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1. OBJECTIVE

These guidelines are designed to complement safe laboratory practices and minimise the hazards associated with the use of substances for which evidence of carcinogenicity has been obtained either by epidemiology or from studies in experimental animals.

Any work that involves the use of scheduled carcinogens (refer to the list in Appendices) has special requirements under the ***Occupational Health and Safety Regulation 2017*** (the ***Regulations***).

There are two classifications of scheduled carcinogens:

- **Prohibited carcinogens** (Appendix 1) – are prohibited from use but can be used for limited research and analysis provided WorkSafe is notified first and approves their use. (Schedule 10 carcinogen in a laboratory only).
- **Restricted carcinogens** (Appendix 2) – are those chemicals that can be used once WorkSafe has been notified and approves their use. (Schedule 11 carcinogen in a workplace other than laboratory).

2. BACKGROUND

Certain substances are known to cause cancer in humans, while many others have been shown to cause cancer in experimental animals. Direct application of experimental carcinogenicity data to humans is not possible, doses of carcinogen required to produce tumours in animals may vary between species and some pathological responses, such as production of benign tumours in mice, appear to be restricted to a single species. Despite such limitations, it is generally accepted that substances established as carcinogenic in animals may also be carcinogenic to humans.

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.

4. WHAT MUST GO RIGHT?

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

- Correct and required licenses are obtained, held and managed for relevant Carcinogenic Substances
- All staff, students, researchers and third parties understand how to correctly handle, store, use, transfer, transport and dispose of Carcinogenic Substances in their area.
- All Carcinogenic Substances are accompanied by their most recent Safety Data Sheet (SDS), are listed on the chemical inventory within RMIT's chemical management system, and are stored, labelled, handled, decanted and disposed of in accordance with their SDS and Risk Assessment.
- Carcinogenic Substances are acquired in accordance with the purchasing and risk assessment processes.

5. PROCEDURE IMPLEMENTATION

5.1. Notification of work involving use of Scheduled Carcinogenic substances

Any work that involves the handling and storing of prohibited and restricted carcinogens as referred to in Schedule 10 and Schedule 11 of the ***Occupational Health and Safety Regulation 2017*** must be authorised by WorkSafe Vic.

Authorisation (a licence) must be obtained by applying in writing.

Any local area planning to work or learn with a listed carcinogen (listed in Appendix 1 or 2) must:

- Complete a Pre-Purchase Risk Assessment (PPRA)
- Have the PPRA approved by the applicable College/Portfolio OHS/HSW Technical person

If/when the PPRA has been approved, the applicable College/Portfolio OHS/HSW Technical person is to:

- Notify WorkSafe Vic (at least 60 days before commencing the proposed work)
- complete and lodge the WorkSafe **APPLICATION FOR A LICENCE TO USE A SCHEDULED CARCINOGEN** form
- Ensure the licence is renewed every five (5) years
- Provide information to the supplier in order to buy or obtain the carcinogen.

A copy of the completed application and authorisation from WorkSafe Vic is to be maintained by the College/school/department.

5.2. Statement of Exposure

Any staff member, student, researcher or third party who handles or stores prohibited or restricted carcinogens at RMIT will be provided with a written statement (**HR - HSW-PR32-FR03 - Scheduled Carcinogen Exit Statement** form) by their supervisor at the end of their employment or association with RMIT outlining the following:

- the name of the prohibited or restricted carcinogen which the worker may have been exposed to
- the time the worker may have been exposed
- how and where the worker may obtain records of the possible exposure
- whether the worker should undertake regular health assessments, and the relevant tests to undertake.

At the cessation of employment or association with RMIT, the staff member, student, researcher or third party will be provided copies of the **APPLICATION FOR A LICENCE TO USE A SCHEDULED CARCINOGEN** form to verify the above points. The staff member, student, researcher or third party will be advised on the requirement to undertake regular health assessments based on the advice provided by WorkSafe.

