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CHEMICAL WASTE DISPOSAL GUIDELINES**Table of Contents**

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CHEMICAL WASTE DISPOSAL GUIDELINES

1.0 Introduction

1.1 Purpose

The purpose of this document is to provide guidance for the safe storage and disposal of Chemical Waste generated in laboratories at Emory University, including laboratories at Oxford Campus, Emory Healthcare, and Yerkes National Primate Center. Radiological and Biological waste guidance is provided in separate guidance documents. Please consult with the [Environmental Health and Safety Office \(EHSO\)](#) website for further guidance.

Federal, state, and local governments impose strict regulations concerning the management, storage, and disposal of hazardous materials. Improper handling and disposal is a violation of regulations and can result in penalties.

1.2 Definitions

Hazardous Waste. Hazardous wastes are defined by the EPA as materials that exhibit a **characteristic of hazardous waste** or it is **listed specifically by the EPA** as hazardous waste.

2.0 Identifying Chemical Waste in Your Laboratory

2.1 Definition of Hazardous Waste

EHSO is responsible for operating the Chemical Waste Management Program at Emory University. EHSO makes the final determination if a chemical is an Environmental Protection Agency (EPA) regulated Hazardous Waste.

A material becomes a “waste” when it has no further economic value regardless of whether or not it has been used or contaminated. Spilled chemicals and absorbent materials used to clean a spill must be handled as a chemical waste.

NOTE: “Material” can include used and unused reagents such as ethidium bromide gels, paints, solvents, disinfectants, batteries, aerosols, filters, lamps, and other similar items in addition to stock chemicals and chemical solutions used in laboratory processes.

2.2 Characteristic Hazardous Wastes

Waste solids, liquids, or containerized gases that exhibit any of the following characteristics are defined as characteristic hazardous wastes: 1) Ignitability; 2) Corrosivity; 3) Reactivity; or 4) Toxicity. A detailed discussion of characteristic waste is available at: <http://www.epa.gov/osw/hazard/wastetypes/characteristic.htm>

2.3 Listed Hazardous Wastes

The EPA has already determined that certain chemicals are hazardous and has incorporated these into complete published lists. The complete lists can be viewed by accessing the following website: <http://www.epa.gov/osw/hazard/wastetypes/listed.htm>

K-Listed Hazardous Wastes

K-listed hazardous wastes are source-specific wastes that are generated by specific

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industries such as iron and steel production facilities, and are not likely to be found in a laboratory.

F-Listed Hazardous Wastes

F-listed hazardous wastes are non-source specific wastes that are generated by common processes that can occur in various applications, including processes that generate spent solvents, electroplating and other metal finishing processes. F-listed wastes that may be found in laboratories include but are not limited to the following solvents or mixtures containing 10 percent or more of the solvent before use. See Table 1.

Table 1 – Examples of F-Listed Chemicals Found in Laboratories

1,1,1-trichloroethane	1,1,2-trichloroethane	2-ethoxyethanol	2-nitropropane	Acetone
Benzene	Carbon disulfide	Carbon tetrachloride	Chlorinated fluorocarbons	Cresols
Cresylic acid	Cyclohexanone	Ethyl acetate	Ethyl benzene	Ethyl ether
Isobutanol	Methanol	Methylene chloride	Methyl ethyl ketone	Methyl isobutyl ketone
n-Butyl alcohol	Nitrobenzene	Ortho-dichlorobenzene	Pentachlorophenol	Pyridine
Tetrachloroethylene	Toluene	Trichloroethylene	Trichlorofluoromethane	Xylene

P-Listed Hazardous Wastes

The P-listed hazardous wastes are commercial grade formulations of specific unused chemicals. Unused chemicals may be considered wastes because they are no longer needed, they are spilled, or they are off-specification. Please note that containers that held P-listed chemicals must be disposed of through EHSO. There are over 100 P-listed hazardous wastes. The P-listed chemicals most commonly found in laboratories are listed in Table 2.

