



DEPARTMENT OF
ENVIRONMENTAL HEALTH &
SAFETY

LAB PACK
COMPLIANCE

2010

DREXEL UNIVERSITY
LAB PACK COMPLIANCE
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Hazardous Waste Management Procedures in the Laboratory

Hazardous Waste

Hazardous waste includes substances that are solids, liquids and gases. The EPA definition of hazardous waste includes substances that possess a hazardous characteristic (e.g. toxic, ignitable, corrosive or reactive with other substances), or substances that are listed as hazardous waste by the EPA on the basis of their usage or chemical constituents.

Hazardous Waste Identification

The Drexel University Department of Environmental Health and Safety will perform identification of hazardous wastes. Since the majority of chemicals used in our facility are reagent grade the identification will be performed using Material Safety Data Sheets, bottle labels, and 40 CFR Part 261 Subpart B, C, and D. A third party contractor will test for the ignitability, corrosivity, reactivity, and toxicity of unknown hazardous wastes.

Mixed Chemical Waste

The Drexel University Department of Environmental Health and Safety shall require that only compatible chemical waste be combined into one waste container. Refer to the Laboratory Safety Manual and *MSDS* for chemical compatibilities.

Multi-Hazardous Waste

Multi-Hazardous waste is waste that contains any combination of chemical, radioactive, or biological hazards. Any waste stream that presents more than one type of hazard will require special management consideration because the selected treatment technology appropriate for one type of waste may not be appropriate for the other types. Multi-hazardous waste will be evaluated on an individual basis and the constituent that poses the greatest hazard will be given priority.

Drain Disposal

The Drexel University Department of Environmental Health and Safety will permit drain disposal of elementary neutralized (pH adjustment of waste that are hazardous only because they exhibit the corrosivity characteristic) acidic aqueous solutions. The elementary neutralized aqueous solution must have a final pH value between 6 and 8. The limit of material that may be neutralized is 1 liter.

The Department of Environmental Health and Safety will also permit drain disposal of common salts, sugars and agars in both liquid and solid forms. For solids, the material must be dissolved in tap water. The limit of material that may be disposed is 1kg of solid or 1 liter of liquid.

The Drexel University Department of Environmental Health and Safety shall prohibit the drain disposal of the following:

- Flammable or explosive pollutants
- Pollutants that will cause corrosive structural damage to the Publicly Owned Treatment Works (POTW), but in no case discharges with pH lower than 5.0.
- Solid or viscous pollutants that may cause an obstruction of flow in the POTW
- Pollutants capable of releasing fumes or vapors
- Pollutants, including oxygen-demanding pollutants (high biological oxygen demand), which may cause interference with the POTW
- Wastewater with sufficient heat to inhibit biological activity in the POTW (must not exceed 104 F at the POTW)
- Petroleum, oil, non-biodegradable cutting oil or products of mineral oil origin in amounts that will cause interference or pass through
- Organic chemicals
- Heavy metal solutions
- Nitric, Hydrofluoric, Perchloric, and Chromic acid
- Toxic/Poisonous solids and liquids

Satellite Accumulation Areas

A satellite accumulation area is an area at or near a process that generates chemical wastes. The area must be under the control of the operator of that process.

The Drexel University Department of Environmental Health and Safety designates each laboratory as a satellite accumulation area. The laboratory Principal Investigator, Moderator, Chemical Hygiene Officer, is responsible for following the policies of the safety and health department regarding satellite accumulation areas.

Allowable Amount Accumulated

- Laboratories may accumulate as much as 5 gallons of hazardous waste or one quart of acutely hazardous waste (immediately hazardous to life and health) in compatible containers at or near any point of generation.

Labeling

- All containers must be labeled with the complete chemical name of each primary component. Formulas, acronyms and abbreviations are not acceptable.
- If possible, the label should include the approximate percentage of each chemical.

- Do not place the date or the words “Hazardous Waste” on the container. The Drexel University Department of Environmental Health and Safety will re-label the container during pick-up as either a recyclable/re-distributable material or as hazardous waste at which time the container will be dated and moved to the temporary storage vault.

Container Types

- All containers must be kept closed except when it is necessary to add or remove material. Evaporation of waste in fume hoods is **STRICTLY PROHIBITED**.
- All containers must be maintained in good condition (i.e. no rust, dents, or leaks, etc.)
- All containers must be compatible with the hazardous wastes they contain. Refer to Material Safety Data Sheets for container compatibility. If the MSDS is not available contact the Drexel University Department Safety and Health at:

All Campuses

215-895-5892

215-895-5909

Accumulation Time

- There will be no limit on accumulation time; however, once a container is full or more than 5 gallons of hazardous waste or 1 quart of acutely hazardous waste is accumulated, the full container or excess waste must be moved to the accumulation area within 72 hours.

