



- ❑ Preparing Equipment for Service or Disposal
- ❑ Ethidium Bromide Safety

PREPARING EQUIPMENT FOR SERVICE OR DISPOSAL

Clinical and Laboratory equipment may potentially be contaminated with biological, chemical or radioisotopes. The equipment must be cleaned or decontaminated to protect workers servicing the equipment, the environment if disposing the equipment or the public if purchasing surplus equipment.

Examples of equipment which may need to be decontaminated or to assure the removal of hazardous materials prior to servicing or disposal include (but are not limited to):

Centrifuges	Incubators	Fume Hoods	Vacuum Pumps
Cryostats	Ovens	Refrigerators	
Freezers	Sinks	Warm Rooms*	
Tanks*	Biological Safety Cabinets	Walk-in Refrigeration Units	
X-Ray Units	Photo Processing Units	Lab Benches (grossly contaminated)	
Other storage cabinets, lockers, bins used to store hazardous materials			

*potential confined space

The exact decontamination procedure will be dependent upon equipment use. Decontamination can be performed by the clinic, lab or department preparing for service or disposing of equipment. If there is ever a question of the hazard, please call the Environmental Health & Safety (EH&S) Office at 212.998.1450.

Some equipment can contain materials which present or contain hazards to repair personnel and/or the environment if disposing of it. Examples include equipment that may contain ballasts (possible PCB-containing), thermometers (possible mercury-containing); oil reservoirs, lead sheeting, radioisotopes, CFCs (chlorofluorocarbons) and attachments such as gas cylinders.

It is the laboratory, clinic and/or department's responsibility to assure that the equipment is cleaned or does not pose a risk. If there presents a risk that cannot or should not be removed by the laboratory, clinic or department personnel contact EH&S.

Once the equipment has been decontaminated of hazards or does not present a hazard, please fill out and attach the "**Notice of Equipment Decontamination**" label. An employee knowledgeable of the hazardous materials used in the equipment/fume hood must complete the label and attach it to the equipment or face of the fume hood prior to calling Asset Management. Then follow the steps in the Asset Management Policy and Procedures: <http://www.nyu.edu/asset/>

REQUIREMENTS FOR EQUIPMENT DECONTAMINATION

Equipment Used to Process or Store Biological Material

Remove biological material from the equipment. Clean the equipment with warm, soapy water and scrub as necessary. Sanitize with a 1:10 bleach solution. After 10 minutes contact time, rinse metal surfaces as bleach is corrosive. If you have questions, contact the EH&S office at 212.998.1450.

For decontamination of biological safety cabinets, call 212.998.1440.

Other Uses of Equipment and Contact and Decontamination Information

- Radiation Safety

Contact the NYU Radiation Safety Officer (212.998.8480) prior to servicing or removing equipment containing sealed radiation sources (gas chromatographs, liquid scintillation counters, etc), x-ray equipment, lasers, or equipment producing non-ionizing radiation (UV radiation).

PREPARING EQUIPMENT FOR SERVICE OR DISPOSAL (continued)

*Again, if any of this equipment does not contain a radiation hazard or the hazard has been removed, please fill out and attach the “Notice of Equipment Decontamination” Label.

- Chemical Safety

Contact the Department EH&S (212.998.1438) prior to servicing or removing equipment/instruments containing mercury (thermometers, blood pressure devices, etc.), gas cylinders, equipment containing capacitors, small transformers containing PCBs or oils, fluorescent light ballasts or pressurized containers and vessels. The EH&S office can also provide information on decontamination of equipment used to store or process chemicals.

For fume hood liner, oven and older counter tops decontamination or removal, please contact the Department of EH&S (212.998.1438).

- Occupational Safety

Prior to sanitizing large tanks, walk-in refrigeration/freezer units or warm rooms which have failed, it is also important to call the Department of EH&S as these units can potentially be confined spaces.

Please attach the “Notice of Equipment Decontamination” Label to the equipment indicating that the equipment is free, to the best of your knowledge, of potential hazards.

REQUIREMENTS FOR EQUIPMENT DECONTAMINATION

Equipment Used to Process or Store Radioisotopes

For potentially radioactive material, the following should be performed:

- Thoroughly decontaminated all surfaces
- Perform wipe tests and document the test in the Radiation Safety handbook for possible future inspection
- Remove all radioactive labels and signs

Equipment Used to Process or Store Chemicals

Safely remove, drain, or discharge chemicals from the equipment. Collect the material for reuse or for hazardous waste disposal. If applicable, use an inert gas or liquid to purge or rinse out chemical residues. In some cases, rinsate will need to be disposed of as hazardous waste if what you are decontaminating is considered a hazardous material, the rinse solution would be as well.