Table 2 – Examples of P-Listed Chemicals Found in Laboratories

Acrolein	Allyl alcohol	Ammonium vanadate	Arsenic acid	Brucine
Carbon disulfide	Chloroacetaldehyde	Chloroaniline	Cyanides	Diisopropylfluorophosphate
2,4-Dinitrophenol	p-Nitroaniline	Phosgene	Potassium cyanide	Sodium azide
Sodium cyanide	Thallium oxide	Vanadium pentoxide	Epinephrine	Nicotine
Osmium tetroxide				

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U-Listed Hazardous Waste

The U-Listed Hazardous wastes are commercial grade formulations of specific unused chemical. Unused chemicals may be considered wastes because they are no longer needed, spilled or off-specification. There are over 300 U-listed hazardous wastes. The U-Listed chemicals most likely found in laboratories are listed in Table 3.

Table 3 – Examples of U-listed Chemicals in Laboratories

Acetaldehyde	Pyridine	2-Propanone	Acetone	Acetonitrile
Cacodylic acid	Acrylamide	Acrylonitrile	Aniline	Benzene
1-Butanol	Chlorobenzene	Chloroform	Hydrofluoric acid	Cresol
Cyclohexane	Cyclohexanone	Dichlorobenzene	Ethylene dichloride	1,2-Dichloroethylene
Methylene chloride	2,4-Dichlorophenol	1,4-Dioxane	Ethyl acetate	Ethyl ether
Trichloromonofluoromethane	Formaldehyde	Formic acid	Hydrazine	Isobutyl alcohol
Lead acetate	Mercury	Methanol	Methyl ethyl ketone	Methyl isobutyl ketone
Triethylamine	Methyl methacrylate	Naphthalene	Phenol	Resorcinol
1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Carbon tetrachloride	Tetrahydrofuran
Trypan blue	Thiourea	Toluene	Xylene	Trichloroethylene

Universal Waste

Universal Waste is waste that meets the EPA's definition of hazardous waste, but is found so abundantly that they drafted different rules for handling and managing it. Universal waste includes most batteries (excludes alkaline batteries), lamps, mercury containing articles and some pesticides.

3.0 Storing Chemical Waste in Your Laboratory

3.0 Chemical Waste Containers

Chemical waste must be stored in containers (including lids) composed of materials that are compatible with the waste. Chemical waste containers must be in good condition and free of leaks and residue on the outside of the container. Appropriate containers can be obtained from EHSO. For liquids, fill containers to about 90% of container volume. Do NOT fill containers to the top. Leave at least 2 inches of space in liquid waste containers to allow for liquid expansion and decanting.

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Sealing Chemical Waste Containers

Chemical waste containers must be tightly closed to prevent leakage or spillage. Containers should be closed with a screw-type lid or other appropriate device. Plastic wrap, aluminum foil, parafilm and other make-shift lids are **unacceptable**. **A container holding chemical waste must ALWAYS be closed, except when waste is actually being added.** If a waste container is used to collect waste from a continuous process (i.e., drainage from a process collected with tubing inserted into a bottle such as HPLC), the container must still be sealed using rubber stoppers with tubing inserts or other appropriate means. **It is not acceptable to leave funnels in chemical waste containers.**

Labeling Chemical Waste Containers

All chemical waste containers must be labeled with the [Chemical Waste Label](#). These labels are available on the EHSO web site. EHSO provided containers will have the appropriate label affixed when given. The following information must be provided on the label (see example of the label later in this section):

- PI Name or Department Head
- Building
- Room number
- Telephone number
- Exact contents of the container

It is important to include as much information as is known about the contents of the chemical waste container, including percentages and water content, to facilitate disposal.

