***STANDARD OPERATING PROCEDURE – C001***

**Disposal of Hazardous Chemical Waste**

1. **Objectives**

The objective of this document is to establish standard operating procedures for the disposal of hazardous chemical waste, ensuring the safety of laboratory personnel by mitigating potential risks associated with hazardous materials and injuries.

1. **Personal Protective Equipment**

To ensure safety during the disposal of hazardous chemical waste, appropriate personal protective equipment (PPE) must be worn. This includes:

* Long pants and closed-toe shoes to protect against spills and splashes.
* A long-sleeved, buttoned lab coat to minimize skin exposure.
* Safety glasses or goggles to protect against splashes or flying debris.
* Disposable nitrile gloves to prevent direct contact with hazardous materials.
* If the user has long hair, it should be tied back.

1. **Potential Hazards**

Disposing of hazardous chemical waste presents various hazards that must be managed to maintain a safe working environment. These include:

* **Chemical Hazards:** Exposure to toxic, corrosive, or reactive substances can cause chemical burns, respiratory issues, or other health effects.
* **Fire and Explosion Hazards:** Ignitable or reactive chemicals can cause fires or explosions if mishandled.

1. **Procedures**
2. Preparation

* Confirm that all personnel involved in waste disposal have received adequate training on hazardous waste management.
  + MC03 Chemical Safety II / Hazardous Waste Management
  + MC07 Chemical Safety I / Chemical Safety for Laboratory Users
* Identify the type and classification of hazardous waste prior to disposal based on the information provided in the Safety Data Sheet (SDS).
* Ensure that appropriate PPE is worn before handling waste.

1. Ordering and Collecting Chemical Wastes Containers

* To order and collect chemical waste containers, visit the HSEO website. Use the following link: <https://hseo.hkust.edu.hk/links/hazardouswaste>
* Choose the appropriate container based on the specific properties of the waste (e.g., corrosive, flammable, reactive). Refer to the Chemical Waste Container: <https://hseo.hkust.edu.hk/system/files/documents/Chem_Wastes_Disposal_Procedure.pdf>

1. Disposal of Chemical Wastes into the Containers

* Always wear appropriate PPE, such as lab coats, safety glasses, and gloves to protect against chemical exposure during disposal.
* Certain chemicals, especially highly reactive or water-reactive compounds, may require pre-treatment before disposal. This step reduces the risk of violent reactions.
* If chemicals are mixed with biological waste, ensure the biological part is disinfected using appropriate means prior to disposal as chemical waste.
* When disposing of large volumes of liquid waste, use a funnel to prevent spills. This practice is crucial for maintaining a safe working environment.
* Fill waste containers only to 70-80% of their capacity. This precaution allows for the expansion of the contents and prevents overflow or pressure buildup.
* After disposal, ensure that all waste containers are securely capped to prevent leaks and evaporation of hazardous materials.
* Properly complete the chemical waste log sheet. Accurate documentation is vital for tracking waste disposal and ensuring compliance with regulations.
* It is important to plan ahead for waste collection. Avoid making last-minute requests to ensure that waste is disposed of in a timely manner.

1. Proper Storage

* Store incompatible waste types in separate containers to prevent dangerous reactions:
  + Acids & Alkalis
  + Oxidizers & Organics
  + Acids & Cyanides
* Use secondary spill trays to catch any leaks or spills from waste containers, ensuring that any accidental releases are contained and do not pose a risk to personnel or the environment.
* Keep all chemical waste containers in a well-ventilated, enclosed, and designated area to minimize exposure to hazardous materials.
* Never leave waste containers outside of the designated storage area to maintain safety and compliance.

**5) Incident Reporting**

* Report any accidents resulting in injuries to the Principal Investigator and/or the departmental safety officer (DSO) immediately.
* For serious incidents, notify the security unit immediately by calling the 24-hour hotline on **23588999**.

**6) References**

* Ward, A. (2016). *SOP\_SMB008: Disposal of hazardous chemical waste.* Risk Assessment. The University of Sydney.
* Coleman, N. & Dimauro, J. (2016). *SOP SMB008.1 (JD NC 0714): Disposal of hazardous chemical waste.* Standard Operating Procedure. The University of Sydney.
* Safety and Environmental Protection Manual *- Chapter 16: Disposal of Hazardous Materials and Items under Regulatory Control | Health, Safety and Environment Office - the Hong Kong University of Science and Technology*
* HKUST Procedures for Disposal of Chemical Waste – *Hong Kong University of Science and Technology*
* Health, Safety and Environment Office - Hong Kong University of Science and Technology (n.d.). *Chemical Waste Container Proper Selection Guide*. from https://hseo.hkust.edu.hk/sites/default/files/Chemical%20Waste%20Container%20Proper%20Selection%20Guide.pdf
* Health, Safety and Environment Office - Hong Kong University of Science and Technology (n.d.). *Proper Disposal of Chemical Waste*. from <https://hseo.hkust.edu.hk/sites/default/files/Proper%20Disposal%20of%20Chemical%20Waste.pdf>
* Health, Safety and Environment Office - Hong Kong University of Science and Technology (n.d.). *Hazardous Waste Management.* <https://hseo.hkust.edu.hk/node/3654>