

**Chemical Risk Management**

**Dangerous Goods (DG)  
Stores Chemical  
Management**

**Version 1.0 – April 2026**

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Version: 1.0  
Issue Date: April 2026



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## 1. Who are these guidelines for?

These guidelines are intended for staff who access and manage the content of Dangerous Goods (DG) stores.

## 2. What is the purpose of these guidelines?

The purpose of these guidelines is to outline the responsibilities of staff who direct or participate in movement of hazardous chemicals into or out of DG Stores.

These guidelines do not address requirements for the physical structure or amenities of the DG store, e.g. building specifications, fire ratings, signage, fire extinguishers, or handwashing facilities.

## 3. Definitions

**DG (Dangerous Goods) store** refers to a chemical storage location that is not a laboratory. This is typically a stand-alone room separate from the laboratory areas where bulk chemicals are stored but not used (except for decanting).

**Certified Handler** is someone authorised by WorkSafe to handle acutely toxic class 1 or 2 chemicals. Laboratories are exempted from this but DG Stores are not.

**Hazardous Substance Location (HSL)** is a DG Store that requires a compliance certificate, due to having a larger volume of chemicals that exceeds the certification threshold.

**Laboratory** (legal definition) means a vehicle, room, building, or any other structure set aside and equipped for scientific experiments or research, for teaching science, or for the development of chemical or medicinal products.

**CRMA** is the Chemical Risk Management Advisor, who works within the University's central Health, Safety and Wellbeing team.

## 4. DG Store Management and Access

Access to DG stores must be limited to those who have undergone the appropriate training. Training requirements are detailed in section 7.

## 5. Legislative Background

### 5.1 Health and Safety at Work (Hazardous Substances) Regulations 2017

New Zealand's [Health and Safety at Work \(Hazardous Substances\) Regulations 2017](#) (**HSWA-HSR** in this document) covers most of the legal requirements for the safe handling of hazardous substances at work. This covers storage, handling, and training requirements.

### 5.2 Obligations under Health and Safety at Work Act and University Health, Safety and Wellbeing Policy

The obligations of HSWA-HSR and the University Health and Safety Policy require those using chemicals:

- Take all practicable steps to identify the hazards (i.e. use SDS sheets or Databases) and carry out risk assessments.
- Take appropriate steps to **eliminate**, **substitute**, or **isolate** the chemical hazard. If a risk still remains then **minimise** the chemical hazard by using administrative controls. PPE is used as a last resort.
- Ensure PPE is available and used correctly.
- Know how to handle emergencies involving chemicals.
- **Report any Accident and Incident involving chemicals immediately** (once the emergency is over!) using the University accident/incident reporting forms.

<https://www.auckland.ac.nz/en/health-safety-wellbeing/report-concerns-hazards/injury-incidents-observations-reporting.html>

### 5.3 University guidance

The University has developed a Chemical Risk Management Protocol (CRMP) that covers what you need to know to meet your obligations with regards to chemical safety. It includes guidelines and Safe Method of Use (SMOU) documents.

<https://www.auckland.ac.nz/en/health-safety-wellbeing/health-safety-topics/laboratory-safety/chemical-safety.html>

The information in this guide only covers the **extra** information you need to know regarding DG Stores, which are operated slightly differently to laboratories.

## 6. What makes a DG Store different from a Lab?

A DG Store is not exempt from certain regulations that a laboratory is. This means there are extra requirements for DG Stores which include:

- 1) Chemical containers cannot be opened or used in DG Stores.
- 2) Only **Certified Handlers** can handle acutely toxic category 1 or 2 chemicals. This includes transporting closed containers in or out of storage.
- 3) Stores containing larger volumes of chemicals above certain thresholds are annually audited as **Hazardous Substance Locations**. Therefore each store needs to keep within specified volumes of chemical classes.
- 4) A specific inventory is required, separate to the SciTrack inventory.

**As DG stores are more highly regulated than laboratories, it is important that access to these is restricted to experienced staff.**

### 6.1 Chemical use in DG Stores

For guidance on safe chemical storage and lifecycle management, please refer to the Chemical Risk Management Protocol Guidelines for laboratories and workshops.