5.3. Records

A copy of the WorkSafe Vic **APPLICATION FOR A LICENCE TO USE A SCHEDULED CARCINOGEN** form will be kept by the College/school/department. The written authorisation provided by WorkSafe Vic is to be kept by the College/school/department. The College/school/department is responsible for placing a copy both on the person's personnel file or student's records.

Records are to be maintained as required by **HR – HSW-PR04 – HSW Records Management**.

5.4. Risk Management

The implementation of these guidelines utilises the risk management principle as outlined in RMIT's HSW Risk Management guidelines (**HR – HSW-PR09 – HSW Risk Management**). The risk assessment principles that have been detailed **HR – HSW-PR32 – Hazardous Substances** are to be adopted when working with carcinogenic substances.

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5.4.1. Risk Controls

The HSW Risk Management process, more specifically the hierarchy of controls, must be implemented where possible to eliminate hazards associated with carcinogenic substance.

Every effort must be made to use non-carcinogenic (or less toxic) substances in preference to carcinogenic (or highly toxic ones).

Exposure to carcinogenic or other highly toxic substances can occur by:

- Inhalation of dust, aerosols or vapour;
- Absorption through the skin, eyes or wounds from contaminated clothing, spillages or from contaminated surfaces; and
- Ingestion from contaminated hands if not washed thoroughly after leaving the laboratory.
- Injection through a needlestick injury

All persons using carcinogenic substances must do so only with approval from the appropriate Manager, Chief Investigator or Laboratory Supervisor. Staff, students, researchers and third parties must be made aware of the potential hazards these substances pose to their health by referring to the applicable Safety Data Sheet and completing a risk assessment prior to use.

The Operational Leader must review the substances used in the laboratory to determine whether they include carcinogenic substances at least every six months. The Operational Leader must regularly review the substances used in the laboratory to determine whether alternative safer products can be used. The review must also consider existing safety precautions and update them as necessary.

A safe work procedure regarding the use, handling, storage, transport and disposal of individual carcinogenic substances must be completed and approved by the Senior Leader. The safe work procedure must comply with legislation, codes of practice and Australian Standards concerning the handling of carcinogens.

5.4.2. Training

Any staff, student, researcher or third party working with or handling carcinogenic substances must be provided with any information, instruction and training necessary to ensure their health and safety. Relevant information may include:

- the properties of the substance
- toxicity and/or reactivity
- precautions for safe use, e.g. segregation from incompatible materials
- procedures for handling, storage and transportation
- first aid and emergency response
- engineering controls, e.g. ventilation
- personal protective equipment to be used.

This information can generally be found in Safety Data Sheets.

5.4.3. Storage and Labelling

All carcinogenic or suspected carcinogenic substances must be:

- stored securely i.e. restricted access
- stored within appropriate screw-cap containers or similar sealed containers
- kept at the appropriate temperature
- labelled clearly

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Refer to **HR – HSW-PR32 – Hazardous Substances** for more information.

5.4.4. Transport

If it is necessary to transport carcinogenic or suspected carcinogenic substances, the sealed container must be placed in a second, unbreakable container to minimise accidental breakage or spillage.

5.4.5. Laboratory Safety

Specific requirements for working with carcinogenic substances include:

- hands must be washed thoroughly after using any such substances
- where gloves are used, they must be double contained before being disposed of
- substances must be used only by persons involved in the experiment in specifically designated areas of the laboratory
- Doors into areas where scheduled carcinogenic substances are used must be marked distinctively to identify the nature of the hazard (e.g. CAUTION - LIMITED ACCESS. CARCINOGENIC CHEMICALS IN USE)
- Pipetting by mouth shall be strictly forbidden. Mechanical pipetting aids or disposable pipetting tips shall be used
- Working surfaces must be covered with an absorbent material backed with plastic and must be replaced at regular intervals or immediately a spillage occurs
- If possible, a ducted fume cupboard should be used whenever handling carcinogenic substances. If a ducted fume cupboard is not available, then a recirculating fume cupboard with the appropriate filter can be used. In both cases, fume cupboards must comply with the relevant Australian Standards (**AS2243.8** and **AS2243.9**) and be operated in accordance with the manufacturer's instructions
- A cytotoxic drug-handling cabinet which complies with **AS2567: Laminar flow cytotoxic drug safety cabinets** should be used in cases where there is a need to maintain the sterility of the product

Further information can be found in **HR – HSW – PR33 – Laboratory, Workshop and Studio Safety** process.

