detailed classification process

The broad stages for following this process are as follows:

1. prepare an inventory of all stated dangerous goods and combustible liquids at the premises. In doing this, take note of the information given in Table 2. You can use Table 3 to record your inventory.
2. calculate the aggregate quantity of each class, type or combination of class and packing group. Enter these quantities into Table 4.
3. Add the quantities to arrive at a total for each class and for all DG classes, as indicated in Table 4.
4. Determine the classification of the premises. For each row in Table 4, compare the quantities entered (X) with the two sets of prescribed quantities for DGL (Y) and a Large DGL (Z) respectively.

If X exceeds Y in any row, the premises are a DGL.

If X exceeds Z in any row, the premises are a Large DGL.

Table 2: Guidance notes for classification

Column Heading in Table 4	Comment
Row No.	This is a number to identify each row of the table.
Class/Type of Hazardous Material	This is the class of Dangerous Goods or the type of compressed gas (cryogenic fluid or aerosol), combustible liquid or other hazardous material.
Combustible liquids	C1 combustible liquids –have a flashpoint between 61 to 150°C . (See product MSDS) C2 combustible liquid – have a flashpoint exceeding 150 °C. Liquids with a flashpoint of less than 61°C are flammable.
Packing Group (PG)	This is the Packing Group of the Dangerous Goods.
Quantity at premises ('X')	Enter the maximum quantity likely to be held at the location. Calculate individual quantities as follows: <ul style="list-style-type: none"> • for solids in a package, the quantity is the net mass (in kilograms) in the package; • for solids in a tank, the quantity is the mass (in kilograms) the tank is designed to hold; • for solids not in a tank or package, the quantity is the undivided mass (in kilograms); • for liquids in a package, the quantity is the net capacity (in litres) of the package; • for liquids in a tank, the quantity is the design capacity (in litres) of the tank; • for class 2 dangerous goods (gases) in packages or tanks, the quantity is the total capacity (water capacity in litres) of the package or tank.
Prescribed Quantity ('Y')	This is the quantity listed in Column 3 of the Table in Schedule 1 of the Regulation.
Prescribed Quantity ('Z')	This is the quantity listed in Column 4 of the Table in Schedule 1 of the Regulation
X ≤ Y? (Yes/No)	If the answer is “other” for <u>every</u> row (quantities are less than or equal to X), then the premises is classified as an ‘other’ workplace i.e. it is neither a DGL nor Large DGL.
X > Y? (Yes/No)	If the answer is “DGL” for <u>any</u> row, then the premises is classified as a Dangerous Goods Location (unless it is a Large Dangerous Goods Location).
X > Z? (Yes/No)	If the answer is “Large DGL” for any row, then the premises is classified as a Large Dangerous Goods Location.

Determining the classification

Step 3: From your inventory, calculate the aggregate quantity of each Class, type or Class-Packing Group combination, and insert into Table 4 in the corresponding row in the Quantity at Premises column (Column X).

The aggregate is the total quantity of all dangerous goods in each Class, type or Class-Packing Group combination.

For example, if you have 3 x 200-litre drums of Class 8 PG III dangerous goods then the corresponding aggregate quantity is 600 litres, and you would insert this quantity under Column X for Row 37.

Step 4: In Table 4, calculate the total quantity for each Class from the quantities of the Class-Packing Group combinations for that Class, and insert that value in the appropriate space in Table 4 under the corresponding column header “Quantity at Premises”

For example, if you have inserted 450 into Row 36 (Class 8 PG II) and 600 litres into Row 37 (Class 8 PG III), you should insert 1,050 under Column X into Row 38 (Class 8 Mixed PG).

Step 5: Calculate the total quantity of stated dangerous goods by adding all entries in the right-hand side of Column X and inserting the resultant sum into Rows 42 and 43 under Column X.

Step 6: Compare the quantities in Column X with those in Column Y and Column Z.