These are all applicable to DG Stores, except for some laboratory-specific sections of "Chemical Laboratory Management".

At the time of publication, to the best of the author's knowledge, only one of the University's DG Stores (Newmarket's Fuel store) is rated appropriately for open containers. Therefore:

**Chemical containers must not be intentionally opened in any DG Store.**

If you have a need for this, please consult the CRMA. Otherwise, transport chemicals to laboratories to use them.

## 6.2 Chemical storage in DG Stores

### Segregation

**Chemicals of incompatible classes typically cannot be stored within the same DG store.** Refer to Appendix 1 for a chart of incompatible chemical classes.

There may be exceptions (check with the CRMA) for stores that are NOT HSL certified, provided that the incompatible chemicals can be kept apart by use of one or more of:

- Distance
- Rated cabinets
- Secondary containment

### Audits

DG Stores require annual internal audits to check container integrity, clear out unneeded stock, and to update the inventories.

## 6.3 Certified Handlers

Class 6.1A or 6.1B (acutely toxic category 1 or 2) substances may only be handled or stored in DG stores under the guidance of a **certified handler**. Common substances that fall into this category include **acetonitrile, formalin, piperidine and hydrochloric acid**.

If **any quantity** of 6.1A or 6.1B chemicals are stored in a DG store, a certified handler is required to be in charge of them. To become a certified handler, a course is undertaken pertaining to the specific substances in the store, then an application is made to Worksafe. Certificates need to be renewed every 5 years.

External providers run training courses and provide assistance with the application to Worksafe. Contact the CRMA for more information.

### What you need to know

- Do not store *acute toxicity category 1 or 2* substances in a DG store where practical.
- Only a Certified Handler may move these substances into or out of the DG Store.
- Consult with the CRMA before storing these substances in a DG store for the first time.

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## 6.4 Inventory

Each DG Store needs two inventories. One is on SciTrack, and the other we term a “WorkSafe-approved inventory”.

### 6.4.1 SciTrack inventory

The SciTrack inventory tracks each container individually.

When you move a container in or out of the DG Store, its SciTrack location must be updated accordingly. Your annual stocktake should be done as a standard SciTrack stocktake. See the SciTrack quick guide [13. Stocktake and reconciliation](#) for details.

### 6.4.2 WorkSafe-Approved Inventory

This inventory has a list of chemicals and their maximum amounts, rather than tracking individual containers. This includes hazardous chemical waste. It requires:

- Chemical name
- Maximum amount to be held in the room
- UN number
- Hazard classification
- Specific storage and segregation requirements

This inventory can be generated using Chemwatch GoldFFX, using a special log-in. Refer to appendix 2 for instructions. The CRMA can provide assistance with setting up your inventory for the first time.

Alternatively, use WorkSafe’s Hazardous Substances Calculator to make your inventory.

<https://hazardoussubstances.govt.nz/calculator/>

#### **What you need to know**

- Update SciTrack when you move a container in or out of the DG Store.
- Perform an annual SciTrack stocktake.
- Use the stocktake data to make any changes as required to your WorkSafe-Approved inventory. Ask the Chemical Risk Management Advisor to review any changes. They will check the inventory does not exceed any regulatory thresholds.

## 6.5 Hazardous Substance Location (HSL) Certificate.

When a DG store holds chemicals in quantities that exceed thresholds set by the Health and Safety at Work (Hazardous Substances) Regulations 2017, it is a **Hazardous Substance Location** (HSL). A HSL requires an annual audit and certificate provided by an external compliance certifier.

Note that laboratories (ie. where chemicals are in use for research) are exempt from classification as Hazardous Substance Locations.

The table on the following page shows the thresholds only for chemical classes that we may foreseeably hold enough to need a HSL certificate. Full information may be found in the Health and Safety at Work (Hazardous Substances) Regulations 2017.

