



Guide for Relocating Hazardous Materials

This document contains safety guidelines and reference information for the physical relocation of hazardous materials and is primarily written for laboratory relocations.

Planning and preparing for your move is the perfect time to update your chemical and equipment inventories, clean out unusable and outdated materials, repair or discard broken equipment, and ensure that a safe work space is created in your new location. The time you spend preparing and organizing may save you time and money by avoiding preventable accidents and fines.

Topics covered include:

- ✓ Planning Your Move
- ✓ Preventing and Handling Emergencies
- ✓ Handling Hazardous Materials at the Old Location
- ✓ Handling Equipment During the Move
- ✓ Handling Hazardous Materials at the New Location
- ✓ After You Move

If you have questions before, during, or after your move, call Environmental Health & Safety (EH&S) at 590-1414 or email us at ehs@fgcu.edu.

Scope

All vehicle transport by FGCU personnel must be in an FGCU vehicle (owned, leased, or rented) driven by a university employee. Hazardous materials may only be transported for the purposes of conducting research, field investigations, educational purposes and other official university business.

Planning Your Move

Before You Start

Prepare a checklist of events, time schedules, and people involved with the move. Bring any safety questions to your department head, safety committee, or to EH&S. It is advisable to pack and move chemicals and hazardous materials during regular work hours (Monday-Friday, 8 a.m. to 5 p.m.) when EH&S staff are more readily available in case of a spill or accident. Unmanageable spills after hours should be reported to the University Police Department (UPD) at 911 or 590-1900 for Police Dispatch.

Transportation of hazardous materials in personal vehicles is PROHIBITED under any circumstance. Hazardous materials must NOT be transported in the passenger compartment of any vehicle. All hazardous materials must be secured in cargo areas of vehicles.

If you are moving to another building, you may want to consider hiring a qualified vendor to move your hazardous materials. For moves to or from an off-campus location, arrangements for safe and legal transport must be made with EH&S or a qualified vendor.

Remember these general guidelines:

- Work with a colleague. Do not work alone.
- Always wear appropriate protective clothing, closed-toe shoes, and use proper safety equipment.
- Read the information in this guide before you begin to pack and move.
- Be advised that some hazardous materials, such as explosives, cannot be moved.
- If you are unsure about anything, ASK!

Planning

At least one week (preferably one month) before the move, survey existing chemicals and equipment in your laboratory and evaluate your new relocation site. Notify EH&S that the lab will be moved/vacated and provide a timeline for the move. The following questions and recommended actions may help make your relocation smoother.

Hazardous Materials

Are there chemicals you no longer need?

- Ask others in your department if they would be able to use the chemicals and transfer them to that lab in writing and in the university chemical inventory system, LabCup.
- Call EH&S for assistance in locating others who use those chemicals. Transferring them will be less expensive than disposing of them.
- This is a good time to evaluate your inventory for ways to reduce it or substitute less hazardous chemicals.

Do you have outdated chemicals?

- Chemicals that are unusable but not unstable should be packaged for pickup and disposed by EH&S. Complete and submit EH&S Material Pick-Up Request Forms, available on the EH&S website under the Forms and Resources accordion.
- Dry picric acid, very old ethers and other peroxide formers should not be moved. Restrict access to the area and call EH&S immediately if you find any of these.

Are there unknown or unlabeled chemicals?

- Label and identify hazards of all known chemicals and compounds. Put new labels on containers with illegible or deteriorating labels.
- Call EH&S if you have materials you can't identify.

Are chemical containers and caps in good condition?

- Replace containers and caps if in poor condition. Using damaged containers is one of the major causes of accidental spills.
- Do not move chemicals in open topped flasks or beakers even if tops are covered with parafilm. Put chemicals into containers with caps.

Are there chemicals (including samples) left under the fume hood, under the laboratory sink, in refrigerators/freezers or tucked behind equipment?

- Check all those out-of-the-way places chemicals might have been left. Most laboratories have relics from times past that should be identified and disposed of before moving.
- Identify and properly dispose of all old, unusable materials by completing and submitting EH&S Material Pick-Up Request Forms, available on the EH&S website under the Forms and Resources accordion.

Are there old lecture bottles or other gas cylinders?

- Contact the EH&S at 590-1414 for information on how to dispose of old cylinders.
- Gas cylinders should be handled with extreme care, with safety caps on and properly restrained.