Example: Chemical Waste Label

Chemical Waste Label	
PI (lab) or Dept. Head (non-lab)	_____
Bldg./Room #	_____
Phone #	_____
Please list primary constituents and concentrations:	
_____	%
_____	%
_____	%
_____	%
_____	%
_____	%
_____	%
_____	%
_____	%
Environmental Health and Safety Office 404-727-5922 (Rev 11-11-09)	

No additional labeling is necessary for surplus chemicals if the original label is intact and legible. Other waste containers, such as suction flasks used for collecting non-chemical waste, should be labeled with the specific type of waste collected (example: "Cell Culture Media Waste"). It is not necessary to use EHSO Chemical Waste Labels for the labeling of this type of waste.

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3.1 Mixing Waste Chemicals

Consult with EHSO prior to mixing different chemical wastes. Mixing a hazardous waste with a non-hazardous waste may increase the volume of hazardous waste for disposal or increase disposal costs due to differences in disposal options for certain hazardous wastes. Mixing incompatible materials may be dangerous. **DO NOT** mix incompatible materials in the same container.

3.2 Chemical Waste Container Storage

A specific area should be designated in the laboratory as a chemical waste storage area. Waste must be stored in the room it was generated in and cannot be transferred to any area that requires passage through a door. Chemical waste must be stored with secondary containment so that spills cannot reach sinks, or floor drains. Incompatible chemical wastes must be segregated to prevent reaction. Segregation methods include storing in separate cabinets or separate secondary containment containers such as 5-gallon buckets or tubs. Refer to the quick reference chart posted in your lab, "Incompatibility of Common Laboratory Chemicals".

You must also consider your storage capacity when establishing your storage area. You must not store chemical waste in quantities that prevent proper storage practices. Based on your laboratory's rate of generation of chemical waste, your storage capacity, and keeping in mind the quantity limits described below, you must determine the amount of chemical waste you will accumulate in your storage area.

Proper Chemical Waste Storage



Waste must be stored in EHSO provided containers, properly labeled, and segregated by compatibility. Liquid waste must be stored in secondary containment.

Improper Chemical Waste Storage



The waste is NOT properly labeled, segregated by compatibility, closed or stored in secondary containment.

3.3 Chemical Waste Storage Limits

Your laboratory must NOT store more than 5 gallons (20 liters) of chemical waste in a single container, one quart of P-listed waste, or a total of 50 gallons of all wastes at one time. Chemical waste must be removed at a frequency that prevents the lab from exceeding these limits. **Exceptions to these limits must be approved by EHSO. If these limits are ever exceeded, you must immediately contact EHSO for removal.**

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Refer to the “Identifying Chemical Wastes in Your Laboratory” section of these guidelines for the definition of P-listed chemicals.

Laboratories should try to minimize storage of chemical waste and not accumulate waste after filling. When a container is filled it must be removed as soon as possible.

4.0 Disposing of Chemical Waste

4.0 Chemical Waste Collection Program

All chemical waste generated by Emory University MUST be managed by EHSO. In general, laboratories are not directly charged for this service so long as these guidelines are followed.

4.1 Chemical Waste Pick-Up Program

All chemical waste will be picked up by EHSO per specific building schedule. The [Chemical Disposal Inventory Form](#) must accompany all waste and surplus chemicals for potential reuse by other Emory laboratories.

Chemicals must never be transported in personal vehicles. Only EHSO may transport chemical waste in approved University vehicles.

Chemicals must NOT be disposed of by evaporation. This includes evaporation in fume hoods or biosafety cabinets. Remember, chemical waste containers must be kept closed at all times except when actually adding chemical waste.

4.2 Container Disposal

Empty plastic and brown glass chemical containers may be rinsed with water and recycled or disposed of. Caps must be removed and labels defaced. Chemical containers must be triple rinsed with water prior to disposal. The rinsates may be disposed of via the sink drain.

Note: Containers that held EPA Registered Pesticides or “P-listed” chemicals must be disposed of through EHSO and may not be rinsed and/or recycled.

5.0 Minimizing Chemical Waste in Your Laboratory

5.0 Product Substitution

Laboratories should attempt to substitute non-hazardous or less toxic materials into their processes and experiments whenever possible. One example is non-hazardous xylene or ethidium bromide substitutes. Please refer to scientific equipment vendors for “Green” chemicals.