- The highlighted rows are the categories where we are most likely to exceed threshold amounts in a DG store.
- Although each chemical category may be below its individual threshold, the amounts across classes (e.g Class 3, and Class 6/8) are cumulative. If their combined ratio of *quantity held/threshold* exceeds 1, the overall limit is exceeded.

### **What you need to know**

- Before putting chemicals into the DG Store, ensure they are listed on the store inventory and the amounts in stock do not exceed the stated maximum.
- If the chemicals are not on the inventory or amounts may exceed the maximum on the inventory, ask the Chemical Risk Management Advisor to review the situation.



Table 1 Classes of chemicals and examples of these alongside the quantities that trigger HSL thresholds

HSNO classification of substance	Common examples	Location compliance certificate needed when have amounts of substance over:
2.1.1A , 2.1.1B	Acetylene, hydrogen	100 kg or 100 m <sup>3</sup> for a permanent gas
3.1A	Diethyl ether, petroleum ether	20 L
3.1A (petrol)		50 L
3.1B	Most flammable solvents including ethanol, isopropanol, acetone, acetonitrile	100 L (in containers more than 5 L in size) or 250 L (in containers 5 L or less in size)
3.1C	Dimethylsulfoxide, acetic acid (>80%), N,N-dimethylformamide, formaldehyde 37% with methanol	500 L (in containers more than 5 L in size) or 1,500 L (in containers 5 L or less in size)
4.1.1A	Titanium powder, sodium tert-butoxide, sodium thiomethoxide	1 kg
4.1.1B	Naphthalene, paraformaldehyde, magnesium pellets, sodium ethoxide.	100 kg
4.1.3A, 4.1.3B, 4.1.3C	Wetted explosives (e.g. picric acid)	1 kg
4.2A	n- or t-butyllithium, diisobutyl aluminium hydride	1 kg
4.2B, 4.2C	Zinc powder, sodium methoxide, sodium hydrosulfite, Activated carbon	25 kg
4.3A	Sodium, sodium hydride, lithium aluminium hydride	1 kg
4.3B	Aluminium powder, magnesium powder, Sodium cyanoborohydride, zinc powder	25 kg
5.1.1B	Hydrogen peroxide 20-60%, silver nitrate, many oxidants	500 kg or 500 L
5.1.2A	Oxygen, chlorine, nitric oxide, nitrous oxide, nitrogen dioxide	200 m <sup>3</sup> permanent gas
5.2A, 5.2B	Benzoyl peroxide (>77%)	10 kg
5.2C, 5.2D	3-Chloroperbenzoic acid, tert-butyl hydroperoxide, benzoyl peroxide, methyl ethyl ketone peroxide (MEKP)	25 kg
6.1A	Ethidium bromide, boron tribromide, bromine	50 kg or 50 L
6.1B	Acetonitrile, hydrochloric acid, formaldehyde, glutaraldehyde, 2-mercaptoethanol, Sodium azide, copper powder, potassium dichromate	250 kg or 250 L
8.2A	Piperidine, trifluoroacetic acid, perchloric acid	50 kg or 50 L
8.2B	Acetic acid, hydrochloric acid, hydrogen peroxide 20-60%, nitric acid, glutaraldehyde solution, sodium hydroxide.	250 kg or 250 L

## 7. Training for DG Store Access

Anyone who needs to access a DG Store for the purpose of transferring chemicals in or out of it should have the following training:

- DG Stores Safety Training run by the CRMA
- Chemical Safety Management in Laboratories run by the CRMA (unless chemical handling information was already covered in the staff's DG Stores Safety Training session) \*
- A local induction to the DG store
- Any other locally-required inductions or training.

\*DG Stores Safety Training sessions are available on Hono, or can be run on request; contact the CRMA. They usually provide a 'top-up' of information covered in the Chemical Safety Management in Laboratories session, but may be run as a standalone session that covers Chemical Safety basics too.

### 7.1 Local DG Store Induction

The local induction to the DG Store must be managed by the Faculty. It needs to include the following information.