Do you have biological material in your laboratory?

- This document includes information about how to address biological materials.
- Contact the EH&S Biosafety Officer at 590-1414 with questions on moving or disposing of your biological material.

Do you have lasers, radioactive material, or X-ray machines in your laboratory?

- Contact the EH&S Radiation Safety Officer at 590-1414 for specific information regarding these equipment and materials that you are planning to move.
- Moving radioactive materials and/or X-ray machines will require comprehensive decommissioning and license amendments to reflect the new location.

Equipment

Does your equipment require special handling?

- Assess whether the equipment needs decontamination before moving and/or recertification after moving (e.g., pathogenic work in a biological safety cabinet, radioactive contamination of liquid scintillation counters or centrifuges, or refrigerators with an accumulation of contaminated ice).
- Make arrangements in advance.
- If you have equipment that contains mercury, take extra precautions to keep the mercury from spilling or leaking during the move. Use secondary containment if possible. Mercury spills can be expensive to clean up.

Do you have old or damaged equipment?

- Schedule equipment for repair before you move, especially if the equipment could leak hazardous material such as mercury during the move.
- Check for chemical, biological or radioactive contamination.
- Recycle, salvage or dispose of unwanted equipment when possible. Old refrigerators should be emptied and decontaminated first.
- To relocate or dispose of these items, prepare the Laboratory and Medical Equipment Decontamination and Disposal form and submit it to EH&S for approval.
 - If the item is a fixed asset (costs more than \$5000), the Department Property Manager must forward a copy of the approved Laboratory and Medical Equipment Decontamination Disposal form and a Relief from Property Accountability form to the Office of the Controller at property@fgcu.edu, maintaining copies of all records.
 - Completed Laboratory and Medical Equipment Decontamination and Disposal forms must go to the Work Management Center before they will pick up any equipment from the labs for relocation or disposal.

New Location

Are you moving to an off-campus location?

- Determine the type and quantities of hazardous materials to be moved.
- Schedule the move with EH&S or a qualified vendor.

Have you checked the new area you will be moving to?

- Plan where you will place your large items.
- Determine if there are enough electrical outlets and if not, where you need them. Identify which outlets are on emergency back-up power.
- Plan a storage area for your chemicals, including a flammable storage cabinet.
- Plan a designated area for collecting unwanted hazardous materials until pick-up by EH&S.
- Set aside a safe restraint area (i.e., chains) for gas cylinders.

Miscellaneous

- Do you have all the supplies and equipment you need to pack?
 - DOT-rated packing materials are recommended for moving all hazardous materials and are REQUIRED for transporting materials on public roads. Contact EH&S for additional information or recommended vendors.
- How will the move be accomplished? Keep an eye on weather conditions if physically moving across campus. Plan your travel route for times of low pedestrian traffic and to navigate along stable, preferably smooth, walkways.
- Are all necessary people notified, e.g., Biosafety Officer, Radiation Safety Officer?

Preventing and Handling Emergencies

Common Causes of Accidents During Packing and Transport

Most chemical spills and accidents that happen during material packaging and transport are preventable. Taking the following precautions can help to avoid mishaps.

- Keep from knocking bottles against each other by using plenty of packing material.
- Don't lift containers or bottles by the cap.
- Don't try to save trips by stacking boxes too high on carts.
- Don't lift too much.
- When you lift boxes, wear leather gloves and support them from underneath. Don't lift them up by the sides or the box bottoms may split open.
- Use a cart designed to carry loads and able to handle the walkway terrain.
- Hurrying, not looking where you're going, and acting without thinking can waste time, not save it.
- Use the elevator when carrying containers, not the stairs.

Emergency Medical Assistance for Injuries

Contact University Police at 911 for injuries requiring immediate emergency medical assistance. Speak clearly and slowly. Follow the instructions given to you by the University Police Department dispatcher and hang up only when told. Their immediate response depends on you.

