Hazardous Waste Disposal

Effective Date: 15 August 2022
Amended: 30 July 2026

1.0 Purpose

1.1 The Hazardous Waste Disposal policy applies to all staff members and students at Sunway University, and to contractors, visitors and any other persons who generate, handle, store or dispose of hazardous waste on University premises.

1.2 It is developed to ensure that proper procedures for the safe packaging, labelling, storage, handling and disposal of hazardous waste are followed.

1.3 For the purpose of this policy, hazardous waste includes scheduled waste listed in the First Schedule of the Environmental Quality (Scheduled Wastes) Regulations 2005, clinical waste, radioactive waste and any mixture of these wastes.

1.4 This policy shall be implemented in accordance with the following national legislation, as amended from time to time;

- Environmental Quality Act 1974 [Act 127], including the Environmental Quality (Amendment) Act 2024 [Act A1712].
- Environmental Quality (Scheduled Wastes) Regulations 2005 and the Department of Environment (DOE) Guidelines for Packaging, Labelling and Storage of Scheduled Wastes in Malaysia.
- Occupational Safety and Health Act 1994 [Act 514], as amended by the Occupational Safety and Health (Amendment) Act 2022 [Act A1648].
- Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 (CLASS Regulations) and the Occupational Safety and Health (Use and Standard of Exposure of Chemicals Hazardous to Health) Regulations 2000.
- Atomic Energy Act 1984 [Act 304] (formerly the Atomic Energy Licensing Act 1984, as amended by Act A1779) and its subsidiary legislation, for radioactive waste.
- Biosafety Act 2007 [Act 678], where living modified organisms are involved.

1.5 Where any provision of this policy is less stringent than the applicable legislation, the legislation shall prevail.

2.0 Packing Hazardous Waste

2.1 Waste must be packed according to the following guidelines;

- Do not mix waste types. Always use a separate container for each type of waste.
- Waste must be segregated according to its scheduled waste code as listed in the First Schedule of the Environmental Quality (Scheduled Wastes) Regulations 2005 (for example, SW 322 for non-halogenated organic solvents and SW 404 for clinical waste).

- All material must be placed in an appropriate container that will not be degraded by the waste contents.
- Seal all containers. Leaky containers will not be accepted.
- Containers with liquid material must not be filled beyond 80% of their capacity.
- Containers must be labelled with 100% of the components of the waste.

3.0 Labelling Hazardous Waste

3.1 Waste must be labelled according to the following guidelines;

- Containers in a laboratory must be appropriately labelled.
- Labelling is the responsibility of the individual laboratory or department.
- Each individual item (bottle, bag, box, etc.) must be clearly labelled with a hazardous waste label.
- All required information must appear on the label to ensure safe handling and to enable proper disposal. The label must show the scheduled waste code, the date the waste was first generated, the name, address and telephone number of the waste generator, and the appropriate hazard symbol, in accordance with Regulation 8 and the Third Schedule of the Environmental Quality (Scheduled Wastes) Regulations 2005.
- Ensure that 100% of the components of the waste are listed, even if one component is a non-hazardous substance such as water.
- Full chemical names must be used, as short forms or acronyms do not provide accurate identification.
- Hazardous chemicals kept in their original containers must retain the supplier label in accordance with the CLASS Regulations.
- Labels must not be altered, defaced or removed until the waste has been collected for disposal.

4.0 Hazardous Waste Collection Guidelines

4.1 Lab coat, safety glasses and gloves must be worn when moving waste containers.

4.2 Waste containers must remain closed except when adding more waste into them.

4.3 Only non-hazardous chemicals can be disposed of using the sink. Hazardous waste must not be disposed of into sinks, drains or general waste bins, or by open burning.

4.4 Biological wastes such as those derived from cell, bacterial, and virology cultures should be treated with sodium hypochlorite solution (bleach).

- The bleach solution should be prepared in a well-ventilated area.
- An appropriate contact time of bleach with liquid waste is at least 30 minutes, after which the disinfected liquid waste, provided it contains no other hazardous chemicals, can be poured down the sink and the drain flushed with water.

4.5 Biological specimens should be separated from the chemicals before being disposed of. For example, formalin should be disposed of as chemical waste, whereas biological specimens should be treated as clinical waste.

4.6 Hazardous waste must be transferred to the University's designated scheduled waste storage area and must not be stored for more than 180 days from the date of generation, or in a quantity exceeding 20 metric tonnes, unless written approval has been obtained from the DOE.