5.4.6. Protective Equipment

Protective equipment must be chosen for its suitability to the task as well as the chemical and physical properties of the substance to be used, its volatility, stability, flammability, solubility and miscibility.

Protective equipment to be used when handling carcinogenic substances must include:

- Suitable chemical resistant gloves, preferably disposable - these must be changed regularly to avoid impregnation. Refer to the SDS for the type of glove material recommended.
- buttoned or wrap-around laboratory coats or gowns
- laboratory safety glasses or, if there is a danger of liquids splashing, a full-face shield, and
- an approved respirator with a suitable particulate/vapour cartridge or an approved disposable face mask.
- fully enclosed footwear and legs covered

Protective equipment should:

- be stored adjacent to the work area
- be removed and stored before leaving the laboratory
- not be worn in rooms designated for eating and drinking
- be cleaned by appropriately qualified personnel.

HSW-PR32 – WI02

5.4.7. Contamination

After using any carcinogenic substance, personnel must always rinse their hands thoroughly (wash in cold or warm water, not hot water)

Contaminated laboratory glassware or equipment must be soaked separately in detergents appropriate to the substance in question. The glassware or equipment must then be rinsed thoroughly in water before being returned for normal laboratory use.

Disposable laboratory equipment contaminated with carcinogenic or highly toxic substances shall be disposed of according to the waste disposal guidelines detailed in **HR – HSW-PR32-WI01 – Storage, Use and Disposal of Hazardous Substances**.

5.4.8. Monitoring

The laboratory supervisor must consider the need for, and as appropriate consult, with respect to:

- monitoring the area in which carcinogenic or highly toxic substances are used to detect any decontamination of the air, benches, equipment, protective equipment or personnel, and
- health monitoring of personnel to detect any significant biological changes or effect on their health.

An inventory of scheduled carcinogenic substances must be maintained by the local area and entered into RMIT's online chemical management system. The inventory must indicate the quantity of carcinogen(s) being stored in the area and date of acquisition. A record of transactions must be kept for each substance and include the user's name, the date of use and the quantity taken/used.

5.4.9. Disposal

The Laboratory Supervisor must be familiar with the methods required to neutralise, destroy or safely dispose of carcinogenic substances or materials contaminated by them. Carcinogenic substances must not be disposed of down the drains or into the atmosphere. Waste liquids containing carcinogenic substances must be placed or collected in suitable containers for disposal.

Contaminated waste shall be disposed of according to the waste disposal guidelines detailed in **HR – HSW-PR32-WI01 – Storage, Use and Disposal of Hazardous Substances**.

5.4.10. Emergency Procedures

All persons in the laboratory must be evacuated immediately if there is a significant spill of a carcinogenic substance (particularly if it is volatile), or if a fire or explosion occurs.

Any emergency must be managed in accordance with RMIT's Emergency Management Procedures.

5.5. Notification of Incidents

Incidents involving scheduled carcinogens are required to be reported to WorkSafe Vic. Contact the HSW Team to initiate this reporting process. At minimum, an Incident Report in PRIME or equivalent will require to be completed.

5.6. Health Surveillance

Guidelines around health monitoring for carcinogenic substances can be found in the **HR – HSW-PR47 – Health Monitoring** process.

5.7. Program Evaluation

To ensure that these guidelines continue to be effective and applicable to RMIT, the program will be reviewed periodically by the HSW Team and relevant stakeholders. Conditions which might warrant a review of the guidelines on a more frequent basis includes:

- An injury or near miss resulting from a carcinogenic substance
- Changes to legislation
- Concern raised by staff, students, researchers or third parties

Following completion of any review, the program will be revised/updated to correct any deficiencies.

Any changes to the program will be consulted as detailed in **HR – HSW-PR07 – Consultation and Communication** process.