Hazardous Material Spills

In cleaning up chemical spills, consider:

- the size of the spill
- the toxicity or other hazardous properties of the materials
- clean-up materials available in the lab
- the level of knowledge and training of the person doing the clean-up

In general, if it appears you have the supplies to absorb and bag the spilled material, it is reasonable to clean up small spills of the following:

- dilute acids and bases
- most solvents (in a ventilated area)
- materials whose toxic properties you are familiar with
- materials for which you have proper protection and clean-up materials

Do not clean up a spill without assistance from EH&S if:

- You feel it is unsafe to do so, or you lack the knowledge to do it safely.
- You don't know what the spilled material is or lack the materials to clean it up safely.
- Radioactive materials are involved.
- The spill is larger than 1 liter or is spread over a large area.
- You feel any physical symptoms of exposure (eye or skin irritation, difficulty in breathing, coughing, dizziness, nausea, etc.).

First Aid for Chemical Exposure

Eye Exposure

- Consult the chemical's Safety Data Sheet (SDS), First Aid section 4.
- Flush exposed eyes (keep open) with plenty of water using the eyewash station for at least fifteen minutes.
- For minor injuries, get a medical evaluation. For serious injuries, call 911. Have someone knowledgeable about the incident accompany the injured person. Bring the SDS or chemical container label to the Emergency Department.

Skin Exposure

- Consult the chemical's Safety Data Sheet (SDS), First Aid section 4.
- Wash exposed area with plenty of water for at least fifteen minutes; use drench hose at sink or emergency shower. Get help if possible.
- Remove contaminated clothing if necessary to protect the skin from further exposure.
- Wrap the injured person in a dry blanket after the shower.
- Get medical evaluation. Bring the SDS or chemical container label to the Emergency Department.
- As soon as possible, arrange for the clean-up of any liquid on the floor to avoid slips and falls and damage to the building.

Respiratory Exposure

If the victim has inhaled toxic fume or vapors or another airborne hazard, take the following steps:

- If it is safe for you to do so, bring the victim to fresh air.
- Consult the chemical's Safety Data Sheet (SDS), First Aid section 4.
- Exposures should be reported immediately by calling 911. Bring the SDS or chemical container label to the Emergency Department.
- Inform medical responders about the nature of the airborne hazards so they may avoid exposure during resuscitation procedures.

Lost Radiation Sources

If sealed radiation sources are lost or misplaced, the Radiation Safety Officer must be contacted immediately. The longer the source is missing, the more difficult it will be to locate, and greater the potential hazard to personnel. Caution must be exercised in recovering a lost source to avoid unnecessary personnel exposure. The source encapsulation may have become ruptured, or the source capsule may have fallen out of the protective shield. Adequate monitoring instrumentation, provided by the Radiation Safety Officer, is necessary to properly evaluate such potential hazards.

Handling Hazardous Materials at the Old Location

Guidelines for Preparing Chemicals to Be Moved

Serious mishaps can occur if boxes are dropped and incompatible chemicals interact. Since compatibility requirements are similar for moving and storing chemicals, packing chemicals for the move is a good time to lay the groundwork for segregated storage in your new lab. Check the "Chemical Storage Guidelines," in the "Handling Hazardous Materials at the New Location" section of this guide for more details.

Preparing for Packing

- Have spill clean-up materials on hand before you begin packaging. Know the location of the spill kit and clean-up materials available to you before you get started.
- Wear personal protective equipment appropriate for the materials being handled (safety glasses, lab coat, gloves, closed-toe shoes, etc.).
- Make sure that containers are not likely to leak in transport. Make sure that all containers and their lids are in good condition. Secure glass stoppers to their containers with tape and provide secondary containment for the containers.
- Label chemical containers with the full chemical names and hazard warnings.
- Move only labeled and non-leaking containers to your new location.
- Separate chemicals from radioactive materials and from biohazardous materials
- Separate chemicals into the categories listed in Appendix 1.

Packing Your Chemicals

- Use sturdy boxes (DOT-rated preferred), deep trays or 5-gallon buckets with lids to pack chemical containers.
- Cushion the containers to prevent breakage and contain spills using compatible absorbent materials. (Newspaper is often a good cushion since it is absorbent and does not react with most chemicals, but it is not recommended for oxidizers or organic peroxides). Vermiculite is preferable.
- Pack boxes so they can be completely closed and taped shut. Boxes should be light enough to be picked up by one person. Do not allow bottle necks or stems to protrude. Boxes that cannot be stacked are not suitable for transport. Boxes must be placed in upright position.
- Keep boxes of incompatibles separated from one another before and during transportation.
- Label each box as you pack. EH&S recommends including a copy of the Materials Packing List inside (see below and Appendix 2). This will make unpacking easier and keep the box from being misplaced.
- Label all boxes according to general hazard class (e.g., radioactive, flammable solid, corrosive acid, etc.).
- Refrigerated materials need not be boxed together but should be separated into their hazard class or handled according to their own special requirements.

