Chemical Waste Disposal

It is the responsibility of **Principal Investigators to ensure all lab personnel** have been appropriately **trained** and follow the **proper procedure**. **HWIS users** are **personally responsible** for their submitted waste.

Purpose

This procedure specifies the requirements for the safe disposal of chemical waste through the UBC Environmental Services Facility (ESF) to ensure compliance with all current legislation.

Scope

Waste Application & Regulations

This general procedure applies to surplus (unused) hazardous chemicals in original containers, or experimental chemical by-products generated from research facilities and laboratories at UBC Point Grey campus.

Hazardous waste is defined by the BC Hazardous Waste Regulation, 2009, Part 1(1), (a) as dangerous goods, if they are:

(i) no longer used for their original purpose, and

(ii) meet the criteria for Class 2, 3, 4, 5, 6, 8, or 9 of the federal dangerous goods regulations.

Waste chemicals are classified as hazardous under either the current Transportation of Dangerous Goods (TDG) Regulations Part 2 - substances classification, or under the Workplace Hazardous Materials Information System (WHMIS) / Globally Harmonized System (GHS).

Acceptable laboratory waste may include any safe to handle, correctly identified chemicals or chemical mixtures in liquid or solid state, TDG classes (3, 4, 5, 6.1, 8, 9).

NOTE: With a very few exceptions, there are no other, unique disposal procedures for the various types of hazardous chemicals or chemical mixtures (e.g. solutions), specialized chemical kits, etc.

TDG Classification	Waste Stream Examples
CLASS 2 - Gases	Not acceptable
CLASS 3 – Flammable Liquids	Alcohols, Aldehydes, Organic Solvents, Oils
CLASS 4.1 – Flammable Solids	Sodium Dodecyl Sulphate, Metals (powder form)
CLASS 4.2 – Substances Liable to Spontaneous Combustion	Activated Carbon (Charcoal), White/Yellow Phosphorus
CLASS 4.3 – Water-reactive Substances	Sodium, Lithium Borohydride
CLASS 5.1 – Oxidizer	Hydrogen Peroxide, Sodium Nitrate, Potassium Permanganate
CLASS 5.2 – Organic Peroxide	Perchloric Acid, Benzoyl Peroxide, tert-Butyl Hydroperoxide
CLASS 6.1 – Toxic Substances	Any toxic chemicals, including health hazards (carcinogens, mutagens, etc.)
CLASS 8 – Corrosive Substances	Acids, Bases, Ferric Chloride

CLASS 9 – Miscellaneous Products, Substances or Organisms	Environmentally hazardous substance (toxic to aquatic environment) Heavy metal chlorides & sulphates
NR – Non-Regulated ***(not classified as dangerous goods under TDG)***	Ethylenediaminetetraacetic Acid (EDTA), Lithium Sulphate, Certain Buffers or Aqueous Solutions

Does Not Apply

This disposal procedure does NOT apply to the following wastes that ESF **does not** manage or handle, and/or are covered by different procedures:

- Unknown or unidentified – solid or liquid chemicals
- Potentially explosive – very unsafe reactive chemicals (any TDG or WHMIS/GHS class)
- Gas cylinders compressed and lecture bottles (TDG class 2)
- Radioactive chemicals (TDG class 7)
- Biomedical or Biohazardous Waste (TDG class 6.2)

Background

Disposal of hazardous chemicals in the landfill or sewer is prohibited by the BC Hazardous Waste Regulation, 2009 and by the Metro Vancouver Sewer Use Bylaw No. 299, 2007.

ESF chemical packaging requirements (Primary Hazard Class) is based on the current TDG regulations. ESF reserves the right to refuse the handling and disposal of **improperly labelled or packaged, unidentified, unsafe/very reactive** and/or **incorrectly identified chemicals**.

Procedure

Contact our ***ESF Technicians*** for any questions related to chemical waste disposal.

- ✓ Collect chemical waste in appropriate containers.
  - Use either original bottles or empty, clean, leak-proof glass/plastic containers with screw-top caps.
  - Do not use red jerry cans for chemical solutions other than organic flammable solvents.
  - Note that ESF does not supply empty waste containers.
- ✓ Dispose of ALL lab chemicals – acceptable at ESF – via the online **Hazardous Waste Inventory System** (HWIS)*.
- ✓ Review the supplier Safety Data Sheet (SDS) – provide to ESF as necessary.
- ✓ Check if the chemicals are non-hazardous – coded as NH (non-hazardous) may be disposed of down the drain (liquids) or in the regular garbage (solids), with caution.
- ✓ Await approval by ESF - disposal requests will be processed by an ESF technician and approval forms will be e-mailed back to generators.
- ✓ Chemical Waste Approval forms include additional details: disposal authorization number, primary hazard classification, authorization expiry date, date by which chemicals must be prepared for disposal, etc.

- ✓ Segregate and safely prepare chemicals according to **primary hazard class (TDG class)**
  - ONLY chemicals with the same hazard class can be packed in the same box!
  - Use heavy-duty cardboard boxes or plastic Rubbermaid containers.
  - Secure lids and caps and ensure no leakage.
  - Keep chemical containers upright inside the box to prevent leaks.
  - Add appropriate packing material to prevent breakages inside the box.
- ✓ Do NOT exceed 10 kg for each box.
- ✓ Tape boxes closed to prevent chemicals from falling out during transportation.
- ✓ Affix the approval form in an envelope to the top of the box.
- ✓ Print **hazard class** & **authorization number** on each box.
- ✓ Bring boxes to your building's hazardous waste designated collection area. Contact your Facility responsible person regarding access to waste rooms.
- ✓ ESF will NOT pick-up unsafely packaged chemicals!

***How to Properly Use the Hazardous Waste Inventory System (HWIS):**

- ✓ Update your user account required information:
  - UBC email addresses for lab waste generators & PIs
  - Chemical safety & Hazardous Waste Management certification
- ✓ Find the best match to the name of your chemical from the online inventory list - only add a new name/description if there is no entry.
- ✓ Ensure complete chemical information: full chemical names, concentration, physical state, volume, quantity, SDS link if necessary.
- ✓ Do not use abbreviations, formulae, acronyms, trade names, foreign names. Remember that chemicals often have synonyms, including IUPAC names.
- ✓ Do not include the word "WASTE" in the chemical name.
- ✓ List the **most hazardous component of highest concentration first**, i.e. do not list water first.