1. What classes of chemicals may be stored in each store.
2. What the staff member needs to do to ensure maximum volumes as stated in the inventory are not exceeded.
3. Who may put chemicals into each store.
4. Safety equipment – where is the closest eye wash, safety shower, manual call point, fire extinguisher, etc?
5. The Emergency Response Plan with specific instructions to of who to contact and what to do in case of an emergency.
6. For a HSL that has a FENZ-notified Emergency Response Plan, new staff need to be included in a drill of the plan within 3 months of getting access to the store.

## 8. Key relevant documents/References

The University of Auckland Health, Safety and Wellbeing website holds the Chemical Risk Management Protocol, including a standard, guidelines, and a large repository of Safe Method of Use documents for chemical handling:

<https://www.auckland.ac.nz/en/health-safety-wellbeing/health-safety-topics/laboratory-safety/chemical-safety.html>

GoldFFX holds safety data sheets for most lab chemicals and can be used to generate WorkSafe-Approved inventories.

<https://www.auckland.ac.nz/en/health-safety-wellbeing/health-safety-topics/laboratory-safety/chemical-safety/databases.html>

See the University's SciTrack webpage for access and information about SciTrack, the University's chemical procurement and inventory system:

<https://www.auckland.ac.nz/en/health-safety-wellbeing/health-safety-topics/laboratory-safety/scitrack.html>























NZ Chemical Classification and Information Database (CCID)

<https://www.epa.govt.nz/database-search/chemical-classification-and-information-database-ccid/>

[Health and Safety at Work \(Hazardous Substances\) Regulations 2017](#)

# Appendix 1 Segregation Chart

Chemical Storage Incompatibility Chart according to Health and Safety and Work (Hazardous Substances) Regulations 2017.

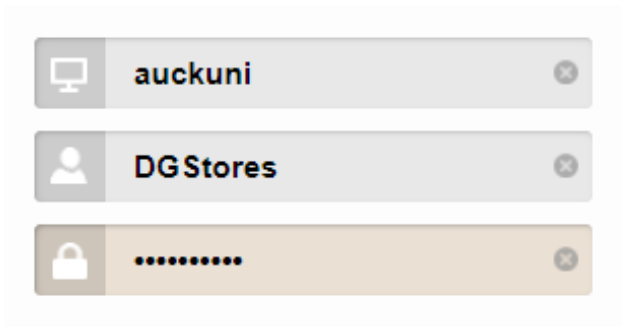
Class and examples		2.1.1	3.1	4.1.1	4.1.2	4.1.3	4.2	4.3	5.1.1/2	5.2	6.1 A-C	8.2 A/B	Other substances to avoid
													
<b>2.1.1 Flammable Gas</b> Hydrogen, LPG, acetylene			X	X	X	X	X	X	X	X			
<b>3.1 Flammable liquids</b> Ethanol, acetone, acetonitrile		X		X	X	X	X	X	X	X			
<b>4.1.1 Flammable solids</b> Titanium powder, palladium powders, potassium tert-butoxide,		X	X		X	X	X	X	X	X			
<b>4.1.2 Self-reactive substances</b> Aluminum tert-butoxide, AIBN (Azobisisobutyronitrile)		X	X	X		X	X	X	X	X			
<b>4.1.3 Desensitised explosives</b> Picric acid, azodicarboxamide		X	X	X	X		X	X	X	X			
<b>4.2 Pyrophorics or self-heating substances</b> Butyllithium solutions, ethylmagnesium bromide, activated charcoal, some metal powders.		X	X	X	X	X		X	X	X			Air Oxygen
<b>4.3 Substances which, in contact with water, emit flammable gases</b> Lithium, aluminium powder, sodium hydride		X	X	X	X	X	X		X	X		X	Water
<b>5.1.1 or 5.1.2 Oxidising substances</b> Perchloric acid, hydrogen peroxide, potassium permanganate, silver nitrate, oxygen gas.		X	X	X	X	X	X	X		X	X	X	Except nitric acid
<b>5.2 Organic peroxides</b> 3-chloroperbenzoic acid, Luperox® peroxides, MEKP		X	X	X	X	X	X	X	X		X	X	
<b>6.1 A,B,C Acute toxicity</b> Acetonitrile, hydrochloric acid, cyanides, formalin, 2-mercaptoethanol									X	X		*	
<b>8.2A,B Skin corrosion</b> Sulfuric acid, piperidine, trichloroacetic acid, boron tribromide, sodium hydroxide, glutaraldehyde.								X	X Except nitric acid	X	*	Separate acids from bases	

\* Toxic cyanides must be stored separately from acids. Also be aware of other chemicals that react with acids to liberate toxic gas, such as bleach.