5.1 Inventory Management and Control

Laboratories should periodically evaluate their chemical inventory and dispose of unwanted/obsolete chemicals. Purchase only the quantity of chemicals required for specific projects. Ordering bulk quantities of chemicals may cost more when disposal of the excess quantity is considered.

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To the extent that it does not affect vital research or teaching, laboratories should modify experiments to decrease the quantity of chemicals used and generated. Microanalysis techniques can greatly reduce the amount of chemical waste generated.

5.3 Segregation

To the extent possible, do not mix wastes or waste streams. In particular, do not mix non-hazardous waste with hazardous waste.

5.4 Neutralization and Reclamation

Some laboratories generate a simple, pure chemical stream, such as a dilute acid or base that can be rendered non-hazardous by simple neutralization. Other laboratories may generate a dilute aqueous stream that contains a metal that can be easily precipitated, rendering the waste stream non-hazardous. Additionally, reclamation systems are available for some waste streams such as silver recovery systems for [photograph fixer solutions](#). Strict laws apply to processes for neutralizing hazardous wastes. For these types of waste streams, labs must contact EHSO to determine if the neutralization or reclamation is an acceptable method of rendering a chemical non-hazardous.

5.5 Good Housekeeping Practices

Good housekeeping practices minimize the likelihood of a spill and can reduce the amount of waste generated. Spilled chemicals and the materials used to clean up the spills must be disposed of as chemical waste.

5.6 Sink Disposal of Chemical Substances

Buildings on the Emory University Campus are connected to the Dekalb County Publicly Owned Treatment Works (POTW), i.e. sanitary sewer, and thus need to follow county codes as well as state and federal requirements.

Prohibited Discharge Substances:

The following substances are prohibited (in any amount or concentration), from sink or drain disposal. Dilution of substances for wastewater disposal purposes is strictly prohibited. The following general categories of chemicals may not be disposed of in the sewer:

- Hazardous wastes
- Chlorinated Hydrocarbons
- Chlorofluorocarbons
- Brominated Hydrocarbons
- Cyanides
- Heavy Metals (Arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, etc.)
- Corrosives (pH < 5.0 or > 11.5)
- Organic Solvents
- Oil and Grease (petroleum, vegetable, mineral, wax, fats, etc.)
- Ignitable Chemicals
- Reactive Chemicals
- Solid or Viscous Waste (at > 32°F)

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- Nuisance Chemicals (cause odors or discoloration)
- Hot Liquid or Vapor Waste
- Ethidium Bromide or Acrylamide

Unused or 'Pure' Chemicals:

Unused, pure, or concentrated chemicals may never be disposed of in the sanitary sewer.

Acceptable Substances for Drain Disposal

There are a limited number of substances acceptable for drain disposal, providing the solution does not contain material otherwise prohibited. These substances include:

- Aqueous solutions such as salts or buffer solutions within the pH range of 5.0 to 12.0.
- Aqueous solutions with a flashpoint greater than 140 F (60 C).
- Chemicals that are water soluble and not hazardous by definition.
- Biological liquids that have been treated with disinfectant.
- Buffer solutions containing less than 10 µg/ml of ethidium bromide.
- Aqueous solutions containing alcohols at a concentration of 20% weight or less.
- Aqueous solutions containing formalin at concentrations of 10% by weight or less.
- Small quantities of acids or bases that have been neutralized in the laboratory.

6.0 Highly Hazardous Chemicals and Chemical Spills

6.1 Highly Hazardous Chemicals

Certain chemicals must be handled by special procedures due to their highly hazardous nature. These chemicals include expired ethers and other peroxide forming compounds, dry picric acid, dry 2, 4-dinitrophenylhydrazine, or dry benzoyl peroxide. These chemicals can explode during opening or routine handling. If you have any questions regarding highly hazardous chemicals, contact EHSO.

