OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
5255 Hampton Blvd. ◆ Spong Hall, suite 2501 ◆ Norfolk, Virginia 23529
Phone: (757) 683-4495 ◆

Overview

Hazardous chemical wastes are regulated by the Environmental Protection Agency (EPA) under the

1. When possible, seek ways that will minimize the quantity of waste generated inside the laboratory.
2. Only use appropriate containers for the storage of waste materials.
3. Store chemical waste in a designated Satellite Accumulation Area.
4. Properly label all waste containers.
5. Keep waste containers closed.
6. Complete and submit HazWaste Disposal form for pick-up.

The University is required by Federal and State regulations to develop and implement a Waste Minimization Strategy. Ways to help achieve the goal of reducing the volume of chemical waste generated on campus includes but is not limited to:

1. Order the smallest quantity of chemical materials required for your research.
2. Keep an inventory of chemicals on hand.
3. Share surplus chemical with other labs.
4. Purchase mercury-free instruments.
5. Substitute hazardous chemicals with non-hazardous chemicals whenever possible.
6. Reduce the scale of laboratory experiments to reduce the volume of waste being produced whenever possible.

Each location on campus that generates and temporarily stores chemical waste is a Satellite Accumulation Area (SAA). There are specific requirements on managing chemical waste within these areas.

Satellite Accumulation Area Requirements

Only a maximum of 55-gallons of hazardous waste may be stored within any Satellite Accumulation Area. In the case of acutely toxic chemical waste (P-list), a maximum of one quart may be accumulated at a time. Some common P-list chemicals are sodium azide, osmium tetroxide, sodium cyanide. Once either limit is reached, EHS must remove the material from your laboratory within 3 days.

Storage limits

Hazardous waste containers may be stored in a Satellite Accumulation Area for up to 12 months from the day waste was first placed into the comtEHtheh-0.026 0 T54 Tw .217 Td[0 0 Td[(firs)-1.4x8rsS 6Tc 0 Tw 6.935

Laboratory personnel must make every effort to provide an accurate description of all chemicals given to EH&S for handling and disposal. Unknown chemicals will not be accepted by EH&S since they cannot be handled or disposed of in a safe manner. Hazardous waste disposal companies will not accept unknowns without proper analysis and the analysis of a single sample can easily cost $1,000 or more.

It is the responsibility of the generator (individual or department) to accurately identify all chemical unknowns in their laboratory, either by knowledge or analysis. This may require polling laboratory personnel, students and faculty members to ascertain the owner of such unknown waste and its identity. It must be constantly emphasized to researchers that they identify and label all wastes and project products.

Peroxide-forming chemicals are a class of materials that have the ability to form shock-sensitive explosive peroxide crystals.

Under normal storage conditions the materials listed in this section have the potential to generate and accumulate peroxide crystal formations. These formations may violently detonate when subjected to thermal or mechanical shock.

Labeling Requirements

- All bottles of peroxide-forming chemicals must have the date received marked on the container.
- When the bottle is first opened, the container must be marked with the date opened.

Example Label

Storage and Use Requirements

- Do not store peroxide-forming chemicals in direct sunlight as light can accelerate the chemical reactions that form peroxides.
- If the peroxide-forming chemical is flammable and requires refrigeration, then an explosion-proof refrigerator must be used.
- Do not distill, evaporate or concentrate a peroxide-forming chemical until you have first tested it for the presence of peroxides. (Peroxides are usually less volatile than their parent material and will tend to concentrate in the hot distillation pot).
- NEVER UNDER ANY CIRCUMSTANCES touch or attempt to open container of a peroxide-forming liquid if there are whitish crystals around the cap and/or in the bottle. The friction of screwing the cap may detonate the bottle. If you encounter such a bottle, contact the office of Environmental Health & Safety immediately for removal. DO NOT TOUCH OR MOVE THE SUSPECT BOTTLE YOURSELF FOR ANY REASON.

Disposal Requirements

- There are three classes of peroxide-forming chemicals based upon the peroxide formation hazard:
  - Class Amc 0.268-12680 Tc 0.014 Tw 0.424 0 Td( )Tj-0.014 Tc 0.014 Tw 0.435 0 Td[(p)-10.7 (e)-5.2 (r)-2

Waste oil should be collected in a proper waste container for collection by EHS staff. These oils are commonly found in vacuum pumps and other types of laboratory equipment. If the oils are contaminated with specific chemicals then please include this information on the chemical waste label.