Inspection

- Inspection of each satellite accumulation area shall be the responsibility of the principle investigator.

Chemical Pick-up Request

The University Department of Environmental Health and Safety shall provide each laboratory a chemical pick-up request form. This form should be immediately filled out when:

- Unwanted and old chemical reagents need to be removed
- The satellite accumulation waste container is full
- There is more than 5 gallons of hazardous waste or one quart of acutely hazardous waste accumulated.

Fax Submission

Laboratory personnel shall immediately fax the completed form to the University Department of Environmental Health and Safety:

All Campuses (215) 895-5926 Phil Leo (fax)

The Department of Environmental Health & Safety shall respond to chemical pick-up request within 48 hours of receipt of request.

Online Submission

Laboratory personnel can submit chemical pick-up requests by visiting the University Department of Environmental Health and Safety's website:

(www.drexel.edu/facilities/healthSafety/) and selecting the Service Request and Forms link on the navigation bar.

The Department of Environmental Health & Safety shall respond to chemical pick-up request within 48 hours of receipt of request.

Emergency Spill Response Plan for Laboratories

The University Department of Environmental Health and Safety shall reference the Hazardous Materials Emergency Response Plan for emergency spill procedures.

Training

University Safety and Health Department will provide training to all university employees/students who handle hazardous waste in laboratories. Each employee/student shall receive training on proper handling of chemicals and emergency response procedures.

Initial training must be completed during the first month of employment (refresher training is provided annually thereafter). Hazardous waste training will be conducted as part of the annual laboratory safety training. The University's online training can be located at www.drexelhealthtraining.com. Additional training sessions can be arranged by calling University Environmental Health and Safety Department at:

All Campuses (215) 895-5892
(215) 895-5909

University Environmental Health and Safety Department shall document all hazardous waste training. Training records will be kept for at least three years from the date the employee last worked at the university.

HAZARDOUS MATERIALS

EMERGENCY RESPONSE

PROCEDURES

Hazardous Material Spill Identification

The University Department of Environmental Health and Safety separates hazardous material spills into two main categories:

- **Major Spills**

- **Chemical Spills Greater than 500ml/gm –**

The University Department of Environmental Health and Safety defines major spill as a large spill that is greater than 500 gm or 500 ml or any amount of an acutely hazardous material. An acutely hazardous material is any material that is imminently dangerous to life and health.

- **Select Agent Release**

The University Department of Environmental Health and Safety defines select agent releases as any amount of regulated select agent released into the environment that could threaten the safety and health of the building occupants. Select agent releases are considered major spill events. Upon identifying a release laboratory occupants must immediately implement the major spill procedures.

- **Hazardous Gas Release**

The University Department of Environmental Health and Safety defines hazardous gas releases as any amount of hazardous gas released into the environment that could threaten the safety and health of the building occupants. Hazardous gas releases are considered major spill events. Upon identifying a release laboratory occupants must immediately implement the major spill procedures.

- **Mercury Releases**

The University Department of Environmental Health and Safety considers mercury an extremely toxic and dangerous material. In effort to reduce possible exposure risks to personnel and students all mercury spills are regarded as major spills. Upon identifying a release immediately implement the major spill procedures.

- **Minor Spills**

- The University Department of Environmental Health and Safety defines minor spill as a small spill that is less than 500 gm or 500 ml of non-acutely hazardous materials.

The University Department of Environmental Health and Safety shall provide a list of some acutely hazardous chemicals. This list shall be referenced prior to any clean up.

All spills that occur in educational and vacant laboratories shall initially be identified as a major spill. The University Department of Environmental Health and Safety shall assess the situation and determine the appropriate course of action.

Hazardous Material Spill Procedures for Major Spills

The following procedure applies to:

- Laboratory personnel
- Education personnel
- Maintenance personnel
- Outside Contractor Personnel
- Environmental Services personnel
- Administrative personnel

In the event of a major spill in a university area, all laboratory, education, maintenance, outside contractor, administrative, and/or environmental services personnel will implement the following plan:

1. Notify persons in the immediate area that a spill has occurred.
2. Avoid breathing vapors, mists or dust of the spilled material.
3. Turn off all ignition sources if reasonably accessible.
4. If injured or contaminated with hazardous chemicals immediately proceed with personal decontamination procedures.
5. Evacuate room and close the door.
6. From a safe area, contact the following using any in house telephone:

Campus	Public Safety Dispatcher
Center City	215-895-2222
Queen Lane	215-895-2222
University City	215-895-2222

7. In order to assess the situation be prepared to provide the following information:
 - Name and call back number
 - The location of the spill (campus, building and room number)
 - Type of material spilled
 - The amount of material that spilled
8. Remain on or near the telephone until you have received instructions from the emergency operator or Public Safety or Security or the University Department of Environmental Health and Safety.