- Chemicals stored in the cold need to be stabilized at room temperature before packing and moving.

Packing Biohazardous Materials

The following is the required procedure to be in legal compliance for transport of biohazardous materials:

- The biohazardous material must be contained in a closed, leak proof, unbreakable primary container.
- The primary container must be contained within a secondary container made of a material sufficient to prevent any leak should the primary container fail.
- Both of the containers must be contained within an opaque plastic or cardboard box, packed with sufficient absorbent material to both cushion the container against shock AND completely absorb the hazardous material should both the primary and secondary containers fail.
- The box must have the name, laboratory address, and laboratory phone number of an emergency contact to be notified should the box be lost or stolen. A biohazard warning sign, the name of the biohazardous material, and its biosafety level (BL-2, etc.) must be just under the lid or flap so that it will be immediately visible to any person opening the box.
- Consult with your department and EH&S to arrange for safe and legal transport if material is being sent off-campus.
- Freezers can be moved with material still in them, provided all contents are in sealed, unbreakable containers and secured to avoid breakage and spills when the freezer is opened. The freezer must be sealed shut prior to moving.
- The transport of any live vertebrate animals used in teaching or research must be approved by and coordinated through the Institutional Animal Care and Use Committee (IACUC). Contact the Office of Research for further information.

Inventorying

- Audit and update your chemical inventory in the university chemical inventory system as you pack. (The current university chemical inventory system is LabCup.)
- Use the Materials Packing List in Appendix 2 or similar inventory sheet as you pack. Make sure the inventory sheet includes chemical name and quantity.
- Check containers for expiration date and signs of corrosion or crystallization. If such degradation has occurred, arrange for disposal of the material.
- Keep an extra copy of the inventory in a safe location outside the lab (e.g., department office or EH&S) for reference in emergencies.
- Use an ID system so that the box can be matched with the inventory should they become separated (box numbers, etc.).

Moving Your Materials

Before moving your materials, take time to read the "Hazardous Materials Spills" section above.

- Remember to move materials directly from point A to point B with no stops in between (offices, restroom, etc.).
- Materials must always be under the control of the responsible person(s); never leave materials unattended.

If the move is within the same building, use a good hand-truck, dolly, or cart. Secure the boxes and containers to the dolly or cart to prevent them from falling off. For moves to or from an off-campus relocation, arrangements for safe and legal transport must be made with EH&S or a qualified vendor.

Preparing Unwanted Chemicals for Pick-Up

EH&S picks up unwanted hazardous chemical materials for reuse and recycling or for disposal when necessary. Complete and apply an Unwanted Materials label or hang tag to any mixed waste containers for pick-up. Contact EH&S (590-1414) for arrangements or complete and submit an EH&S Material Pick-Up Request Form, available on the EH&S website under the Forms and Resources accordion.

Radioactive Waste for Pick-Up

Radioactive waste must be packaged, prepared for disposal, and stored per Radiation Safety Policies. If you have any questions regarding radiation safety, or radioactive waste, call the Radiation Safety Officer.

Regulated Medical Waste Disposal

Regulated medical waste includes all "biohazardous" waste and "sharps" (e.g., hypodermic needles, contaminated broken glass, etc.) unless contaminated with chemical or radioactive materials. Regulated medical waste must be disposed of in appropriate containers, according to EH&S policy and State of Florida regulations.

Regular Non-hazardous Trash

To protect housekeeping personnel from injury and prevent illegal hazardous waste disposal, be careful about what you put in the trash. Do not put broken glass in the trash.

- Broken glass must be sealed in a puncture-resistant container, such as a sturdy box, to prevent housekeepers from being injured. Each laboratory should have a broken glass trash container. Label these containers as Broken Glass.
- Important: Do not place clean hypodermic needles and syringes in the common trash. Place them in a "sharps" container and dispose of as regulated medical waste (above).

Disposing of Empty Chemical Bottles

- Consult EH&S before putting any empty chemical bottles in the trash. Many chemical containers are not allowed to go into the regular trash.