If you encounter these or other highly hazardous chemicals in your laboratory, do not disturb them and immediately notify EHSO to arrange for disposal. Highly hazardous chemicals must NOT be handled by laboratory personnel.

Expired Ethyl Ether

Expired ethyl ether is one of the most common highly hazardous chemicals found in laboratories. Ethyl ether is extremely flammable and can form explosive peroxides after exposure to air and light. Since it is packaged in an air atmosphere, peroxides can form even in unopened containers. Therefore, it is very important to write the date received and the date opened on all ether containers. Opened containers should be disposed of through the EHSO within 6 months of opening. Unopened containers should be disposed of through the EHSO within 12 months of receipt. Ethers should be purchased in the smallest container practical and be stored away from heat, sunlight and any source of



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ignition in a flammable storage cabinet or refrigerator/freezer certified for storing flammable materials.

6.2 Chemical Spills

Chemical spills must be cleaned up immediately. Spill clean-up debris must be treated as chemical waste.

Chemical spills that cannot be safely mitigated by laboratory personnel are considered major spills and should immediately be reported to EHSO or Emory Police. Call EHSO at 404-727-2888 (24 hour response line) or call Emory Police at 911 from any campus phone or 404-727-6111.

Refer to the Office of Critical Events Preparedness and Response (CEPAR) [Just-In-Time Guide to Campus Emergencies](#).

7.0 List of Associated Documents

[ETHIDUM BROMIDE DISPOSAL GUIDELINES](#)

[CHEMICAL DISPOSAL INVENTORY FORM](#)

[CHEMICAL WASTE LABEL](#)

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Appendix A: Additional Chemical Waste Guidance

1. Multi Hazard Waste:

"Multi-hazard" waste is waste that contains any combination of chemical, radioactive, or biological hazards. Although many of the principles discussed for chemical waste also apply here, multi-hazard waste requires special management considerations because the treatment method for one of the hazards may be inappropriate for the treatment of another. Many types of mixed waste management is excessively expensive and difficult and therefore its generation should be avoided. Contact EHSO for additional guidance.

Chemical-Radioactive (mixed) waste is defined by the EPA as "wastes that contain a chemically hazardous waste component regulated under the Resource Conservation and Recovery Act (RCRA) and a radioactive component consisting of source, special nuclear, or byproduct material regulated under the Atomic Energy Act." Disposal options for mixed waste are usually very expensive. Materials of this type must be delivered to EHSO under the guidelines described in the [Radiation Safety Manual](#). The biological and chemical contaminants must be listed under the "Hazard" section on the Radioisotope Waste Inventory Form. An exception to this rule includes uranyl nitrate and uranyl acetate compounds, which are disposed of as chemical waste.

Examples of laboratory mixed wastes include:

- Used flammable liquid scintillation cocktail
- Phenol-chloroform mixtures from extraction of nucleic acids from radio labeled cell components
- Certain gel electrophoresis waste (e.g., methanol or acetic acid containing radio nuclides)
- Lead contaminated with radioactivity

2. Unknowns:

Labs must make every attempt to identify an unlabeled or unknown compound. If unable to do so, the material should be labeled as "unknown", included on the Chemical Disposal Inventory Form and delivered to EHSO for disposal.

3. Empty Containers:

Empty chemical containers may be disposed of in the regular trash or by recycling after following the triple-rinsing procedure, defacing labels and removing caps. If these containers previously held P-listed compounds or EPA Registered pesticides then the bottle must be disposed of by EHSO.

4. Mercury:

- **Mercury Containing Articles:** Metallic mercury is most commonly found in thermometers, thermostats, sphygmomanometers, pressure gauges and in some larger pieces of equipments, such as cell counters. These apparatuses should be removed from service and disposed of by EHSO. Unwanted mercury containing articles must be labeled "Used Mercury Containing Equipment", dated the day it was removed from service, and packaged so as to prevent damage or breakage. Small articles such as thermometers must be packaged in a box that is securely taped closed and disposed of through

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EHSO as chemical waste. Contact EHSO directly for larger pieces of equipment.