Hazardous Material Spill Procedures for Minor Spills

In the event of a minor spill the following emergency procedures shall be implemented:

1. If injured or contaminated with hazardous substances immediately proceed with personal decontamination procedures.
2. Laboratory personnel will be responsible for the containment and clean up of all **minor** spills.
3. Proper personal protection equipment shall be donned during the clean up of all **minor** spills. If the laboratory occupants do not have the proper personal protective equipment then contact the University Department of Environmental Health and Safety for assistance at 215-895-5892 or 215-778-4278 or 215-895-5919 or Public Safety at 215-895-2822 to contact a representative from the University Department of Environmental Health and Safety.
4. All non-disposable personal protective equipment shall be decontaminated and stored.
5. All disposable personal protective equipment and clean up materials shall be disposed of as hazardous waste.
6. If the material spilled is not covered under the **minor** spill definition (< 500 gm or 500 ml of non-acutely hazardous material) then laboratory personnel shall implement the **major spill procedures**.

Education and Vacant Laboratories:

All **minor** spills occurring in vacant laboratories, education/prep laboratories, or any other university area shall be considered a major spill. Therefore, anyone observing a minor spill in these areas shall implement the major spill procedures.

Personal Decontamination Procedures

Please be advised that these procedures are general decontamination procedures. These procedures might not be appropriate for certain types of hazardous materials. In effort to ensure proper decontamination consult the Material Safety Data Sheet prior to conducting any experiments.

If injured or contaminated with a hazardous substance these procedures will be implemented **immediately** prior to cleaning up or reporting spill.

- For spills contacting the of skin, follow these procedures:
 1. Immediately flush with flowing water for at least 15 minutes (i.e. sink or safety shower).
 2. If there is no visible burn, wash with warm water and soap, removing any jewelry to facilitate clearing of any residual material.
 3. Check the material safety data sheet to see if any delayed effects should be expected. If the MSDS is not available contact the University Department of Environmental Health and Safety immediately at 215-895-5892 or 215-778-4278 or 215-895-5919 or go to www.hazard.com.
 4. Seek medical attention for even minor chemical burns.
 5. Do not use creams, lotions, or salves.

- For spills on clothing, follow these procedures:
 1. Do not attempt to wipe the clothes.
 2. Quickly remove all contaminated clothing, shoes, and jewelry while using the safety shower.
 3. Seconds count, so do not waste time because of modesty
 4. Take care not to spread the chemical on the skin or, especially, in the eyes.
 5. Use caution when removing pullover shirts or sweaters to prevent contamination of the eyes; it may be better to cut the garments off.
 6. Immediately flood the affected body area with warm water for no less than 15 minutes. Resume if pain returns.
 7. Get medical attention as soon as possible.
 8. Discard contaminated clothes as hazardous waste or have them laundered separately from other clothing.

- For splashes into the eye, take these steps:
 1. Using the eyewash immediately flush for at least 15 minutes.
 2. Hold the eyelids away from the eyeball, and move the eye up and down and sideways to wash thoroughly behind the eyelids.
 3. Get medical attention immediately. Follow first aid by prompt treatment by a member of a medical staff or an ophthalmologist who is acquainted with chemical injuries.

Spill Clean up Procedures

In the event of a spill, the laboratory personnel will implement the following clean up procedures:

1. Proper personnel protection equipment will be donned during clean up of all hazardous materials. Personnel protection equipment compatibility charts will be referenced prior to cleaning up any spilled material(s). If the laboratory personnel does not have the proper personal protective equipment then contact the University Department of Environmental Health and Safety for assistance at 215-895-5892 or 215-778-4278 or Public Safety at 215-895-2822 to contact a representative from the University Department of Environmental Health and Safety.
2. Contain spilled material(s) using absorbent pads and/or socks. Paper Towels will not be used for containment of spill nor will they be used for clean up.
3. Neutralize spilled material(s) using the appropriate neutralizing agent.
4. Clean up neutralized material using dustpan and/or plastic scoop.
5. Place neutralized material in hazardous waste bags. Dispose of as hazardous waste.
6. Wash area where spill has occurred with distilled water several times making sure no residue was left behind. Dispose of any towels used as hazardous waste.
7. All emergency equipment shall be decontaminated and stored.
8. All non-disposable personal protective equipment shall be decontaminated and stored.
9. All disposable personal protective equipment and clean up materials shall be disposed of as hazardous waste.
10. Always use extreme caution when cleaning up hazardous substances.