- Contaminated Refrigerators or Ovens

Contaminated refrigerators, ovens and other equipment with non-permeable surfaces must be decontaminated by scrubbing with warm soapy water.

- Fume Hoods

When maintenance personnel must enter the inside of a fume hood, the fume hood user must remove all containers and thoroughly wash interior surfaces with warm soapy water (fume hood areas that are within arms reach). Call EH&S if a full decontamination of the fume hood is required or needed (up into the HVAC duct work).

Please contact EH&S (8-1450) for the “Notice of Equipment Decontamination” & Requirements labels that will be required prior to any equipment being accepted by Asset Management. If these labels are not present, the equipment will not be tagged as disposal ready.

ETHIDIUM BROMIDE SAFETY

Ethidium Bromide is a highly toxic chemical and potent mutagen frequently used to identify DNA. This material fluoresces a red-orange color under ultraviolet light. Ethidium bromide is typically purchased in powder or solution form and is soluble in water. The crystal or powder form is odorless and appears dark red in color.

The powder form is considered an irritant to the upper respiratory tract, eyes and skin. Ethidium bromide is strongly mutagenic, causing living cell mutations. Even though there is no evidence at this time of this material being a human carcinogen or teratogen, handling and care should be taken as if it was proven to be.

WASTE MINIMIZATION

Environmental Health & Safety recommends that if it is possible to use a less hazardous chemical for the identification of DNA, please do so. Some experiments may allow the use of an inert red tracer called "REDTAQ DNA Polymerase" produced by Sigma-Aldrich (www.sigma-aldrich.com).

Where practical, purchase ready-made stock solutions from chemical manufacturers in lieu of mixing your own solutions. One such product already in use on campus is the "Edvotek DNA Insta-stain". Go to: www.edvotek.com or call 1.800.338.6835 (1.800.EDVOTEK).

If you prefer to mix your own solutions of ethidium bromide, protect yourself by doing this process in a fume hood. Perform all processes that generate ethidium bromide dusts or mists inside the fume hood to minimize inhalation exposures.

WASTE COLLECTION/WASTE DISPOSAL

Waste collection containers must be leak-proof, capable of being sealed tightly, and in good condition.

Solid ethidium bromide waste <0.1% can be double bagged and thrown into the trash.

Solid ethidium bromide waste >0.1% (including gloves, gels, contaminated towels, used Evotek DNA Insta-stain strips and spill cleanup material) should be double-bagged and tightly sealed or collected in a closed container. A hazardous waste label must be completely filled out and attached to the bag or container. Only then can the waste be turned in via Environmental Health & Safety for waste disposal.

Liquid ethidium bromide waste <0.1% can be put down the drain.

Liquid ethidium bromide waste with a concentration >0.1% should be filtered via AMRESKO Destaining Bags or BIO 101 EtBr "Green Bag" Kit. Both methods are inexpensive and simple to use. Simply drop the bag into your solution, periodically swirl it around a few times, and let it stand overnight. In the morning, remove the bag and collect it as solid ethidium bromide waste. Then perform a spot check of the solution using a UV transilluminator to see if it fluoresces. If it does not, approximately 99% of the ethidium bromide has been removed and the solution is now safe to pour down the drain-provided no other hazardous chemicals are present.

Technical information outlining each bag's capabilities and limitations can be obtained via their websites. For the AMRESKO Destaining Bags go to www.amresco-inc.com (registration is necessary in order to access the technical bulletin. Go to site map then register as "guest") or call AMRESKO at 800-829-2805. For the BIO 101 EtBr "Green Bag" Disposal Kit go to http://qbiogene.com/products/electrophoresis/EtBr_page1.shtml or call BIO 101 at 800-424-6101.

Liquid ethidium bromide waste with a concentration equal to or above 0.1% can also be collected in closed, labeled containers and turned in for disposal via Environmental Health & Safety. The "destaining bags" and "green bags" have a more limited effect on higher concentrations of ethidium bromide and this waste poses a greater hazard to human health and the environment.

Loose needles and syringes must be placed in red "biohazardous" sharps containers. Contact the Building Manager for disposal.

Please call EH&S (8-1450) if you are using Ethidium Bromide at concentrations >0.1% so that we are made aware of locations and quantities.

For Safe Handling questions or concerns please email Zack Korenstein at zack.korenstein@nyu.edu. For disposal questions please email celeste.rufer@nyu.edu.