In the final column, insert for each row the words “other”, “DGL” or Large DGL” according to the following rules:

- ▶ If the quantity in Column X is less than or equal to the quantity in Column Y, write “other”;
- ▶ If the quantity in Column X is greater than that in Column Y but less than or equal to that in Column Z, write “DGL”;
- ▶ If the quantity in Column X is greater than that in Column Z, write “Large DGL”.

Step 7: Determine the classification of the premises using the following rules:

- ▶ If you have written “other” for every row (quantities are less than or equal to X), then the premises is classified as an ‘other’ place i.e. it is neither a DGL nor Large DGL.
- ▶ If the answer is “DGL” for any row, then the premises is classified as a Dangerous Goods Location (unless it is a Large Dangerous Goods Location);
- ▶ If the answer is “Large DGL” for any row, then the premises is classified as a Large Dangerous Goods Location.

Table 4: Determining the site classification

Row No.	Class/Type of Hazardous Material	PG	Quantity at Premises (X)	Prescribed Quantity for DGL (Y)	Prescribed Quantity for Large DGL (Z)	$X \leq Y \rightarrow$ other place; $Y < X \leq Z \rightarrow$ DGL; $X > Z \rightarrow$ Large DGL
1.	Dangerous Goods Class 2.1	NA		500 L	5,000 L	
2.	Dangerous Goods Class 2.2 (sub-risk 5.1)	NA		2,000 L	10,000 L	
3.	Dangerous Goods Class 2.2 (other)	NA		5,000 L	10,000 L	
4.	Dangerous Goods Class 2.3	NA		50 L	500 L	
5.	Aerosols (see note)	NA		5,000 L	10,000 L	
6.	Cryogenic liquids (see note)	NA		1,000 L	10,000 L	
Note: If Dangerous Goods of Class 2 are aerosols or cryogenic liquids, then Rows 5 or 6 apply (as appropriate), rather than Rows 1 to 4.						
7.	Dangerous Goods Class 3	I		50 kg or L	500 kg or L	
8.		II		250 kg or L	2500 kg or L	
9.		III		1,000 kg or L	10,000 kg or L	
10.		Mixed PG		1,000 kg or L	10,000 kg or L	
11.	Dangerous Goods Class 4.1	I		50 kg or L	500 kg or L	
12.		II		250 kg or L	2500 kg or L	
13.		III		1,000 kg or L	10,000 kg or L	
14.		Mixed PG		1,000 kg or L	10,000 kg or L	
15.	Dangerous Goods Class 4.2	I		50 kg or L	500 kg or L	
16.		II		250 kg or L	2500 kg or L	
17.		III		1,000 kg or L	10,000 kg or L	
18.		Mixed PG		1,000 kg or L	10,000 kg or L	
19.	Dangerous Goods Class 4.3	I		50 kg or L	500 kg or L	
20.		II		250 kg or L	2500 kg or L	
21.		III		1,000 kg or L	10,000 kg or L	

Row No.	Class/Type of Hazardous Material	PG	Quantity at Premises (X)	Prescribed Quantity for DGL (Y)	Prescribed Quantity for Large DGL (Z)	$X \leq Y \rightarrow$ other place; $Y < X \leq Z \rightarrow$ DGL; $X > Z \rightarrow$ Large DGL	
22.		Mixed PG		1,000 kg or L	10,000 kg or L		
23.	Dangerous Goods Class 5.1	I		50 kg or L	500 kg or L		
24.		II		250 kg or L	2500 kg or L		
25.		III		1,000 kg or L	10,000 kg or L		
26.		Mixed PG		1,000 kg or L	10,000 kg or L		
27.	Dangerous Goods Class 5.2	I		50 kg or L	500 kg or L		
28.		II		250 kg or L	2500 kg or L		
29.		III		1,000 kg or L	10,000 kg or L		
30.		Mixed PG		1,000 kg or L	10,000 kg or L		
31.	Dangerous Goods Class 6.1	I		50 kg or L	500 kg or L		
32.		II		250 kg or L	2500 kg or L		
33.		III		1,000 kg or L	10,000 kg or L		
34.		Mixed PG		1,000 kg or L	10,000 kg or L		
35.	Dangerous Goods Class 8	I		50 kg or L	500 kg or L		
36.		II		250 kg or L	2500 kg or L		
37.		III		1,000 kg or L	10,000 kg or L		
38.		Mixed PG		1,000 kg or L	10,000 kg or L		
39.	Dangerous Goods Class 9	II		1,000 kg or L	10,000 kg or L		
40.		III		5,000 kg or L	10,000 kg or L		
41.		Mixed PG		5,000 kg or L	10,000 kg or L		
42.	Mixed Classes of stated dangerous goods where none of classes, types, or packing groups (if any) exceed thresholds in rows 1-41	NA		Sum of quantities above in this column	2,000 kg or L Where the quantity specified for each of the classes/types or class-PG combinations is 2,000 kg or less	10,000 kg or L	