Emergency Contacts

University City Campus - Emergency Contact Numbers

Department	Name	Office Number	Mobile Number	Pager Number
Public Safety		215-895-2222		
Emergency Room	HUP	215-662-3920		
Student Health	Drexel	215-895-5800		
Occupational Health	Worknet	215-487-5800		
Univ. Safety	Jon Chase	215-895-5891	215-669-6122	
Univ. Safety	Martin Bell	215-895-5892	215-778-4278	
Univ. Safety	Phil Leo	215-895-5909	215-768-1624	
Univ. Safety	Jaime Barbaro	215-895-5896	215-768-1623	
Univ. Safety	Joseph Nihill	215-895-1624	267-249-0348	
Univ. Safety	Jeff Nemetz	215-895-5913	215-778-3039	
Univ. Safety	Diana Dukes	215-895-5907	215-778-4279	
Radiation Safety	Kent Lambert	215-255-7860	215-651-2211	4-1260
Facilities		215-895-2808		215-308-1058
Maintenance		215-895-2808		215-308-1058
Environmental Services		215-895-2808	267-446-1086	215-265-0583

Center City Campus - Emergency Contact Numbers

Department	Name	Office Number	Mobile Number	Pager Number
Emergency Operator		215-762-7110		
Emergency Room	HUH	215-762-7963		
Student Health		215-762-8590		
Occupational Health	Worknet	215-762-8590		
Univ. Safety	Jon Chase	215-895-5891	215-669-6122	
Univ. Safety	Martin Bell	215-895-5892	215-778-4278	
Univ. Safety	Phil Leo	215-895-5909	215-768-1624	
Univ. Safety	Jaime Barbaro	215-895-5896	215-768-1623	
Univ. Safety	Joseph Nihill	215-895-1624	267-249-0348	
Univ. Safety	Jeff Nemetz	215-895-5913	215-778-3039	
Univ. Safety	Diana Dukes	215-895-5907	215-778-4279	
Hospital Facilities	Luis Gonzalez	215-762-3519	215-762-3000	
Hospital Safety	Steven Morrissey	215-762-6133	215-779-8901	4-2830
Radiation Safety	Kent Lambert	215-255-7860	215-651-2211	4-1260
Facilities	Patricia Lewis	215-762-6500	215-783-2672	4-1015
Facilities	Brian Lynch	215-255-7318	215-783-2557	
Facilities	John Mahony	215-255-7320	215-668-7114	
Tenet Security		215-762-7110		
Tenet Maintenance		215-762-3000		
Environmental Services		215-762-4700		

Emergency Contacts

Queen Lane Campus - Emergency Contact Numbers

Department	Name	Office Number	Mobile Number	Pager Number
Emergency Operator		215-895-2222		
Public Safety		215-895-2222		
Student Health		215-895-5800		
Occupational Health		215-762-8590		
Univ. Safety	Jon Chase	215-895-5891	215-669-6122	
Univ. Safety	Martin Bell	215-895-5892	215-778-4278	
Univ. Safety	Phil Leo	215-895-5909	215-768-1624	
Univ. Safety	Jaime Barbaro	215-895-5896	215-768-1623	
Univ. Safety	Joseph Nihill	215-895-1624	267-249-0348	
Univ. Safety	Jeff Nemetz	215-895-5913	215-778-3039	
Univ. Safety	Diana Dukes	215-895-5907	215-778-4279	
Radiation Safety	Kent Lambert	215-255-7860	215-651-2211	4-1260
Facilities	Ray Stoffel	215-991-8484	215-651-1321	
Facilities	Brian Lynch	215-255-7318	215-783-2557	
Facilities	John Mahony	215-255-7320	215-668-7114	
Security		215-991-8102		
Maintenance		215-991-8484		
Env. Services		215-991-8145		

PA Biotechnology Center - Emergency Contact Numbers

Department	Name	Office Number	Mobile Number	Pager Number
Security		215-489-2315		
24 Hour Call Center		215-895-2222		
Emergency Room				
Student Health				
Occupational Health				
Univ. Safety	Jon Chase	215-895-5891	215-669-6122	
Univ. Safety	Martin Bell	215-895-5892	215-778-4278	
Univ. Safety	Phil Leo	215-895-5909	215-768-1624	
Univ. Safety	Jaime Barbaro	215-895-5896	215-768-1623	
Univ. Safety	Joseph Nihill	215-895-1624	267-249-0348	
Univ. Safety	Jeff Nemetz	215-895-5913	215-778-3039	
Univ. Safety	Diana Dukes	215-895-5907	215-778-4279	
Radiation Safety	Kent Lambert	215-255-7860	215-651-2211	4-1260
Facilities	Gerald Litschi	215-489-4947	484-767-5779	
Maintenance		215-489-4904	215-778-1184	
Env. Services		215-489-4904	215-778-1184	

Chemical Storage

All hazardous chemicals must be stored in clearly defined designated areas in accordance with this manual and OSHA Regulation 29 CFR 1910.1450 also known as the “Laboratory Standard”. These storage guidelines must be followed when storing hazardous chemicals:

