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1. OBJECTIVE

This guideline outlines the correct storage, use and disposal of Hazardous Substances at RMIT.

2. BACKGROUND

N/A

3. SCOPE

This process applies to RMIT globally.

NOTE – Referenced legislation applies to Australian jurisdictions only. RMIT campuses in other jurisdiction must refer to local applicable legislation, where available.

NOTE: This process addresses Hazardous Substances as described under the **Globally Harmonised System (GHS)** and may also be applied to non-hazardous substances. However, it excludes asbestos containing materials, biological materials and radioactive materials, which are detailed in other processes.

This guideline does not apply to the following products if their use is not related to a work activity:

- food
- therapeutic agents
- cosmetics
- tobacco and tobacco products
- toiletries and toilet products
- hazardous substances which are used and are in quantities that are consistent with household use.

The guidelines also do not apply to:

- any substance that is classified as a Class 7 (Radioactive) Dangerous Good (refer to the **HSW-PR40 - Radiation** process)
- any infectious material of biological origin i.e., any viable micro-organism, such as a bacterium, virus, rickettsia, parasite, fungus, recombinant, hybrid or mutant, that is known or reasonably believed to cause disease in humans or animals (refer to the **HSW-PR44 – Biological Safety** process).

4. WHAT MUST GO RIGHT?

The expected outcomes – known as ‘what must go right’ – will be that:

- All staff, students, researchers and third parties understand how to correctly store, use, and dispose of Hazardous Substances in their area.

5. PROCEDURE / IMPLEMENTATION

5.1. Substances Pre-Acquisition Risk Assessment (SPARA)

A SPARA must be completed and approval given prior to purchasing any hazardous substance. The SPARA as well as the corresponding Safety Data Sheet (SDS) for the hazardous substance will provide details on the storage, use and disposal of the hazardous substance.

Further information on SPARAs is detailed in **HR – HSW-PR32 – Hazardous Substances**.

5.2. Storage

Each College and subsequently each School is responsible for the safe storage of all hazardous substances and dangerous goods in their work and learning environment in line with regulatory requirements, requirements listed on the SDS, conditions specified on relevant licences and permits and applicable Australian Standards. This applies to all storage locations including laboratories, chemical stores, shared storage areas, workshops, studios and kitchenettes.

Substances classified as Dangerous Goods (DG) must be segregated and stored in compliant DG Cabinets if in significant quantities. Laboratory cupboards may be used for the storage of hazardous substances which are not classified as DG (except for DG Class 9 (miscellaneous) substances which may be stored on shelves or in cupboards labelled with the Class 9 diamond). Cupboards must have chemical resistant shelving, contain spill trays and be labelled to indicate their contents. Where necessary, ventilation of the cupboard must be provided in accordance with **AS/NZS 2243.2:2021 – Safety in laboratories: Chemical aspects and storage**. Safe work practices, as determined by the risk assessment (and, in the case of poisons, the conditions specified on the relevant Poisons permit and, in the case of carcinogens, the relevant license conditions) must be adhered to.

Cabinets and cupboards used for storing substances must meet the following requirements:

- Access must be restricted to authorised users only
- Substances must be stored in closed and labelled containers that are compatible with the substance stored within
- Storage of other items within the storage location is to be kept to a minimum, particularly combustible material such as cardboard boxes or paper
- Food or drink must not be stored in the area
- The location of cupboards and cabinets must not jeopardise the safety of any other areas in the building, must be kept clear of exit doors and must not impede emergency equipment such as fire extinguishers and safety shower / eyewash units
- Cabinets and cupboards must be adequately ventilated to ensure there is no build-up of vapours
- There must be appropriate and stocked spill kits in the area and means to prevent spilled materials entering drains
- Substances must not be stored on the floor
- Separate storage provisions for different classes of DG may be required (e.g., separate DG Cabinets for Classes 3, 4, 5, 6 and 8, as well as physical segregation for incompatible substances within the same DG class (e.g., acids and alkalis)).

Hazardous substances stored in bulk containers must be stored appropriately so that the container, associated pipe work and transfer systems are in good condition. Where the need is identified, this may include inspection and maintenance on items that may include but not limited to:

- stable foundations and supports
- installation is free from excessive stress and forces
- protected from deterioration.