Row No.	Class/Type of Hazardous Material	PG	Quantity at Premises (X)	Prescribed Quantity for DGL (Y)	Prescribed Quantity for Large DGL (Z)	$X \leq Y \rightarrow$ other place; $Y < X \leq Z \rightarrow$ DGL; $X > Z \rightarrow$ Large DGL	
43.	Mixed Classes of stated dangerous goods where none of classes, types, or packing groups (if any) exceed thresholds in rows 1-42	NA		Sum of quantities in this column in Rows 1-41	5,000 kg or L Where the quantity specified for one or more of the classes is 5,000 kg or L, & X is not greater than Y for any Row so far	10,000 kg or L	
44.	Goods too Dangerous to be Transported	NA			5 kg or L	50 kg or L	
45.	Combustible liquids with fire risk dangerous goods (see note, p.11)	NA			1,000 kg or L (including C1 or C2 combustible liquids)	10,000 kg or L	
46.	Combustible liquids C1	NA			10,000 L in a tank 50,000 L in packages 50,000 L in tanks & packages provided C1's in tanks <10,000 L	100,000 L	

NA = not applicable

Additional notes for Table 4

Completing Row 45: Do you have combustible liquids stored ‘with’ fire-risk dangerous goods?

If you have both combustible liquids and fire-risk dangerous goods at your premises, you need to decide whether the combustible liquids are stored ‘with’ the fire-risk dangerous goods, or not. Row 42 (Page 10) states a prescribed quantity for the sum total of any combination of combustible liquids with one or more fire-risk dangerous goods (fire-risk dangerous goods are dangerous goods which have a class or sub-risk of 2.1, 3, 4 or 5). In such circumstances, there exists:

- a fuel load represented by the total of all the flammable or combustible materials present; and
- a risk of ignition of the flammable or combustible materials.

Questions that you need to ask:

- Is there a potential for interaction between the combustible liquids and the fire-risk dangerous goods?
- If the fire-risk dangerous goods became involved in a fire, could that fire spread to the combustible liquids (or vice-versa)?
- Could the Class 5 oxidising agents and the combustible liquids come into contact and start a fire?

If the answer to any of these questions in ‘Yes’, then you have combustible liquids stored with fire-risk dangerous goods.

While you may have both combustible liquids and fire-risk dangerous goods at your premises, if they are segregated from each other so as to avoid the potential of interaction between them, it is appropriate to answer ‘No’ to the questions above. (Segregation of materials may be achieved by distance or barriers or both.)

To answer these questions adequately, you may need to have conducted a thorough hazard identification process for the premises.

Approach to dealing with dilute solutions of stated dangerous goods:

Stated dangerous goods that have been diluted (eg. in electroplating solutions and CCA timber treatment), ought to be treated as though they still have the hazards and classification properties of the former “undiluted” dangerous goods solutions unless the occupier can demonstrate that the diluted product will not meet the United Nations tests and criteria for classification as a dangerous goods. This approach is also consistent with the approach taken by the Department of Transport in relation to dangerous goods.

This has implications for site classification, site placarding requirements, manifest preparation, preparation of emergency plans, and notification of large dangerous goods location requirements.