- If approved to go into the regular trash by EH&S, remove the label or completely deface it with a marker (not a ball point pen) or tape, so that it is clear from a distance that the bottle does not contain hazardous material.

If you do not know whether a substance is a hazardous waste, call EH&S.

***NOTE:** Under no circumstances may regulated medical waste, hazardous waste, radioactive waste or containers labeled with the international biohazard or radioactive symbol or the words "regulated medical waste," "biohazard," "infectious," or "sharps waste" be disposed of in the regular trash.

Back Injury Prevention

Although you may not be moving your lab contents personally, you will be packing boxes, moving items out of the way, and stretching over and around objects. To prevent back strain:

- Do not twist while you lift, carry, or deposit a load. Twisting when reaching, lifting or depositing an object is the main cause of back injuries. Make certain that you are facing the object squarely, whether it's a book on a shelf, a reagent bottle or a box.
- Do not lift or lower an object above shoulder height. Use a ladder or step stool to position yourself so that high objects are below shoulder height. Ask someone to help you so you can safely hand down the object.
- Do not stretch to pick up or deposit an object. If you must stretch to reach an object in front of you, support your upper body weight by leaning on a desk or table.
- Get as close as possible to the object you are lifting to prevent back strain. Even a light object lifted at arm's length can strain your neck and back, particularly if it is done repeatedly.
- Lift with your leg muscles, not with your back. As you lift, keep the load as close to the body as possible. Keep your back straight as you lift, bending at the knees instead.

Handling Equipment During the Move

Biosafety Cabinet

Due to physical safety and damage concerned, moving a Biological Safety Cabinet is not recommended. If moving a biosafety cabinet, it must be emptied and decontaminated before moving and certified in the new location before use.

Work surfaces of biosafety cabinets should be disinfected prior to moving them. Cabinets used for work involving pathogenic organisms may require paraformaldehyde decontamination prior to being moved. Otherwise, use of 70% alcohol or a 1:10 dilute bleach solution should be sufficient. This solution must remain on the surface for 20 minutes to be effective. Wipe with water to remove solution.

All biological safety cabinets must be tested and certified for air flow and filter integrity after being moved. Note: Biosafety cabinets have a specially designed HEPA filter system and should not be confused with a chemical fume hood. For further information contact EH&S at 590-1414.

Compressed Gases

Compressed gas cylinders pose hazards for several reasons:

- Because of their pressure, they can become projectiles. Mishandled gas cylinders can build up enough force to go through a concrete wall.
- The material in the cylinder may be toxic or flammable.
- They can tip over easily if not adequately restrained.

Moving Cylinders

- Remove the gauge and regulator and secure the valve cap before moving a cylinder.
- Transport cylinders on a wheeled cylinder cart, carefully securing them in an upright position.
- Secure the label with packaging tape to prevent it from falling off.
- Never leave a cylinder unattended.
- Never move a cylinder by rolling it across the floor; always use a cart.
- Never drop cylinders or bang them against anything.
- Never leave cylinders in the sun.
- Contact the vendor for removing unused cylinders or Liquid Nitrogen Tanks.

Cylinder Leaks

Report all suspected cylinder leaks to your supervisor. Report larger leaks and leaks involving toxic gases to EH&S. If you believe the situation is immediately dangerous, call University Police at 911.

Cylinder Disposal

- Empty cylinders should always be labeled EMPTY. Call the supplier for pick-up.
- Contact EH&S if you have a cylinder with unknown contents.
- Because of the very high cost of disposal of most toxic gases, these gases should be returned to the vendor whenever possible. Contact the vendor for guidelines on preparing the cylinder for return.
- Lecture bottles should not be purchased unless they can be returned to the supplier.
- When possible, use vendors who will take back unused portions of product to avoid costly disposal charges.

Hazardous Materials in Laboratory Equipment

Some laboratory items may contain materials or chemicals that are potentially harmful to human health or the environment. Preparing this equipment for transport requires special handling.

Equipment that may need to be decontaminated includes centrifuges, microscopes, incubators, vacuum pumps, refrigerators and regulated medical waste or radiation waste containers.

Fragile components or components containing materials that may spill if inverted (e.g., a glass manometer) must be specially secured with double containment or emptied. Any instrument or

piece of unsealed equipment containing significant quantities of a hazardous material in liquid form must be drained prior to move.