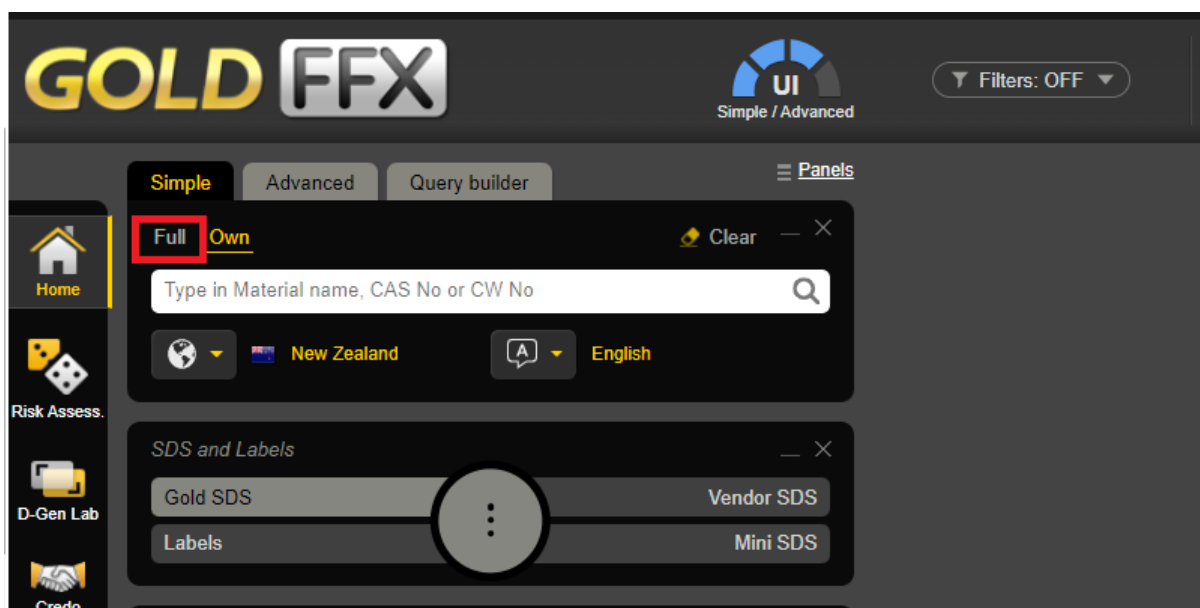
**Separation distances:** Generally incompatible substances need to be separated by 5 metres unless both are solids, then 3 metres. If this is not achievable, use cabinets for storage with secondary containment. Chemicals that may react *dangerously* should not be stored in the same compound with the same drainage system.