- Mercury Solutions: solutions that contain mercury compounds must be kept separate from other chemical waste.
- Broken/Damaged Mercury Thermometers: Collect elemental mercury and glass from broken or damaged thermometers in an impermeable container such as a polyethylene container or sealable bag. Label the container as “broken mercury thermometer.” Contact EHSO for assistance or to verify if clean-up was sufficient.

5. Compressed Gas Cylinders and Lecture Bottles:

When cylinders have been emptied, they should be labeled “EMPTY” and returned to the vendor from where they were obtained. Many vendors no longer accept lecture bottles back for return because they are not refillable. It is recommended these either be used up completely, or not purchased at all due to excessive disposal costs. If a cylinder or lecture bottle cannot be returned to the vendor, contact EHSO.

6. Aerosol Cans:

Aerosol cans present a unique hazard in that the pressurization of the container is oftentimes more dangerous than the compound within. Therefore, all aerosol cans, whether full or empty must be delivered to EHSO for disposal as chemical waste.

7. DEA Scheduled Drugs:

These items can only be purchased under licensure from the Drug Enforcement Administration and the Georgia State Board of Pharmacy the disposal of this cannot be handled at EHSO. The licensee must dispose of scheduled drugs via the methods described under their license. Additional information may be found at the Office of Compliance website <http://compliance.emory.edu/controlled-substances/index.html>

8. Chemotherapy Waste:

Antineoplastic or cytotoxic agents are extremely toxic and must be disposed of properly. This waste includes expired drugs as well as any contaminated debris such as syringes (but no needles). Chemotherapeutic waste that is generated during patient use must be disposed of through the usual Emory Healthcare disposal procedures. However, there are a few antineoplastic compounds that are included in the [EPA Listed Hazardous Wastes](#) that must be disposed of as Regulated Chemical Waste. These include but are not limited to: Chlorambucil, Cyclophosphamide, Daunomycin, Melphalan, Mitomycin C, Streptozotocin, and Uracil Mustard.

9. Ethidium Bromide Waste:

Refer to the [Ethidium Bromide Waste Disposal Guidelines](#) on the EHSO website.

10. Oil:

Varying processes use different types of oils around campus. These include HVAC operations, refrigerators, laboratory equipment, etc. Make special note of older oils found as these may contain Polychlorinated Biphenyls (PCBs). All containers of waste oil must be labeled “Used Oil” and disposed as chemical waste.

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11. Polychlorinated Biphenyls (PCBs):

PCBs present a unique disposal concern as they are regulated differently than other chemicals. In the laboratory, PCBs can be found in older immersion oils and are occasionally used in research. PCBs should not be mixed with other regulated chemicals. All items containing or suspected of containing PCBs must be disposed of by EHSO.

12. Formalin and Formaldehyde Solutions:

Dilute formaldehyde solutions should be stored for disposal as chemical waste. Formaldehyde is a suspected carcinogen with a low permissible exposure limit (PEL).

13. Ignitable Liquids and Organic Solvents:

Separate organic solvents from aqueous solutions whenever possible. Keep acidified solvents separate from other solvent and acid wastes.

14. Acids, Bases, and Aqueous Solutions:

Do NOT mix strong inorganic acids or oxidizers with organic compounds. Keep acids, bases and aqueous solutions containing heavy metals separate from other chemical waste. Avoid mixing concentrated acids and bases together in the same container.

15. Corrosive Materials:

The following corrosive liquids shall not be mixed with any other chemical waste under any circumstances.

- Nitric acid exceeding 40 percent concentration
- Perchloric acid
- Hydrogen peroxide exceeding 52 percent strength by weight
- Nitrihydrochloric or Nitrohydrochloric acid diluted

16. Perchloric Acid and Perchlorates:

Keep perchloric acid and perchlorate wastes separate from other wastes and in exclusive containers.