Laboratory and Medical Equipment Decontamination and Disposal Procedure

Prepare the Laboratory and Medical Equipment Decontamination and Disposal form and submit it to EH&S for approval for any equipment being repaired, relocated, shipped offsite/sent for repair, or disposed.

If the item is a fixed asset (costs more than \$5000), the Department Property Manager must forward a copy of the approved Laboratory and Medical Equipment Decontamination Disposal form and a Relief from Property Accountability form to the Office of the Controller at property@fgcu.edu, maintaining copies of all records.

Completed Laboratory and Medical Equipment Decontamination Disposal forms must go to the Work Management Center before they will pick up any equipment from the labs.

Handling Hazardous Materials at the New Location

Chemical Storage Guidelines

Incompatible materials need to be segregated and stored separately in compatible groups. The guidelines below outline some basics of chemical storage. Hazard classification information helps in identifying storage groups; however, be aware that there are many materials in the same basic class that have specific incompatibilities. Check the "Chemical Compatibility Storage Guide" in Appendix 1 for examples of chemicals in the various compatibility groups. Contact EH&S if you have questions about the compatibility of specific chemicals.

- Do not store chemicals alphabetically, except within a hazard class.
- Segregate chemicals by hazard class.
- Pay attention to specific chemical incompatibilities.
- Keep flammables by themselves in approved storage cans or cabinets.
- Keep acids away from bases.
- Separate organics from inorganics.
- Store oxidizers away from flammables.
- Store strong oxidizers away from potential sources of fuel such as paper or cardboard packaging.
- Provide as much physical separation as possible between classes.
- Radioactive materials should be properly labeled and stored as a group.
- Biohazards should be properly labeled and stored together as a group.

How to Determine Hazard Classes

Reference materials, such as Safety Data Sheets (SDSs) can be used to determine hazard information, or call EH&S.

Several chemical manufacturers are identifying the storage class of the chemicals by color coding the labels. There are 5 main groups, and several sub-groups. The main storage groups are:

- RED: Flammable. Store in an area segregated for flammables.
- WHITE: Corrosive. May harm skin, eyes, mucous membranes. Store away from red, yellow, and blue coded chemicals.
- YELLOW: Reactive and Oxidizer. May react violently with air, water or other substances. Store separately from flammables and combustibles.
- BLUE: Health Hazard. Toxic if inhaled, ingested, or absorbed through the skin. Store in secure area.
- GRAY, GREEN or ORANGE: Presents no more than a moderate issue. General storage.

Storage Areas

- Store large bottles and containers close to the floor.
- Store liquids below eye level.
- Shelves must be bolted to the wall.
- Shelves should have lips or restraining cords to prevent bottles from falling.
- Storage areas should be well lit, properly ventilated and have an even temperature.
- Use secondary containment for spill containment whenever possible.
- Keep an appropriate spill kit nearby.
- Use approved flammable storage cabinets. Do not remove the vent cover from the flammable storage cabinet.
- Only purchase the amount of materials you plan to use in a semester and that you can store safely.

Biohazard and Carcinogen Storage

Access doors to regulated areas containing biohazards or carcinogens must be posted with warning signs. Contact EH&S if you need a warning sign or are not certain about the type of sign required.

After You Move

New Area Checklist

Emergency Equipment

- Are the emergency eye wash and shower working and accessible within 100 feet (or 10 seconds) of the lab work areas?
- Are fire extinguishers accessible within 50 feet?
- Are appropriate spill kits available and accessible?
- Is a fully-stocked First Aid Kit readily available and location identified?

Chemical Storage

- Are flammables properly stored?
- Are chemicals segregated by hazard class?
- Are corrosive materials stored in low cabinets/shelves below waist level?
- Do liquids have secondary containment?
- Is there a designated area for collecting unwanted chemicals for EH&S to pick up?

Radioactive Material Storage

- Is the material properly stored?
- Are radioactive labels properly posted on cabinets, hoods and refrigerators where material is located?
- Is the laboratory door properly labeled? (“Caution – Radioactive Material”)
- Is the “Emergency Procedures” sign posted?
- Is the “Notice to Employees” sign posted?
- Are the materials properly secured when not attended (locked cabinet or room)?