4.7 Each laboratory or department must record all hazardous waste generated in the waste inventory form and submit it to the Health & Safety (H&S) Office monthly. The H&S Office shall maintain the University's scheduled waste inventory, notify the DOE of new categories and quantities of scheduled waste within 30 days of generation, and record all waste movements through the DOE Electronic Scheduled Waste Information System (eSWIS).

4.8 Hazardous waste must only be collected, transported and disposed of by contractors licensed by the DOE, or for radioactive waste by persons licensed under the Atomic Energy Act 1984, as arranged through the H&S Office.

4.9 Specific packing, labelling and collection requirements for each waste category are set out in Table 1.

5.0 Safety

5.1 When approximately 500 mL (1 pint) or more of a hazardous material or any amount of an extremely hazardous substance is spilt, evacuate the room, close the door, notify the H&S Office at extension 3108 and wait for the safety officer.

5.2 If the substance spilt is flammable, turn off all ignition sources before securing the room.

5.3 In case of chemical contact with skin or eyes, flood the affected area immediately with water; continue for at least 15 minutes.

5.4 Seek medical assistance at Sick Bay for skin irritation, contact with an extremely toxic substance, any eye injury or any adverse reaction.

5.5 All contaminated clothing must be removed immediately. Clothes must be laundered before reuse or disposed of as hazardous waste.

5.6 When incidental to one's duties, small spills (less than approximately 500 mL) may be cleaned up by laboratory personnel.

- Most strong acids may be absorbed and then neutralised with aqueous solutions of sodium bicarbonate, calcium hydroxide (slaked lime), or sodium carbonate (soda ash).
- Caustic solutions and flammable liquids may be absorbed with an inert absorbent.
- Formaldehyde spills may be absorbed with an inert absorbent.
- For mercury spills, use the Mercury Spill kit, which is available in all laboratories.
- Solid spills are not usually emergencies. If the material spilt is toxic, use dampened cloths or paper towels to transfer it to plastic bags. Brushing dry material may cause dust to become airborne.

5.7 All absorbed spill material must be collected in double plastic bags or plastic containers with secure lids and disposed of as hazardous waste. If the absorbent has been used for a flammable or volatile compound, it must be stored in a well-ventilated area away from sources of ignition while awaiting pickup. A fume hood is a good temporary storage area.

5.8 All spills, exposures and near misses must be reported to the H&S Office within 24 hours. Any spill or accidental discharge of hazardous waste into the environment must be reported immediately so that the University can notify the DOE, and any notifiable incident is reported to the Department of Occupational Safety and Health (DOSH) under the Occupational Safety and Health (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease) Regulations 2004.

6.0 Roles and Responsibilities

6.1 The H&S Office is responsible for;

- administering this policy and providing guidance on hazardous waste management;
- ensuring that the University's scheduled waste is managed under the supervision of a competent person certified by the DOE;
- maintaining the designated storage area, the scheduled waste inventory and eSWIS records;
- appointing and monitoring licensed waste contractors; and
- conducting the training, inspections and reporting described in Sections 7.0 and 8.0.

6.2 Deans of Faculty and Heads of Schools, Departments and Research Centres are responsible for ensuring compliance with this policy within their areas, and for appointing a Person-in-Charge (PIC) for hazardous waste for each laboratory or waste-generating area.

6.3 The PIC is responsible for the segregation, labelling, temporary storage and inventory of hazardous waste in the laboratory, for arranging collection with the H&S Office, and for conducting monthly checks of waste containers and storage areas.

6.4 Principal Investigators and academic supervisors are responsible for ensuring that research staff and students under their supervision are trained and comply with this policy, and that hazardous waste generation and disposal are considered when planning research activities.

6.5 Where radioactive materials are used, the Radiation Protection Officer appointed under the University's licence is responsible for radioactive waste management in accordance with the Atomic Energy Act 1984.

6.6 All staff, students, contractors and visitors are responsible for complying with this policy and for reporting any non-compliance, spill or unsafe condition to the PIC or the H&S Office.

7.0 Training and Awareness

7.1 All staff and students who generate or handle hazardous waste must complete hazardous waste management training provided or approved by the H&S Office before being permitted to work in a laboratory, and must attend refresher training at least once every two years.

7.2 Contractors working in laboratories or waste storage areas must be briefed on this policy before commencing work.

7.3 The H&S Office, in collaboration with the Faculty/Schools and the Sustainability Office, shall conduct awareness programmes at least once a year. These may include briefings at the start of each semester, laboratory safety campaigns, signage and posters at waste collection points, and online resources.