- The chemical inventory must be kept as small as possible. Any old, expired, or unused chemicals should be properly disposed.
- Do not store chemicals on top of high cabinets or shelves. Liquids, in particular corrosives or other hazardous liquids, should not be stored over 5 feet in height. The only exception is that non-hazardous liquids may be stored above 5 feet if there are space limitations. There is no height restriction for solids.
- Keep exits, passageways, areas under tables, and emergency equipment areas free of stored chemicals.
- Provide a definite storage place for each chemical and return the chemical to that location after each use.
- Do not store chemicals on bench tops and in fume hoods, except for those chemicals being used currently.
- Do not store chemicals on the floor.
- Store chemicals in a cool dry place avoiding direct sunlight.
- Ventilated storage cabinets shall be used to store extremely hazardous chemicals. The vents must be directed outside the building.
- Use chemical storage refrigerators and freezers only for chemical storage. Label these refrigerators with the following signage: **“No Food or Drink – Chemical Storage Only”**
- Safety containers must be used when transporting chemicals (i.e. carts, rubber totes, secondary containers etc), especially outside of the lab area.
- Observe all precautions regarding the storage of incompatible chemicals.
- Dry chemicals (solid materials) shall not be stored with liquid chemicals. If stored in the same cabinet, liquids are always stored under solid chemicals.
- Separate chemicals into the following hazard classes:
 1. Flammables
 2. Acids
 - Organic Acids
 - Inorganic Acids
 3. Bases
 - Organic Bases
 - Inorganic Bases
 4. Oxidizers
 5. Reactives
 6. Poisons (Toxic)
 7. Non-hazardous or non-regulated chemicals.

- The above hazard classes must be separated from each other. This can be accomplished by 1) placing them in different cabinets, 2) placing them on different shelves, or 3) separating them by placing the different hazard classes into separate secondary containment containers. The trays must be able to contain any spills or leaks and must be made of material compatible with the chemicals they contain.
- Other means of separating potentially incompatible chemicals are acceptable, such as the Flinn Scientific Guidelines or the Fisher Scientific color system. Contact the Department of Environmental Health and Safety to discuss options.
- Alphabetical storage of chemicals is not allowed. This may result in incompatibles appearing together on a shelf. Chemicals must first be segregated appropriately and then can be sorted alphabetically within each hazard class.
- Chemicals classified as Irritants may be stored separately or with Non-Hazardous Chemicals.
- Weak acids or bases, in their dry form, often can either be stored as Non-Hazardous or separated out as acids or bases, unless the label specifically classifies it as “Corrosive”. Any chemical specifically labeled as “Corrosive” must be separated out as an acid or a base.
- Store all flammable liquids in a grounded, flammable storage cabinet with self-closing doors.
- The maximum quantity of flammable liquids in use at one time shall be 1.5 gal (5.68L). The maximum quantity of flammable liquids stored in the lab shall be 60 gal (227L).
- Do not store flammable liquids in a refrigerator unless it is an approved explosion-proof refrigerator.
- Organic Acids can be stored in the flammable storage cabinet; however, overspill containers must be used to contain any spills and to act as a means of separation.
- Acids must be stored separate from bases. Storage in the same cabinet is possible **ONLY IF OVERSPILL CONTAINERS ARE USED TO CONTAIN ANY SPILLS.**
- Separate inorganic and organic bases. These can be stored in the same cabinet. Shelves or overspill containers can be used as a means of separation.
- Separate inorganic and organic acids. These can be stored in the same cabinet. Shelves or overspill containers can be used as a means of separation. In particular, nitric acid and acetic acid must not be stored together.
- Store nitric acid, perchloric acid, and hydrofluoric acid separately from all other chemicals if possible (including from each other). Otherwise store them with other inorganic acids.
- Peroxide-forming chemicals may become unstable and potentially explosive when exposed to air. As such, all peroxide-forming chemicals must have a receive date and an open date written on their labels. Examples of commonly used peroxide-forming chemicals include: Tetrahydrofuran, Ethyl Ether, Dioxanes, Isopropyl Ether, Styrene, Vinyl Pyridine, and 2-Propanol. Most peroxide-forming chemicals must be disposed of after 12 months, although some uninhibited peroxide-formers may only be used up to 24 hours after opening (*See Appendix II*). Perchloric Acid is another potentially explosive chemical which should be disposed of after 12 months. While not as

potentially hazardous as other peroxide-formers, older containers of 2-Propanol should be handled with care. To track how old the chemicals are, all labs are required to write the receive date and open date on the containers of peroxide-formers, unless there is an expiration date already present.