General Laboratory Conditions

- Are hazardous work areas posted with current hazard information (e.g., biohazards, carcinogens, radiation, lasers, sonicators, UV light) and current Lab contact information? The template for Door Signs is located on the EH&S website.
- Are the fume hoods working properly and have a current certification from a qualified vendor or EH&S?
- Have biological safety cabinets been recertified by a qualified vendor for proper operation?
- Are compressed gas cylinders properly secured with chains or straps?
- Are proper disposal containers available for materials such as sharps, needles, broken glass, etc.?
- Is there nothing stored within 24-inches of the ceiling (interferes with fire sprinklers)?
- Is there a minimum of 24-inch clearance in the aisles?
- Is there a minimum of 36-inch clearance in passageways?
- Are heavy items stored low?
- Are all toxic gases stored in a mechanically ventilated area such as a toxic gas cabinet or fume hood?

APPENDIX 1- Chemical Compatibility Guide

It is important to properly package hazardous materials according to the segregation procedures listed below. Mixing incompatible chemicals can result in a fire, explosion, heat generation, or toxic or flammable gas. Contact EH&S if you have any questions on packaging your hazardous materials.

Steps for Packaging Hazardous Materials

Step 1 – Segregate organics from inorganics

Step 2 – Segregate solids from liquids

Step 3 – Further segregate materials into the following groups before packaging into boxes. Do not mix different groups in the same box!

Material Group	Definitions and Examples
1. Flammable and Combustible Liquids:	Materials with a flash point less than 200° F
2. Corrosive Acids:	Materials with a pH<3
3. Corrosive Bases:	Materials with a pH>12
4. Flammable Solids:	Solids which may catch fire due to friction during transportation
5. Oxidizers:	Materials that may cause or enhance the combustion of other materials
6. Poisons:	Materials which are toxic, but not flammable, corrosive, oxidizing or reactive
7. Cyanides:	Materials if in contact with corrosives may generate cyanide gas
8. Peroxide Formers:	Organic materials, e.g., ethyl ether (see Table 1)
9. Water Reactives:	Materials that emit toxic fumes or catch fire when in contact with water
10. Organic Peroxides:	Organic materials such as benzoyl peroxide, methyl ethyl ketone peroxide, etc.
11. Explosives:	Dry picric acid, out-of-date peroxide formers, heat and shock sensitive materials

Remember to label all containers with chemical names and to package them according to these guidelines.

APPENDIX 2- Materials Packing List (MPL)

Instructions

- Item Number: Mark each item (bottle/container) being packed with a number corresponding to the item number on the MPL.
- Proper Chemical Description: Provide a complete description of the material. Do not use chemical formulas. For mixtures, please list hazardous components and percent by weight.
- Number of Containers: Total number of containers of that chemical.
- Container Size: Container volume or weight capacity. P- pounds, G- gallons, GM- grams, L- liters, ML- milliliters.
- Container Type: G- glass bottle, P- plastic bottle, M- metal can, C- cardboard, B- bag, W- wood, D-drum or other description.
- State: Physical state, S- solid, L- liquid, G- gas.
- Condition of Material: N- new material, never opened, O- opened, usable material, U- used or out of date material.

Remember:

- Please print neatly or type
- Disposal of unknown chemicals is expensive. Please make every effort to identify unknowns.
- Use complete chemical names.
- Package materials properly. Boxes should weigh less than 50 pounds and contain no more than 4 4-liter bottles. Place bottles upright and cushion all breakable containers.
- Send a copy of completed packing lists to EH&S. These lists will help if there is a spill or originals are misplaced

Materials Packing List

WARNING: Do not package incompatible chemicals in the same box. See the material Segregation instructions in the Relocation Guide.
 Instructions: Use a separate MPL for each box of materials. Each item (bottle, can, bag, etc.) must be listed separately. Use additional lines if needed. Send a copy of the completed MPL to Environmental Health and Safety before the move.

P.I. _____ Dept. _____ Contact _____ Ph _____ Date _____
 Building _____ Room _____ Location in Lab _____ Notes _____

Item No.	Proper Chemical Description Do Not Use Abbreviations, Trade Names, or Chemical Formulas	Number of Containers	Container Size	Type (ml, gal)	State (S, L, G)	Condition (N, O, U)
1						

Prepared By: _____