Property Services, in consultation with the Manufacturer or Supplier of the bulk container, must be contacted if inspections or maintenance of the container or associated systems is required.

Hazardous substances stored in packages must be:

- tightly closed when not in use
- stored on surfaces which will not deteriorate if the package is damaged or leaks

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- stored upright and in such a way to minimise the risk of falling, and
- positioned in such a way so that leakage will not affect other hazardous substances (e.g. Store solid substances above liquids on shelves).
- containment trays must be used to segregate chemical classes stored on open shelves where necessary
- stored under the conditions recommended in the SDS (e.g., temperature and ventilation requirements during storage)

Containers, pipe work and attachments holding Dangerous Goods (DG) are to be protected from physical damage which may include impacts, imposed loads and mechanical stress.

Inspection of storage areas must be undertaken and documented in line with **HR – HSW-PR12 - Workplace Inspection** process.

5.3. Storage Cabinets

Storage cabinets for DG must comply with the Australian Standard applicable to the class being stored. Mixed classes of DG's must not be stored in the same DG Cabinet and the bottom shelf must be in place to ensure the Cabinet bund area is kept free.

5.4. Secondary Containment

Areas where hazardous substances are used and stored must include secondary containment to capture the maximum possible volume resulting from container leaks or spills. This can be in the form of permanent or temporary bunding, spill trays, secondary containers, etc.

5.5. Decanting Chemicals

A container into which a hazardous substance is decanted must be labelled unless the substance is used immediately, and, after use, the container is cleaned so the contents are rendered non-hazardous. Unlabelled containers must never be left unattended.

The minimum information required on the label according to GHS legislation is:

- Product name (**not** abbreviated names or chemical formulas)
- GHS symbols or pictograms that indicate the classification of the substance.

If space on the container allows, it is also recommended to include the owners' name (or initials) and the date.

If, for example in a laboratory situation, the container is too small to include the product name, then it may be labelled with a sample number and the contents identified in a laboratory book or other document (in which case staff, students, researchers and third parties in the area must be informed about the hazard(s) and the identification system used). All labels must be unambiguous and legible. Containers no longer required must be thoroughly rinsed and have the old label removed or defaced before being discarded. Containers re-used for other purposes must be rinsed thoroughly and the old label removed or covered entirely by the new label. Food and beverage containers, e.g. yoghurt containers, milk bottles, drink bottles, are **not** permitted to be re-used for chemical storage

5.6. Specific Chemicals

5.6.1. Carcinogens

A register of scheduled carcinogens stored or in use must be maintained and must contain:

- A list of the names of the scheduled carcinogenic substances
- A copy of the local manufacturer's or supplier's most recent SDS for each of the carcinogenic substances

- A running inventory of the amounts used, the dates and by whom

The register must be readily accessible to any authorised person. **HR - HSW-PR32-FR01 Scheduled Carcinogens User Notification Form** must be completed by a person intending to use a scheduled carcinogen before it is first used.

Records of use (transaction records) for a scheduled carcinogen must be maintained as per **HR - HSW-PR32-FR02 Scheduled Carcinogens User Transaction Form**.

HR - HSW-PR32-FR03 Scheduled Carcinogens Exit Statement Form must be completed when a staff member, student, researcher or third party who has handled a carcinogen has completed work or study at RMIT.

The College/Portfolio must retain the completed forms.

5.6.2. Scheduled Drugs and Poisons

Scheduled Drugs and Poisons must have the appropriate licences and permits in place. This is particularly important for Schedule 4, 7, 8, 9, and 10 poisons, where stringent conditions relating to purchasing, storing, handling, transportation and disposal apply.

5.6.3. Chemicals of Security Concern

Schools / departments are required to facilitate risk management practices within local areas that aim to identify security gaps and apply new or enhance existing control measures to protect against loss and diversion of any of substances classified as **Chemicals of Security Concern**.