- DO NOT handle any peroxide forming chemical if there are signs of crystal growth or precipitation. Contact the Department of Environmental Health and Safety (215-895-5907) IMMEDIATELY if this occurs and leave the area.
- Oxidizers must be stored in a cabinet separate from all other chemicals. Some oxidizers may cause combustible materials to catch fire on contact. Avoid storing in wood cabinets/shelves and cardboard boxes.
- Reactive chemicals must be segregated and stored appropriately i.e. flammable cabinet, explosion proof refrigerator, dedicated container etc.
- Toxic chemicals, including carcinogens, must be properly labeled; small containers should be stored together in unbreakable chemical-resistant secondary containers. These containers must be labeled either “Caution: High Chronic Toxicity,” or “Cancer Suspect Agent.”
- As stated above, a separate inventory list of carcinogens, mutagens and teratogens is to be forwarded to the Department of Environmental Health and Safety in accordance with Federal and State Regulations.
- Cylinders of compressed gases, empty or full, must be labeled, strapped or chained at all times to a wall or bench top, and must be capped when not in use.
- Oxygen and other oxidizing gases must not be stored adjacent to flammable gases (except when in use).
- Do not store flammable gases near sources of heat or ignition.
- Use of certain hazardous chemicals requires special precautions or training, such as perchloric acid, hydrofluoric acid, and pyrophoric organometallic materials. Contact the Department of Environmental Health and Safety for more information.
- If unable to determine the best possible storage options consult the MSDS for the chemical. If further assistance is need contact the Department of Environmental Health and Safety:

Martin Bell	215-895-5892
Jeffrey Nemetz	215-895-5913

Labeling

Chemical Container Labels:

OSHA requirements for labeling under the Chemical Hygiene Plan will be the same as those defined in the hazard communication standard 1910.1200 and 1900.1450. Therefore, all containers in the workplace (including secondary containers (beakers, Erlenmeyer flasks, cap bottles, etc.) must contain the following information:

1. Identity of the substance (complete chemical name; abbreviations and/or symbols are not acceptable).
2. Appropriate hazard warnings (Irritant, Flammable, Corrosive, etc.; completed NFPA diamond is acceptable).

*ALL LABELS MUST BE PROMINENTLY DISPLAYED AND LEGIBLY WRITTEN (PRINTED) IN ENGLISH AND OTHER LANGUAGE AS APPROPRIATE FOR EMPLOYEES. **IT IS THE RESPONSIBILITY OF THE PRINCIPAL INVESTIGATOR TO INSPECT ALL INCOMING SHIPMENTS OF CONTAINERS OF HAZARDOUS CHEMICALS TO ENSURE THAT THEY BEAR LABELS WITH THE APPROPRIATE INFORMATION.***

THE NAMES OF BUFFERS (PBS, TBS, HEPES, TRIS, ETC.) MAY BE ABBREVIATED, AS LONG AS A KEY OR LEGEND STATING THE FULL NAME IS PLACED IN A CLEARLY VISIBLE LOCATION IN THE LABORATORY, PREFERABLY BY THE LAB ENTRANCE. ABBREVIATIONS, FORMULAE, OR SYMBOLS OF COMMONLY USED CHEMICALS (ETHANOL (EtOH), HYDROCHLORIC ACID (HCL), ETC.) MAY ALSO BE WRITTEN ON SECONDARY CONTAINERS, PROVIDED THEY ARE INCLUDED ON A KEY OR LEGEND VISIBLY POSTED IN THE LAB.

SAMPLE VIALS TOO SMALL TO WRITE THE FULL CHEMICAL NAME AND HAZARD INFORMATION ON MAY BE CODED. CODES MAY BE PRINTED UP ON A KEY OR LEGEND AND PLACED IN A VISIBLE LOCATION AT THE WORK AREA FOR THIS PURPOSE. OTHERWISE ALL CODE KEYS MUST BE WRITTEN CLEARLY AND LEGIBLY IN THE LABORATORY NOTEBOOK. SIGNAGE IS REQUIRED AT ALL WORK STATIONS DENOTING BOTH THAT THE CODE KEY IS LOCATED IN THE NOTEBOOK AND THE LOCATION OF THE NOTEBOOK ITSELF. THE LABORATORY NOTEBOOK MUST BE KEPT IN A VISIBLE AREA AND RETURNED THERE AT THE END OF THE EXPERIMENT OR THE END OF THE DAY.

IT IS RECOMMENDED THAT THE DATE BE PLACED ON ALL CHEMICAL CONTAINERS WHEN THEY ARE RECEIVED AND OPENED. THIS IS REQUIRED FOR ANY PEROXIDE-FORMING CHEMICALS. FOR ANY SOLUTIONS PREPARED BY THE LABORATORY PERSONNEL (I.E. BUFFERS, MEDIA, AND DILUTIONS), IT IS ALSO RECOMMENDED TO ADD THE DATE IT WAS MADE TO THE CONTAINER'S LABEL.