17. Toxic Wastes:

Separate toxic wastes from other chemical waste whenever possible. For example, do not mix aqueous waste containing heavy metals with wastes that do not. Mercury containing waste requires additional diligence in separation.

18. Explosive Materials:

Potentially explosive materials, such as dry picric acid or peroxide forming compounds must be handled by EHSO.

19. Pesticides and Herbicides:

Whenever possible, pesticides and herbicides should be used up completely. Be sure to check the list of regulated chemicals or the bottle for an EPA Registration Number (EPA Reg. No.) or contact the EHSO before disposing of empty containers as they may likely be considered regulated waste and must be disposed of as such. Any unused pesticides and herbicides must also be disposed of as chemical waste.

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Asbestos may be found in many building materials such as floor and ceiling tiles, countertops, moldings, or liners of chemical fume hoods, as well as laboratory equipment like tong holders or high temperature gloves. Only trained personnel should conduct renovation of or around asbestos. If you have a particular concern about the possibility of asbestos in your building, or wish to dispose of equipment that may have asbestos in it, please contact the Safety and Industrial Hygiene Program (404-727-5922).

21. Cleaning Products:

Whenever possible, cleaning products should be used completely. Many cleaning products are corrosive in their undiluted state and must be disposed of as chemical waste. Some disinfectants may have an EPA Reg. No. on the container. If this is the case, then the empty container or unused product should be disposed of through EHSO.

22. Bulbs and Lamps:

Bulbs and lamps from microscopes, biosafety cabinets, or other equipment may contain mercury or other hazardous metals and must be disposed of through EHSO as chemical waste. Spent lamps must be labeled "Used Lamp(s)", dated the day it was removed from service, and packaged in a box that is securely taped closed to prevent damage or breakage.

23. Batteries:

All batteries except standard dry cell alkaline must be disposed of through the EHSO. This includes lead acid, lithium ion (Li), lithium hydroxide (LiH), mercury, nickel, silver cell, cadmium (NiCad) or nickel hydride (NiH) batteries. Used batteries must have their terminals covered with non-conductive tape, be labeled "Used Battery(ies)", dated the day it was removed from service, and packaged in a box that is securely taped closed to prevent damage or breakage.

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Appendix B: Quick Facts for Chemical Waste Disposal in Laboratories

Identifying Chemical Waste In Your Laboratory

- Treat all waste chemical solids, liquids, and containerized gases as chemical waste

Storing Chemical Waste In Your Laboratory

- Store chemical waste in sealed and compatible containers
- Chemical waste containers must be kept closed at all times except to add waste
- Label chemical waste containers with EHSO chemical waste label as soon as waste accumulation begins
- Store chemical waste with secondary containment
- Segregate incompatible chemical waste
- Never accumulate more than 5 gallons of chemical waste in a single container or one quart of acute hazardous waste, or 50 gallons total of all waste

NOTE: Laboratories should try to minimize storage of chemical waste and not accumulate waste for longer than 30 days after filling.

Disposing of Chemical Waste In Your Laboratory

- Utilize the EHSO Chemical Waste Program to dispose of chemical waste
- Complete the Chemical Disposal Inventory Form
- Ensure all items on the Chemical Waste Label are completed
- Never evaporate chemicals as a disposal method
- Deface labels from empty chemical containers
- Chemical containers must be triple rinsed with water prior to disposal. The rinsates may be disposed of via the sink drain.

NOTE: Containers that held EPA Registered Pesticides or "P-listed" chemicals must be disposed of through EHSO and may not be rinsed and/or recycled.

Chemical Waste Minimization

- Check the Chemical Redistribution Program before ordering new chemicals
- Order only the quantity of chemicals you need
- Utilize inventory management and control to prevent buildup of waste chemicals
- Substitute non-hazardous or less hazardous chemicals and/or modify your process to use smaller quantities of hazardous chemicals whenever possible
- Utilize good housekeeping practices to minimize the risk of a spill