## Appendix 2 Using Gold FFX to create a DG Store Inventory

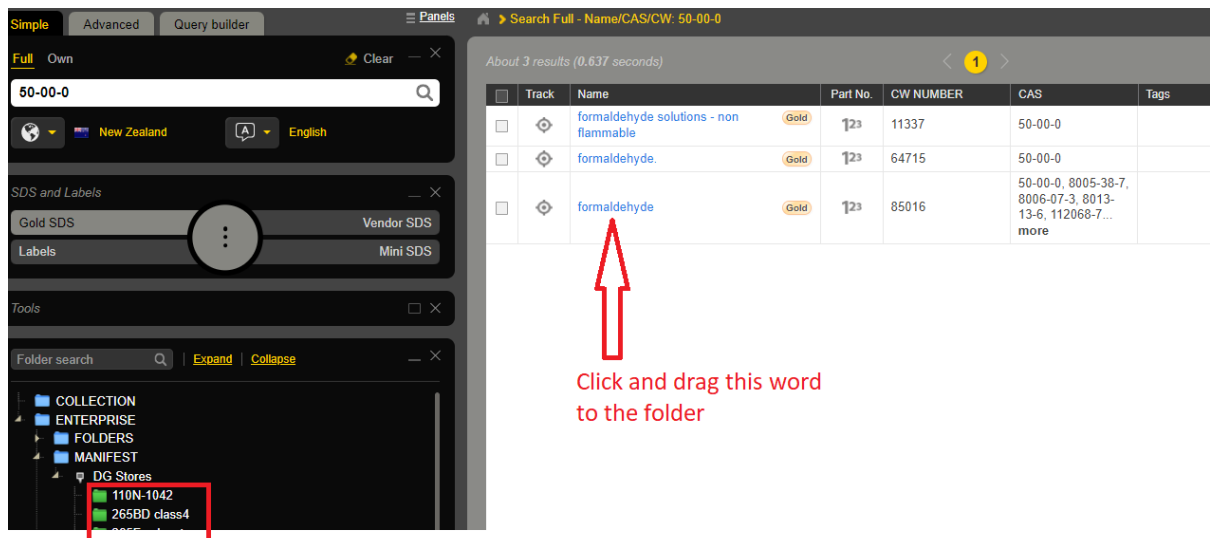
- 1) Log in as usual to [GoldFFX](#)
- 2) Click the logout button in the top right corner
- 3) Log in again with special credentials (ask CRMA for this)



- 4) Before doing any searches, be sure to select Full rather than Own



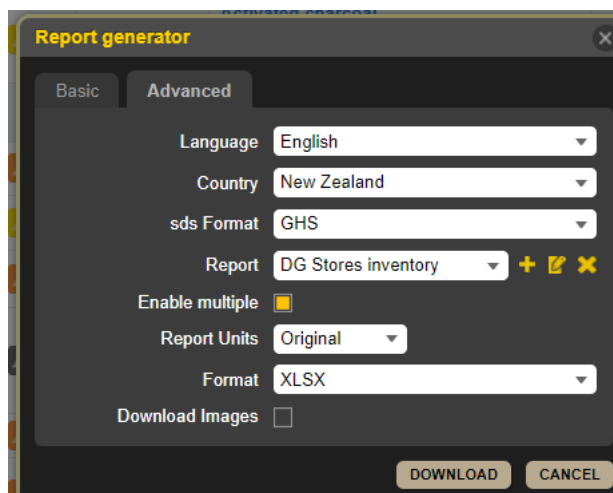
- 5) In the left hand side menu, open up the folders Manifest>DG Stores to see the DG store folders.
- 6) To add a SDS to a folder, search as usual for a SDS then click and drag the SDS into the folder. If the actual SDS opens before you can drag it across, click back to return to the search result screen.



Track	Name	Part No.	CW NUMBER	CAS	Tags
	formaldehyde solutions - non flammable	123	11337	50-00-0	
	formaldehyde	123	64715	50-00-0	
	formaldehyde	123	85016	50-00-0, 8005-38-7, 8006-07-3, 8013-13-6, 112068-7... more	

Click and drag this word to the folder

- 7) Click on the folder to see the chemical contents. Note that some folders do not contain all the chemicals in the store to save me duplicating work. Feel free to add to your folders. Just make sure you are searching the Full list, because if you search Own, the SDS will be moved from another room rather than copied.
- 8) To generate the inventory report, click the report button at the top right of the screen. Choose All. Choose the Advanced tab, and report name "DG stores inventory". This is the report with all the required information for WorkSafe or the auditor.



- 9) To generate an offline archive of all SDS, click the Download button at the top right of the screen. Choose Offline Archive, and Gold or Mini SDS. (If you choose SDS instead, it will combine all the SDS into pdfs rather than individual files, which is better for printing. You can also get labels from this section). Click Submit and it will take some time to prepare your file for download.