

IBC
APPENDIX O
PREPARING LAB EQUIPMENT FOR
SERVICING OR DISPOSAL

Application

Biosafety Level 2 (BSL-2) Labs

Purpose and Scope

To provide guidance for the proper decontamination of common laboratory equipment before it is serviced, moved, reallocated, or disposed.

- Applies exclusively to lab equipment that may reasonably be expected to come into contact with biohazardous material, hazardous chemicals or radioactive material. Excludes office equipment used in labs.

Biohazardous materials include rDNA or potentially infectious materials including microorganisms, cell lines, blood, other body fluids, tissues and organs, and other potentially infectious materials. To prevent exposure to non-lab personnel handling lab equipment, equipment must be properly decontaminated prior to servicing/repair, moving reallocating or disposing.

Following are the safety requirements that must be met before lab equipment can be moved for servicing/repair, moving, reallocating or disposing.

- It is the PI's responsibility to ensure that designated equipment has been properly cleaned and decontaminated before being handled by non-lab personnel performing the work. Lab equipment that is shipped out for servicing must also be properly decontaminated first.

Non-lab personnel must be advised of any hazards they might encounter in the lab.

- Examples of lab equipment to be decontaminated include refrigerators, freezers, incubators, water baths, cryostats, centrifuges and rotors, cell sorters and any other equipment or instrumentation that has been used in BSL-2 research. Biosafety cabinets are not included here because they are routinely decontaminated at the end of each work period.
- Remove Biohazard label(s) before cleaning.

Always wear proper Personal Protective Equipment when working in the lab. If you haven't been wearing your safety glasses, put them on before you begin the decontamination process.

If the equipment will be serviced in the lab by a technician, you will also need to decontaminate the surrounding work area; you may also need to mop the floor nearby with disinfectant if equipment design requires servicing to take place near the floor.

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- Service technicians must wear proper PPE while in the lab.
- Choose a disinfectant that isn't corrosive or otherwise destructive to the items undergoing decontamination. Corrosive chemicals require multiple rinses with water to remove harmful residues and are thus best avoided here.

Either a chemical disinfectant labeled "Approved for use as a hospital disinfectant" or one that is tuberculocidal when used at recommended dilutions is recommended as it will be less corrosive and less damaging to equipment. Be sure to read the product's label as some are designed to be rinsed off while others are not. You need to know which you are using to ensure proper decontamination.

Hospital grade disinfectants suitable for decontaminating the surfaces of scientific equipment include the following generic formulations: iodophors; chlorine solutions; alcohol (isopropyl, ethyl); phenolic compounds and quaternary ammonium compounds. If using ethyl alcohol, 70% is a more effective disinfectant than 95%; Isopropanol is more effective than Ethanol.

- **Read and follow the manufacturer's label** directions for the recommended disinfectant: concentration, contact time required for disinfection and method of application (wiping, spraying etc.) if you are using a commercial product.
- Be aware of the design of the equipment and construction materials as these can negatively impact the decontamination process. Crevices, joints and pores are barriers to the penetration of liquid disinfectants. Prolonged contact time may be required to accomplish decontamination.
- After the equipment has been cleaned and decontaminated, attach an Equipment Decontamination label (attached) to document that the equipment can be safely handled for moving, servicing or disposing.

Disposing Refrigerated Equipment

Prepare a work order for Property & Support Services to remove your inoperative/surplus refrigerator or freezer. These units contain refrigerants which are hazardous chemicals that must be managed in compliance with federal hazardous waste regulations. To accomplish this, refrigerants are removed by an outside vendor. The charge is \$35 per unit. Prepare an IVPO to Facilities to cover this cost and submit it with your work order. The movers will pick up your refrigerator/freezer and the refrigerant will be removed by the outside vendor at the Sherman Building.

Refrigerators and Freezers that have been used to store biohazards must be emptied first, the contents autoclaved or bleached if being disposed, or transferred to a new unit, then the

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refrigerator/freezer must be decontaminated with a 1:10 solution of bleach for 10 minutes. External surfaces must also be decontaminated then wiped down with multiple fresh water rinses to remove all traces of bleach.

Oven Disposal

Pre-1978 ovens contain asbestos and must be disposed separately. Disposal will have to be coordinated with an ongoing asbestos abatement project. If you have an oven for disposal, contact the EH&S Industrial Hygienist at x 4-5500 to make arrangements.

Hazardous Materials in Equipment for Disposal

The following hazardous materials - except refrigerants - must be removed by lab staff before equipment can be disposed:

- **Refrigerants and compressor oil:** refrigerators or freezers of any kind, air conditioners, ice machines, water baths, cooling incubators and centrifuges all contain refrigerant and possibly compressor oil as well.
All require an IVPO for removal, \$35 per unit to remove both hazardous materials.
- **Asbestos:** ovens, equipment subject to high heat such as Rotovaps
Contact the EH&S Industrial Hygienist at x 4-5500 to arrange disposal.
- **Lead:** used for shielding research with radioactive materials
Contact the Radiation Safety Office x 4-2600 for disposal.
- **Mercury:** thermometers, hygrometers, manometers, stethoscopes.
Elemental mercury - not salts - is disposed as chemical hazardous waste through EH&S. Submit an online hazardous waste pickup request for pickup.
<https://web.uri.edu/ehs/online-pickup/>
- **Oil:** vacuum pumps, refrigerated units.
Disposed as chemical hazardous waste through EH&S. Collect the oil in a dry 1-gal solvent bottle (you can request a container from EH&S if you need one), fill out and apply a hazardous waste label, put it in your SAA and submit an online request to EH&S for pickup.
Oil that is in a piece of refrigerated equipment will be removed when the refrigerant is extracted for recycling. The cost is covered under the IVPO for refrigerant removal.

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Biological Material

Appropriate cleaning products used: Yes No

Cleaning performed by: _____

Name (Print)

Date

Phone Number

Oil

This material has been removed: Yes No

Be sure to label the container as hazardous waste and put it in your SAA. Submit a waste request to EH&S to have it removed.

Mercury

This material has been removed: Yes No

Be sure to label as hazardous waste and put it in your SAA. Submit a waste request to EH&S to have it removed.

Radioactive Materials

Please contact URI's Radiation Safety office (401)874-2600 for further instructions.

Inspected by Radiation Safety Officer: Signature _____ Date: _____

Universal waste – Batteries or bulbs

Please contact the Recycling office (401)874-2840 for further instructions on having these items removed from the lab.

Other Hazardous Materials

Name of Material: _____

This material has been removed: Yes No

Be sure to label as hazardous waste and put it in your SAA. Submit a waste request to EH&S to have it removed.