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
- Ensure there is an up-to-date inventory and register of carcinogenic substances for areas under their control
- Ensure risk assessments on carcinogenic 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 carcinogenic substance containers and storage facilities is in place
- Ensure SDSs for all carcinogenic 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 spill kits (including appropriate personal protective equipment such as chemically resistant gloves, goggles and respirator with cartridges) and first aid facilities are readily available
- Establish the need for health monitoring and implement where required

6.3. Laboratory Managers and Supervisors

- Inform WorkSafe Vic of intention to work/learn using a notifiable or prohibited carcinogenic substance
- Obtain relevant licenses and permits from WorkSafe Vic prior to working or learning activities using notifiable or prohibited carcinogenic substance
- Completion of risk assessments and safe work procedures
- Completion of Statement of Exposure on completion of staff, student, researcher or third party time at RMIT
- Regular work or learning environment inspections and completion of corrective actions
- Maintenance program in place for plant and safety equipment
- Required PPE is provided, is in use and is used correctly
- Required signage is provided indicating PPE requirements and access restrictions
- Appropriate use, labelling, storage, transport and disposal of carcinogenic chemicals.

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- All carcinogenetic substances are recorded and kept up to date within RMIT’s designated chemical management system

6.4. Staff, Students, Researchers and Third Parties

- Comply with and follow the requirements as detailed in this guideline
- Participate in risk assessments as required
- Work, learn and undertake research in accordance with applicable licences and permits
- Report incidents and near misses involving carcinogenic substances
- Refer to and understand the requirements detailed in applicable SDSs
- Ensure required PPE is worn, used and disposed of correctly
- Undertake and complete any applicable training

7. Definitions

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

Term / acronym	Definition
PPE	Personal Protective Equipment
SDS	Safety Data Sheet

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 – HSW Records Management
- HR – HSW-PR07 – Consultation and Communication
- HR – HSW-PR09 – HSW Risk Management
- HR – HSW-PR32 – Hazardous Substances
- HR – HSW-PR32-WI01 – Storage, Use and Disposal of Hazardous Substances.
- HR - HSW-PR32-FR03 - Scheduled Carcinogen Exit Statement
- HR – HSW – PR33 – Laboratory, Workshop and Studio Safety
- HR – HSW-PR47 – Health Monitoring
- Occupational Health and Safety Regulations 2017 (VIC)
- AS2243.8: Safety in laboratories - Fume cupboards
- AS2243.9: Safety in laboratories - Recirculating fume cupboards
- AS2567: Laminar flow cytotoxic drug safety cabinets

9. Appendix 1

9.1. Schedule 10—Prohibited carcinogenic substances

Prohibited carcinogenic substance	CAS number
2-Acetylaminofluorene	53-96-3
Aflatoxins	
4-Aminodiphenyl	92-67-1
Benzidine (including benzidine dihydrochloride)	92-87-5 including 531-85-1
bis (Chloromethyl) ether	542-88-1
Chloromethyl methyl ether (technical grade which contains bis(chloromethyl) ether)	107-30-2
4-Dimethylaminoazobenzene (Dimethyl Yellow)	60-11-7
2-Naphthylamine	91-59-8
4-Nitrodiphenyl	92-93-3

10. Appendix 2

10.1. Schedule 11—Restricted carcinogenic substances

Restricted carcinogenic substance	CAS number
Acrylonitrile	107-13-1
Benzene when used as a feedstock containing more than 50% of benzene by volume	71-43-2
3,3'-Dichlorobenzidine and its salts (including 3,3'-Dichlorobenzidine dihydrochloride)	91-94-1 612-83-9
Diethyl sulfate	64-67-5
Dimethyl sulphate	77-78-1
Ethylene dibromide when used as a fumigant	106-93-4
4,4'-Methylene bis(2-chloroaniline)	101-14-4
3-Propiolactone (Beta-propiolactone)	57-57-8
o-Toluidine and o-Toluidine hydrochloride	95-53-4 and 636-21-5
Vinyl chloride monomer	75-01-4