Hazardous Waste Disposal Procedures

Waste disposal procedure for non-contaminated solids

- Solid lab waste items such as gloves, paper towels and absorbent pads, which are ***not contaminated with chemicals or biological materials***, may be disposed of in the regular garbage bags.
- Plastic tubes, pipettes, and micropipette tips should be disposed of as hazardous solid waste in a green pail and not the regular garbage to prevent potential puncture to the bag during disposal.
- All liquid contents must be properly emptied beforehand.

If there is any uncertainty about whether an item is contaminated, treat it as contaminated and dispose of it according to the appropriate procedure below.

Chemical waste disposal procedure

- The UofT Chemical Waste Disposal procedures must be followed.
- Solid and liquid chemical waste **must not be mixed**; separate green waste pails must be utilized for solid waste only and liquid waste only.
- Liquids must be decanted from containers and only residual amounts should remain.
- In some cases, vials containing liquids of similar hazards (i.e., organic solvents) can be collected separately for disposal without being decanted. Vials of incompatible chemicals should not be collected together.
- Each bucket must be properly labeled with a Chemical Waste Label to indicate the type of content.
- Liquid chemicals can alternatively be collected in empty chemical bottles, whose original labels are defaced. A Chemical Waste Label must be filled out and attached as soon as the bottle starts being used for waste disposal.
- Waste must be stored in containers compatible with the chemical being stored (i.e., no corrosive chemicals in metal containers).
- Gloves and paper towels, contaminated with chemicals, are considered solid chemical waste and must be disposed of in a solid waste green pail. Gloves and paper towels that are not contaminated with any biological or chemical agent can go in the regular garbage.
- All green waste pails must be properly sealed (lids hammered shut) and transported on a cart to the designated areas in the NSB Stores for disposal.
- **Do not overfill the buckets**. All chemical liquid waste containers should only be filled to 75% capacity to allow for vapour expansion. Otherwise, waste liquid containers can potentially rupture due to pressure buildup.
- Glass bottles (either empty or filled with waste chemicals) must be carried in a secondary container on a cart.
- Sharp items (needles, blades, razors, scalpels, lancets, etc.) should not be disposed of in the green waste pails. Sharp items must be collected in a designated Sharps Container according to UofT's Safe Sharps Use manual.

Chemical Compatibility

When preparing chemical waste for disposal, it is the generator's responsibility to ensure that incompatible chemicals are not stored in the same container. Waste containers should be stored according to their compatible chemical reactivities. A few general examples are:

- Acid-reactive compounds (e.g., cyanides, sulphides) which liberate gaseous products when acidified should not be mixed with any inorganic acid (e.g., sulphuric or hydrochloric acid).
- Organic acids (e.g., glacial acetic acid) should be segregated from inorganic acids. Generally inorganic acids are oxidizing agents while some organic acids may be either reducing agents or combustible.
- Water reactive materials (e.g., sodium) should be kept away from any water source.
- Oxidizers (i.e., any inorganic compound that assists fire such as hydrogen peroxide, lead nitrate) should never be mixed with organic materials (e.g., organic bases such as pyridine, aniline, amines, flammable solvents such as toluene, acetone) or reducing agents (e.g., water-reactive chemicals such as sodium).

Note: Perchloric acid, although an inorganic acid, is a powerful oxidizing agent and should be considered a powerful oxidizer in its concentrated form.

For any waste that requires special handling such as organic peroxides, PCBs (polychlorinated biphenyls) or explosives, consult the Manager, Environmental Protection, Environmental Protection Services at 416.978.7000 or e-mail eps.hazdisposal@utoronto.ca.

Biological waste disposal procedure

- The UofT Waste Procedures and Information for Bio Labs must be followed.

IMPORTANT:

- Animal anatomical waste must be disposed of in the red pails.
- If the biological waste or animal anatomical waste is also contaminated with non-preservative chemicals or radioisotopes, contact EPS for further guidance.
- Animal anatomical waste in chemical preservative fluid must be separated by lab staff prior to disposal. The preservative chemical must be decanted, collected and disposed of as chemical wate. The remaining anatomical waste must be disposed of in a red biowaste pail.
- Plant pathogens/pests listed by the CFIA must be disposed of as RG2 waste.

Liquid Risk Group 1 (RG1) and RG2 wastes:

- Add enough bleach into the liquid waste to make a final concentration of 1% sodium hypochlorite. (**Note:** Always check the expiration date of bleach before using it for decontamination. Do not use expired bleach and dispose of it as chemical waste.)

- Let sit for 30 minutes, then pour down the sink, with plenty of water to dilute the bleach.
- A different disinfectant and contact time can be used, as long as the efficacy of this procedure (to decontaminate the bioagent) is validated. If a different validated disinfectant is used, the liquid must be collected and disposed of as chemical waste.
- Alternatively, autoclave at 121°C for at least 20 minutes and, once cooled, dispose by pouring down sink. Do not autoclave bleach.

Solid RG1 wastes:

- Collect items (including gloves and paper towels) that are contaminated with RG1 bioagents into a designated, labeled bucket, lined with an unlabeled autoclave bag (without the biohazard symbol). Bags with the international biohazard symbol CANNOT be disposed of in the regular garbage.
- Sharp items (needles, blades, razors, scalpels, lancets, etc.) should not be disposed of into the autoclave bags. Sharp items are collected in the Sharp Containers according to UofT's Safe Sharps Use manual.
- Glass slides and cover slips to be collected into small autoclavable containers (e.g., tip boxes or 50ml Falcon tubes, lid should not be tightened to allow steam to penetrate), and then placed into the autoclave bags.
- Double bagging is recommended if pointed items (e.g., micropipette tips) are disposed of.
- Once the bag is almost full, tie the opening loose enough for the steam to penetrate into the bag.
- Tag the bag with a piece of indicator tape, marked with the lab room number.
- Place the bag upright into a secondary container on a cart and transport it to the autoclave room.
- Autoclave at 121°C for at least 20 minutes.
- Dispose of in provided regular garbage bins in the autoclave room.
- If your lab does not have access to an autoclave, consult with the Health & Safety Officer.

Solid RG2 wastes:

- Place solid waste (including gloves and paper towels) that are contaminated with RG2 bioagents in the yellow biohazard pails or totes provided by UTM Stores.
- Sharp items (needles, blades, razors, scalpels, lancets, etc.) should not be disposed of into the yellow pail or biohazard tote. Sharp items must be collected in a designated Sharps Container according to UofT's Safe Sharps Use manual.

- Once the biowaste pail is almost full, seal the lid onto the pail and use a cart to transport the pail to the designated area in the NSB Stores. Do not overfill biowaste pails as pressure buildup may occur which could lead to pail rupture.

Instruments and equipment disposal procedure

The following steps must be followed when laboratory instruments and equipment are discarded:

- Decontaminate the contaminated or potentially-contaminated laboratory instruments and equipment with 1% sodium hypochlorite solution or any effective disinfectant recommended by the manufacturer.
- Fill out a "Safe to Remove" tag, have it signed by the PI, and securely, and visibly tape it on the instrument/equipment.
- Submit a work order to Facilities Management & Planning using ServiceNow to request removal. Do not leave the instruments in the corridors or common areas.