Risk management activities are to be completed in accordance with the **HR – HSW-PR09 – Risk Management** process. Security topics surrounding the storage, transport and/or handling of chemicals of security concerning including staff and third-party checking, personnel security awareness, inventory control measures, purchasing processes, theft and diversion procedures, physical access, personnel access and transportation must be evaluated throughout the risk management process.

In instances where Chemicals of Security Concern are suspected of being lost, stolen or misused please contact the Supervisor and Operational Leader immediately.

Further information is available from the Australian Government Department of Home Affairs Chemicals of Security Concern website.

5.6.4. High Consequence Dangerous Goods

Ammonium nitrate, calcium ammonium nitrate containing more than 45% ammonium nitrate, ammonium nitrate emulsions and mixtures containing more than 45% ammonium nitrate are considered high consequence dangerous goods under Victorian Regulations.

5.6.4.1. HCDG licences and permits

Tertiary education institutions in Victoria are exempt from licensing approvals under the following conditions:

- the HCDG is for the purposes of educational instruction, research or testing; and
- that the quantity does not exceed 3 kg per area.

The HWS Team must be contacted for advice regarding quantities of 3 kilograms or more. The Senior Leader must approve quantities 3 kilograms or more. Further information can also be obtained from **WorkSafe (Vic)** including the requirements for permits. The relevant legislation is the **Dangerous Goods (HCDG) Regulations**.

5.6.4.2. Permits for HCDG

Staff, students, researchers and third parties will be required to get a permit if they access HCDG unsupervised. Permits are issued by **WorkSafe (Vic)**.

Operational Leaders are to ensure that there is visibility of individual's HCDG permits. Permits must be recorded and maintained in a local register. Register must include as a minimum the name of the permit holder, issue/expiry date, HCDG substance and quantity.

5.6.4.3. Risk management of HCDG

Colleges/schools/departments which occupy premises where dangerous goods are stored and handled must make sure any associated risks are eliminated or reduced. Colleges/schools/departments must consider whether the quantity of dangerous goods can be reduced, and whether other goods, or dangerous goods, with lower risks can be substituted.

Colleges/schools/departments must make sure any risk control measures are reviewed and if necessary revised:

- before any change is made to a process or system that is likely to change the risks associated with storing and handling dangerous goods
- if required following an investigation due to an incident at the premises
- if they do not adequately control the risks.

The ***Dangerous Goods (Storage and Handling) Regulations 2012*** list what must be consider when identifying hazards at premises where dangerous goods are stored and handled.

5.6.4.4. Safe storage and handling of HCDG

- Use an appropriate building. If ammonium nitrate is stored in a building it should be a well-ventilated, single-storey building made of a material that will not burn.
- Keep ammonium nitrate dry. The risk of explosion increases if the product gets wet and the surface forms a crust on the outside. The crust confines the decomposing gases making explosions more likely.
- Store away from drains, channels and pits where molten ammonium nitrate from a fire could become confined.
- Store away from ignition or heat sources.
- Store ammonium nitrate at least 1.2m away from walls. Regularly clean walls and framing or structures (depending on where it is stored).
- Don't store ammonium nitrate in stacks higher than 3m.
- Provide appropriate fire protection as per the safety data sheet.
- Provide information and training to relevant employees about safe storage and handling.

5.6.4.5. Storing HCDG away from incompatible materials

Do not store ammonium nitrate with incompatible materials as the risk of fire and explosion is increased. This includes:

- flammable or combustible liquids such as petrol, diesel, oil, grease, solvents, oil-based pesticides, gas cylinders
- combustible materials including organic matter, hay, straw, animal feed, wooden pallets (ammonium nitrate should be stored away from such materials by a distance of at least 8m)
- finely powdered metal zinc

Separate ammonium nitrate from:

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- class 8 corrosive liquids, acids and alkalis
- chlorites, chlorates, bromides
- cement, lime, sulphur, hexamine
- galvanised iron, copper, zinc

A complete list of incompatible materials can be found in ***Australian Standard 4326 - Storage and handling of oxidizing agents***.