If a container is improperly labeled, the PI/Laboratory Supervisor/Faculty Member or the PI's /Laboratory Supervisor's/Faculty Member's designee must contact the Department of Environmental Health and Safety (215-895-5919), who will notify the vendor for correction, and the receiving department for informational purposes.

Portable or secondary containers used for purposes of transferring hazardous material from a labeled container for immediate and complete use by an investigator or his/her technicians or research staff or student do not require labeling. However, if the transferred hazardous material is to be used by other research personnel/student, or is not immediately used, it is the responsibility of the investigator/lab supervisor/faculty member/student/lab technician for whom the chemical material was first intended, to properly label the portable container.

Laboratory Labels:

All laboratory entrance doors shall be labeled as follows:

1. NFPA diamond. Laboratory personnel shall fill in the diamond with the highest hazard number pertaining to their laboratory.
2. Biohazard label and appropriate Biosafety Level (if applicable).

3. UV Light label (if applicable).
4. Radiation Hazard Label (if applicable).
5. Emergency contact information. The information must include a name and number to contact in the event of an emergency. It must be clearly visible and placed on each outer laboratory door
6. Additional warning labels as applicable, i.e. “carcinogen in use”, “water reactive materials”, “inhalation hazard, respiratory protection required in this area”, “high noise, hearing protection required in this area”, etc.

Chemical Storage Labeling:

All cabinets, shelves and refrigerators containing chemical storage (including the cleaning supplies) must be labeled with the appropriate warning label (Flammable, Acids, Bases, Oxidizers, Reactives, Poisons (Toxic), Non-Hazardous, and/or NFPA Diamond). Refrigerators and freezers used for chemical storage must be labeled with appropriate hazard warnings and with the signage: “NO Food or Drink – Chemicals Storage Only.” Lab microwaves and ovens must also have “No Food or Drink” signs. Any refrigerator used of food or drink storage must be label as such (these must be kept out of the lab areas). Biohazard labels must be applied to all appropriate areas, such as Biological Safety Cabinets and refrigerators. Radiation hazard tape or labels must be applied to all applicable work and storage areas. UV Light warning labels must be placed on any device that can generate ultra-violet light, such as Biological Safety Cabinets.

Old and obsolete labels in the lab must be removed or defaced.

Laboratory Biological Waste Disposal Guide

Infectious Waste Containers:

The University Department of Environmental Health and Safety will supply the following containers for proper disposal of biological waste:

- Red biohazard sharps container that are rigid, tightly lidded and puncture resistant. A seventeen gallon floor container will be supplied unless otherwise specified.
- Red biohazard bags.
- Biohazard cardboard boxes to store the red biohazard bags (only upon request).

Infectious Waste Container Request:

The University Department of Environmental Health and Safety will determine the number of containers to be supplied. The outside vendor will only replace the same number of containers that are removed. Additional containers can only be requested through the Department of Environmental Health and Safety. The contractor will not supply any additional containers without receiving a confirmation from the Environmental Health and Safety office.

New laboratories

- Contact the University Department of Environmental Health and Safety at 215-895-5919.

University City Campus Laboratories

- Red Biohazard Sharps Containers – replaced during weekly pickup by outside contractor. If not on the list for pickup please contact the Department of Environmental Health and Safety at 215-895-5919.
- Red Biohazard Infectious Waste Bags – replaced during weekly pickup by outside contractor. If not on the list for pickup please contact the Department of Environmental Health and Safety at 215-895-5919.

Center City Campus Laboratories

- Red Biohazard Sharps Containers – replaced during weekly pickup by outside contractor. If not on the list for pickup please contact the Department of Environmental Health and Safety at 215-895-5919.
- Red Biohazard Infectious Waste Bags – contact Facilities Management at 215-762-6500 at any time to request replacement bags.

Queen Lane Campus Laboratories

- Red Biohazard Sharps Containers – replaced during weekly pickup by outside contractor. If not on the list for pickup please contact the Department of Environmental Health and Safety at 215-895-5919.
- Red Biohazard Infectious Waste Bags – replaced during pickup by custodial services. Contact custodial services at 215-991-8484 to request replacement bags.

Infectious Waste Pick-up Procedure:

- Infectious waste containers **MUST** remain inside the laboratory at all times prior to pick-up. Containers must not be placed in the hallway at any time.
- Laboratory personnel must be present at the time of the pick-up. The contractor does not have keys to access the laboratories to remove the materials. If you are not present at the time of pick-up then the material will not be removed until the next scheduled pick-up.

Infectious Waste Pick-up Schedule (Animal Waste Excluded See Disposal Guideline):

The pick-up schedule for each campus is as follows:

University City Campus

- Biohazard Sharps - the contractor is on site every Friday between the hours of 9:00 am and 1:30 pm.
- Red Biohazard Infectious Waste Bag – the contractor is on site every Friday between the hours of 9:00 am and 1:30 pm.