Ethidium bromide may present a hazard if it is poured down the drain untreated or placed in the trash. Ethidium bromide is not regulated by the EPA as hazardous waste, but ODU manages ethidium bromide waste as a special waste, and should be managed the same as a hazardous waste.
Any ethidium bromide waste should not be poured down the drain, or thrown in the trash, unless the waste has been deactivated or filtered. The following are the recommended disposal procedures for ethidium bromide:

Waste Stream	Description	Waste Disposal Procedure
Buffer Solutions	Typically contain very small concentrations of EtBr (<0.5 mg/L)	EH&S strongly recommends that buffer solutions be run through a filter or treated with tea bags prior to drain disposal.
Stock solutions, cesium chloride solutions	Typically contain higher concentrations of EtBr (1–10 mg/ml)	The high concentration of EtBr in most of these solutions makes filtration/absorption impractical.

Approved Filter Methods for Buffer solutions

Charcoal Filtration

SYBR Safe comes from the company Invitrogen and claims that Sybr safe is less mutagenic, non- genotoxic and non-hazardous for waste disposal. Full details of this product including a downloadable version of a report, compiled by Molecular Probes, on the mutagenicity and environmental safety of the product, from the test results of two independent organizations, can be accessed at: http://probes.invitrogen.com/products/sybrsafe/. . SYBR Safe in particular might be less mutagenic than ethidium bromide, but should be treated like ethidium bromide before disposal.

Several common laboratory chemical mixtures tend to produce gas and must be stored carefully to prevent pressurizing or extTd[u)13.2-0.8 (d)]TJ6 (i)-3.22 (rizng.J6 (b)-4.9 (o)-17.6 (d)1nt5.8 (a)10.8 (4)-3.22 (n)-016 (nd)r.9 (a)1

Mercury containing items such as thermometers, thermostat switches and manometers must be collected for proper disposal and not placed in the regular trash.

Mixed wastes are produced when a material is both a hazardous waste and a radioactive waste. These types of waste are extremely expensive to dispose of. Always contact EHS **prior** to generating these types of waste streams to discuss the disposal options and any charges that your lab may incur. Uranyl Nitrate is a commonly purchased reagent that is classified as a mixed waste since it is radioactive and also an oxidizer. Another common example of mixed waste is any mixture of a long S 0[A3-911d5U10.04.12 0 (is)T.j0 Tc40 Tw 0.

University personnel, such as Principal Investigators, lab managers and shop supervisors, are responsible for completing this form in its entirety prior to the pickup of hazardous waste.

HazWaste Disposal Request Form (PDF)

- Fill in the name of the person requesting the pickup (contact), their department, building, room # where the waste is located, phone extension and date the form was completed.
- The "Identification of Waste" section must include the following container and contents information:
  - All contents (liquid and solid) and the approximate quantity or percent of each. B4.9 (e)2iN.3 ( )-6 (i)

ODU Laboratory Close-out / Relocation Checklist

Building:________________Room:____________ Researcher/PI:______________________________

Phone / email:____________________________________

☐ **RELOCATING LABORATORY** If so, to: Bldg.________________Room #_________

☐ **VACATING LABORATORY**

	Date Completed or N/A
Chemical	
Fume Hoods have been cleared of all chemicals and equipment?	
Fume Hoods have been wiped/washed out and decontaminated?	
A chemical waste inventory (HazWaste Disposal Form) has been submitted to department/EHS for all chemical waste and unwanted chemicals?	
All items for disposal have EHS HazWaste Labels attached?	
All chemicals, including compressed gases, have been removed or are scheduled to be transferred?	
Chemical storage cabinets including flammable/corrosive cabinets, drawers, bench tops, and shelves have been cleaned?	
Biological	
Submitted amendments for IBC/IACUC protocols with new location information or closure information?	
Countertops have been cleaned/decontaminated?	

Freezers and refrigerators have been cleaned/decontaminated?
Warning labe48 13.44 r.402 0 Tt4 (1 Tf118 reW nBT11.04 0 0 reW nBT11.04 0 0 0 0 reW nE

<u>Department Sign-Off</u>

Submit completed check-list to department head for signature

Researcher____Date_____________

Signature Printed Name

Department Head____Date_____________

Signature Printed Name

Appendix A – P and U list for toxic materials

Appendix B – F-list for spent solvents

For more information on Chemical Waste Management, visit our website:
http://www.odu.edu/facultystaff/university-business/safety/hazmat/chemical-waste-management