7.4 Records of training attendance shall be maintained by the H&S Office and the respective Faculty/School or Department.

8.0 Compliance Monitoring and Enforcement

8.1 The H&S Office shall inspect laboratories and hazardous waste storage areas at least once every quarter, in addition to unannounced spot checks, using a standard inspection checklist.

8.2 Non-compliance identified during inspections shall be communicated in writing to the PIC and the Head of the School or Department, together with the corrective actions required and a deadline for completion, normally within 14 days.

8.3 Serious or repeated non-compliance may result in;

- suspension of hazardous waste collection or laboratory access for the individual or laboratory concerned until corrective actions are completed;
- escalation to the Dean or Head and to senior management; and
- disciplinary action in accordance with the University's staff and student disciplinary regulations.

8.4 Breaches of national legislation may also result in prosecution of the individuals concerned and of the University. Under the Environmental Quality Act 1974, as amended in 2024, the unlawful disposal of scheduled waste carries mandatory imprisonment of up to five years and fines of up to RM10 million.

8.5 The H&S Office shall report hazardous waste performance, including quantities disposed of, inspection findings, incidents and training completion, to the University's Occupational Safety and Health Committee at least once a year. This information shall also support the University's sustainability reporting.

9.0 Policy Review

9.1 This policy shall be reviewed at least once every three years, or earlier following any change in the applicable legislation or a significant incident.

Table 1: Hazardous Waste Handling Matrix

Waste Category	Radioactive Waste 	Hazardous Chemical Waste 	Biological Waste 	Mixed Waste		
				Biological & Chemical	Biological & Radioactive	Chemical & Radioactive
Liquid	- use 5L plastic containers pre-filled with gel/celite as provided by the waste management company - label with isotope and activity and radiation symbol - use proper shielding depending on isotope - call the H&S Office at extension 3108 to arrange for pickup	- collect in a chemical resistant container that is compatible with the waste - complete a hazardous waste label and attach to waste container - list container on waste inventory form when full and await pickup from lab	- collect in leak-proof, autoclavable containers - autoclave at 121°C for 30 min and according to Autoclave SOP - decontaminate using appropriate disinfectant	- disinfect first as biological waste, ensuring that the disinfectant is compatible with the chemicals in solution - handle remaining waste as chemical	- disinfect to eliminate biological component - handle as liquid radioactive waste	- collect waste in a compatible container - label with name of isotope and chemical(s) - call the H&S Office at extension 3108 to arrange for pickup
Solid	- use a designated container lined with a polyethylene bag - label with isotope and activity and radiation symbol - use proper shielding depending on isotope - call the H&S Office at extension 3108 to arrange for pickup	- collect in a chemical resistant container that is compatible with the waste - complete a hazardous waste label and attach to waste container - list container on waste inventory form when full and await pickup from lab	- collect in plastic bag labelled “Biological Waste” and autoclave at 121°C for 30 min and according to Autoclave SOP - when autoclave is complete, place in a yellow clinical waste bag labelled SW 404 for collection by a DOE-licensed contractor through the H&S Office	- call the H&S Office at extension 3108 for instruction	- call the H&S Office at extension 3108 for instruction	- call the H&S Office at extension 3108 for instruction
Sharps	- place in an approved sharps container with the radioactive label affixed - container must be monitored and shielded if necessary - call the H&S Office at extension 3108 to arrange for pickup	- use a puncture and leak proof sharps container - label container with contents and identify chemical contaminants - discontinue use of container when 3/4 full - list container on waste inventory form when full and await pickup from lab	- contact the H&S Office at extension 3108 to obtain a puncture and leak proof sharps container with a biohazard label - discontinue use of container when 3/4 full - call the H&S Office at extension 3108 for instruction	- collect in a leak-proof, puncture resistant container - disinfect biological agents present and dispose of as chemical waste	- call the H&S Office at extension 3108 for instruction	- collect in a leak-proof, puncture resistant container - label with radioactive symbol, name of isotope and chemical(s)
Animal & Human Pathological	- keep frozen until ready for removal - identify the isotope on the container label - call the H&S Office at extension 3108 to arrange for pickup	- call the H&S Office at extension 3108 for instruction	- keep frozen until ready for removal - call the H&S Office at extension 3108 for instruction	- keep frozen until ready for removal - clearly label the waste with the name of the chemical it contains - call the H&S Office at extension 3108 for instruction	- keep frozen until ready for removal - label with the isotope - call the H&S Office at extension 3108 to arrange for pickup	- keep frozen until ready for removal