Center City Campus

- Biohazard Sharps – the contractor is on site every Thursday between the hours of 9:00 am and 1:30 pm.
- Red Biohazard Infectious Waste Bag – the building custodial staff will remove this material at any time upon request. Contact Facilities Management at 215-762-6500.

Queen Lane Campus

- Biohazard Sharps – the contractor is on site every Friday between the hours of 8:30 am and 9:30 am.
- Red Biohazard Infectious Waste Bag – the building custodial staff will remove this material at any time upon request. Contact custodial services at 215-991-8145.

Disposal Guideline:

<u>CATEGORY</u>	<u>DESCRIPTION</u>	<u>EXAMPLES</u>	<u>DISPOSAL</u>
Infectious Sharps Waste	<p>A sharp is considered any object that is capable of penetrating the skin.</p> <p>Used sharps, regardless of whether they are infectious, may be stored in the same container.</p>	<p>All Needles, sutures, syringes, and blades (i.e. scalpels, razors, etc.), Pasteur pipettes, blood vials, culture plates, and glass slides.</p> <p>Any other broken or unbroken glass or plastic if it has been in contact with infectious agents or that has been used in animal or human patient care or treatment at medical or research laboratories.</p>	<p>Red Biohazard Sharps Containers (should be closed and picked up for disposal when $\frac{3}{4}$ full)</p> <p>Sharps containers should be rigid; tightly lidded; and puncture resistant.</p>
Non-Contaminated Laboratory Glassware & Plasticware	<p>Any item that does not meet the classification of "Infectious Sharps Waste" (described above), but could potentially break or puncture a regular trash bag and pose a hazard to custodial staff.</p>	<p>All pyrex, empty chemical bottles (after triple rinsing and defacing label), or other non-contaminated broken or fragile glass or plastic.</p>	<p>Red Biohazard Sharps Containers (should be closed and picked up for disposal when $\frac{3}{4}$ full)</p> <p>Sharps containers should be rigid; tightly lidded; and puncture resistant.</p>
Regulated Infectious Waste	<p>Any waste with the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.</p> <p>Infectious waste shall be sorted at the point of origin in the generating facility into the following three classes, and each class shall be placed in a separate container:</p> <ul style="list-style-type: none"> • Used sharps; • Fluid quantities greater than 20 cubic centimeters; and • Other infectious waste 	<p>(1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult to differentiate between body fluids;</p> <p>(2) Any unfixed human tissue or organ (other than intact skin);</p> <p>(3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions;</p> <p>(4) Microbiological cultures and stocks of infectious agents, including the following: cultures and stocks of infectious agents; wastes from the production of biologicals; and culture dishes, assemblies and devices used to</p>	<p>Solid Infectious Waste (non-sharps): Red Biohazard Infectious Waste Bags (bags should be inside a hard plastic container labeled "Biohazard").</p> <p>Liquid Infectious Waste (i.e. culture media, blood, body fluids): ** Dispose in sanitary sewer after chemical decontamination with a fresh solution of 10% bleach (wait 15-20 minutes prior to discharging down the drain)</p>

		transfer, inoculate and mix cultures.	
Non-Regulated Waste	Waste from laboratories that is not a sharp and is not contaminated with an infectious agent, waste generated that does not contain human blood, body fluids, or blood products or animal blood, or blood products.	Non-contaminated: gloves, bench paper, packaging materials, foil, plastic bags, paper towels, weighing boats, bottle caps, fly media, filter flasks, etc. Non-contaminated refers to objects that are not known or reasonably expected to have the presence of blood or other potentially infectious materials on their surface.	Regular Lab Trash (removed by custodial staff)
Infectious Animal Waste	Contaminated animal materials known to have been exposed to zoonotic infectious agents or non-zoonotic human pathogens during research.	Contaminated animal carcasses, body parts, blood, blood products, secretions, excretions and bedding of animals that were known to have been exposed to zoonotic infectious agents or non-zoonotic human pathogens.	Red Biohazard Infectious Waste Bags – Sent to Animal Facility for Disposal
Non-Infectious Animal Waste	Animal carcasses and body parts from animals that have not been exposed to zoonotic infectious agents or human pathogens during research.	Animal carcasses or body parts from animals that have not been exposed to infectious agents.	Red Biohazard Infectious Waste Bags – Sent to Animal Facility for Disposal

** Once liquid infectious waste has been decontaminated with a fresh solution of 10% bleach for 15-20 minutes, the waste is no longer considered to be regulated infectious waste, and can therefore be discharged down the drain.

You may contact the Department of Environmental Health and Safety with any questions.

Contact: Martin Bell at 215-895-5892 or Jeff Nemetz at 215-895-5913