5.7. Waste Management / Disposal

Substances must be correctly disposed of by ensuring that:

- Trade waste agreements are adhered to, e.g. no disposal of prohibited substances such as flammable liquids or heavy metals down the sink
- They are handled by competent persons using appropriate PPE
- There is appropriate secondary containment (e.g., transported within a bunded tray on a trolley) for transport to the designated waste storage area
- The substances are segregated, packaged and labelled appropriately
- There is a secure, designated storage area for holding wastes until they can be collected
- Incompatible waste products are physically segregated
- They are collected by a licensed prescribed waste contractor
- Registers, manifests, other records and signage (if applicable) are amended as required

6. Responsibilities

6.1. Senior Leaders

- Ensure there are resources available to implement this process in their area of control
- Review registers and performance indicators on a regular basis

6.2. Operational Leaders

- Implement this process in their area of control
- Undertake relevant Hazardous Substances training
- Ensure there are up to date hazardous substance registers for areas under their control
- Ensure risk assessments on hazardous substances in accordance with this process are completed, signed off, reviewed when necessary, and are readily accessible to all users
- Ensure staff, students, researchers and third parties within their area of control comply with this process
- Ensure appropriate signage and labelling of chemical containers and storage facilities is in place
- Ensure SDSs for all substances stored or in use within their area of control are current and readily accessible
- Monitor compliance with this process and take the necessary action to address non-compliance
- Ensure DG are stored in DG cabinets (that meet the applicable Australian Standard) as necessary, and segregation of incompatible hazardous substances and DG occurs.
- Ensure spill kits (including appropriate personal protective equipment such as chemically resistant gloves, goggles and respirator with cartridges) and first aid facilities are readily available
- Retain chain of custody documentation for waste disposed
- Ensure waste is appropriately disposed of and not placed in general waste bins.

6.3. Staff, Students, Researchers and Third Parties

- Undertake relevant Hazardous Substances training
- Conduct or participate in risk assessments on hazardous substances in accordance with this process
- Ensure SDSs for all hazardous substances used in their work, learning or research are read and understood
- Follow this process and all reasonable instructions relating to HSW and control of Hazardous Substances
- Comply with requirements listed in SDS, safe work documents (e.g. Safe Work Instructions, Safe Operating Procedures or other), Risk Assessments, guidelines and instructions relating to HSW

6.4. HSW Team

- Regularly review this process in consultation with relevant members of staff
- Develop and report on Key Performance Indicators relevant to this process
- Monitor compliance with this process and report on outcomes

7. Definitions

Defines any key terms and acronyms relating to the process where they apply

Term / acronym	Definition
Australian Dangerous Goods Code	The document known as the Australian Dangerous Goods (ADG) Code comprising the Australian Code for the Transport of Dangerous Goods by Road and Rail, available at www.ntc.gov.au .
Bulk	Any quantity of hazardous substance that is: <ul style="list-style-type: none">• in a container with a capacity exceeding 500L or net mass of more than 500kg, 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 bulk containers (ie tanks) requiring a tank placard for hazardous chemicals at the workplace.
Carcinogen	Carcinogenic substances are hazardous substances that may cause or are suspected of causing cancer
Combustible	<ul style="list-style-type: none">• C1 – substance having a flashpoint of >60.5°C and <150°C• C2 – substance having a flashpoint of >150°C The criteria for classifying combustible liquids are contained in AS 1940 - The storage and handling of flammable and combustible liquids.
Dangerous Good	Dangerous goods are substances capable of causing harm to people and property because of their hazardous properties. They may be corrosive, flammable, combustible, explosive, oxidising or water-reactive or have other hazardous properties.
Dangerous Goods Class	The hazard class of the dangerous goods as stated in the ADG Code. A class may include divisions and packing groups (PG). There are nine classes of dangerous goods: <ul style="list-style-type: none">• Class 1 - Explosives• Class 2 - Gases (Flammable, Toxic, Non-Flammable/Non-Toxic,)

Term / acronym	Definition
	<ul style="list-style-type: none"> • Class 3 - Flammable Liquids • Class 4 - Flammable Solids • Class 5 – Oxidisers (5.1) and Organic Peroxides (5.2) • Class 6 - Toxic Substances (6.1) and Infectious substances (6.2) • Class 7 - Radioactive Substances • Class 8 - Corrosive Substances • Class 9 - Miscellaneous Dangerous Goods
Dangerous Goods Diamond	<p>Dangerous Goods Class label, often called a “DG diamond”.</p> <p>It is possible for substances to display more than one characteristic; therefore, these substances will display more than one class label. In those circumstances the substance will have a full primary class label and a subsidiary label which is less prominent than the primary.</p>
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
Hazard Pictogram	The GHS specifies 9 pictograms, having regard to physical, health and environmental hazards. They provide a graphical representation of the chemical's hazardous properties.
Hazard Statement	Hazard statements describe the nature of a hazard, including the degree of the hazard. These replace Risk Phrases.
HAZCHEM Code	A HAZCHEM Code has been developed to assist emergency services around the world. It is a first response instruction which provides advice on dealing with issues such as a fire or an environmental contamination situation involving dangerous goods.
High Consequence Dangerous Good (HCDG)	High consequence dangerous goods are those which pose significant security and safety risks if they are not used appropriately.
Label	A set of information on a container which identifies the substance in the container, identifies whether the substance is hazardous and provides basic information about the safe use and handling of the substance
PG (packing group)	<p>To further assist with the identification of dangerous goods and their particular hazards, those of class 3, 4, 5, 6 and 8 are assigned to a packing group (PG) which represents the “level of danger” to persons exposed.</p> <ul style="list-style-type: none"> • PG I = great danger • PG II = medium danger • PG III = minor danger
Placard	A sign displaying information outlined in Schedule 2 of the <i>Dangerous Goods (Storage and Handling) Regulations (VIC)</i> to communicate information about hazardous chemicals that exceed quantities specified in Schedule 2.
Precautionary Statement	These describe the recommended measures that should be taken to minimise or prevent adverse effects resulting from exposure to, or improper storage or handling of, a hazardous chemical.

Term / acronym	Definition
Scheduled Carcinogens	Scheduled carcinogens are those substances listed in Schedules 10 and 11 of the OHS (VIC) Regulations 2017
SDS	<p>A Safety Data Sheet (SDS) is a document which outlines specific health and safety information about the substance. Information includes:</p> <ul style="list-style-type: none">• whether the substance is classified as hazardous• chemical aspects of the substance• first aid advice• risk controls to prevent injury
Signal Word	These are used to indicate the relative level or severity of a hazard on a label.
Substances of Security Concern	Of the approximately 40,000 chemicals approved for use in Australia, 96 chemicals were identified by the Council of Australian Governments as requiring attention because of their potential for misuse by terrorists. These are known as chemicals of security concern.

8. Supporting Documents

Lists the supporting and related Processes and Guidance Material, Legislative references, Australian and International Standards etc. that may be useful references for process users

- HR – HSW-PR04 - Records Management
- HR – HSW-PR09 – Risk Management
- HR – HSW-PR09-WI03 – HSW Risk Control
- HR – HSW-PR09-TM01 – HSW Risk Assessment Template
- HR – HSW – PR10 – Incident Management and Investigation
- HR – HSW-PR12 – Workplace Inspections
- HR – HSW-PR32- WI02 – Carcinogen Substances Guidelines
- HR – HSW-PR32-WI03 – Scheduled Drugs and Poisons Guidelines
- HR - HSW PR32-TM01 – Hazardous Materials Pre-Purchase Risk Assessment
- HR – HSW-PR47 – HSW Health Monitoring
- RMIT's Emergency Management Plan.
- Occupational Health and Safety Regulations 2017 (VIC)
- Dangerous Goods (HCDG) Regulations 2016 (Vic)
- Dangerous Goods (Storage and Handling) Regulations 2012
- Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- Compliance Code Hazardous Substances (Vic)
- National Code of Practice for Chemicals of Security Concern
- AS 2243.2 - Safety in Laboratories (Chemical aspects and storage)
- AS 4332 - The storage and handling of gases in cylinders
- AS 3780 - The storage and handling of corrosive substances

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- AS 1345 - Identification of the contents of piping, conduits and ducts
- AS 4326 - Storage and handling of oxidizing agents.
- AS 1940 - The storage and handling of flammable and combustible liquids.