



National Institutes of Health  
Office of Management

# NIH Waste Disposal Guide 2014



**Spills or Emergencies - call: On campus: 911 Off campus: 9-911**

**Up to date information can be found at: <http://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal>**

# Chemical Waste

## Examples of Chemical Waste

Non-radioactive chemical (solids, liquids, gases) and/or other waste with hazardous chemicals. [Waste Minimization and Pollution Prevention Guidance](#)

- Non-radioactive lead shielding and lead scrap
- Chemical reagents; disinfectants, all types
- Oils, all types
- Batteries, all types
- Sodium vapor and HID lamps
- Fluorescent light tubes and bulbs
- Photographic film processing solutions and x-ray film
- Mercury containing items (thermometers, batteries, UV lamps, sphygmomanometers, etc.)
- Cytotoxic agents & prescription drugs and antibiotic (non-controlled substances)
- Non-returnable gas cylinders and lecture bottles (18-inch length maximum)
- Gels contaminated with ethidium bromide, acrylamide or other stains
- Pharmaceuticals in animal feed and water bottles

## Tag and Identify

### General Information - Identification and labeling

- Use Chemical Waste Tag (NSN-7530-00-L07-5985) from the Self-Service Store/NIH Stock Supply Catalog
- Identify all major constituents and hazardous components by chemical name
- Don't use acronym or brand name
- Complete information on front and back of tag as soon as the first drop of waste is added to the container
- Label Erlenmeyer flasks, beakers and aspirator waste containers with the word "Waste", chemical contents and date
- Tag and label HPLC interim waste collection containers



## Incompatible Mixture

- Do not mix**
  - Mercury or mercury containing materials with any other waste
  - Dioxin or dioxin containing materials with any other waste
  - Peroxide forming chemicals with any other waste
  - Oxidizing agents with organic compounds, flammable, and combustible materials
  - Oxidizing agents with reducing agents (e.g. zinc, alkaline metals)
- Aqueous wastes with organic solvents
- Acids with:
  - Organic, flammable and combustible materials
  - Basic (caustics) and reactive metals such as sodium, magnesium, and potassium
  - Chemicals which can generate toxic gases upon contact such as sodium cyanide, iron sulfide, azides, and phosphides

### Additional information on chemical segregation

## Waste Container Storage

- Store in the laboratory where the waste is generated while awaiting pickup
  - **DO NOT PUT WASTE CONTAINERS IN HALLWAYS OR OTHER PUBLIC LOCATIONS**
  - **DO NOT TRANSPORT WASTE ACROSS HALLWAY TO ANOTHER LOCATION FOR STORAGE**
- Ensure that all chemical waste containers are closed securely except at the time waste is added
- Use NIH approved funnels with lids. Close the lid when not adding waste to the container
- Place liquid waste containers in secondary containment pan(s) away from ignition and heat sources
- Do not fill containers over the indicated fill line
- Keep exterior surface of containers free of contamination
- **Chemical waste MUST be picked up within 60 days of the accumulation start date**



## Prohibited waste Management Practices in Laboratories

### Forbidden waste disposal methods

- Discarding chemical waste via sinks, in MPW boxes, or trash bins and dumpster
- Discarding radioactive materials, oxidizers, heavy metals, phenols, acids, and bases in flammable solvent safety cans
- Treating chemical waste in the laboratory. Example: **Evaporating volatile chemicals in laboratory spaces or chemical hoods; Acid/Base neutralization; Waste dilution**

## Waste Minimization and Toxic Chemicals Reduction

### Waste minimization

- NIH seeks to support Federal incentives to restrict the purchase and use of specific toxic chemicals by employing sound waste minimization techniques and affirmative procurement strategies. [Information on Toxic Chemicals Reduction Strategies](#)
- Before purchasing new chemicals check out NIH's free surplus chemical inventory.
- For the surplus chemical inventory go to NIH [FreeStuff](#) website
- Contact DEP (301-496-7990) for information on NIH's solvent recycling program

## Chemical Waste Collected in Empty Chemical Bottles

## Multiple Containers of Chemical Waste

## Larger Volume of Aqueous Mixtures Containing Organic Compounds

## Flammable Liquids

## Chemically Contaminated Dry Waste

# Waste Management Procedures

## Waste collection in empty containers

- Empty chemical bottles may be used to collect small quantities of chemical waste
- Cross out original label and use a chemical waste tag **OR** affix a new label indicating chemical contents, concentration, volume and accumulation start date
- A completed chemical waste tag is required for each bottle prior to pick-up by the Chemical Waste Services



- Multiple containers of compatible chemicals may be placed in a single box for disposal
- The contents of each container must be identified
  - For chemical waste that is in its original container write the word “WASTE” on the bottle and the date
  - For chemical waste that is not in its original container complete and attach a chemical waste tag
  - Compatible materials in its original containers can be placed into an empty box with a chemical waste tag attached to the box. Complete generator information and certification
- Do not stack chemical containers on top of each other
- Do not seal box



## Large volume of aqueous waste collection

- Chemical waste containers (3 or 5 gal) can be requested from Chemical Waste Services
- Combine only compatible chemicals in a container. [Information on chemical compatibility](#)
- Examples of waste that can be placed in these containers include formalin, phenol, chloroform, and aqueous liquids with trace organics. [Information on what goes in these containers](#)
- Complete and attach a Chemical Waste Tag to the container when the first waste is added to the container
- **Place the DATE on the tag at the start of waste accumulation**
- Record on the Chemical Waste Tag each chemical added to the container and its concentration and volume.
- Store waste containers in secondary containment pans away from ignition and heat sources



## Large volume of flammable waste collection

- Use only the safety cans provided by the Chemical Waste Services, (301) 496-4710
- Complete and attach a Chemical Waste Tag to the container when the first waste is added to the container
- Record on the Chemical Waste Tag each chemical added to the container and the concentration and volume
- Examples of waste that can be placed in these containers include DNA/HPLC wastes, alcohols, xylenes, acetonitrile and organic solvents
- Contents of safety can should not exceed “fill” line on can
- HPLC users can request containers with special fittings to connect to the HPLC machine, (301) 496-4710
- Do not place radioactive material, inorganic/organic acids, base or metallic compounds in these containers
- Store waste containers in secondary containment pans away from ignition and heat sources



## Contaminated Dry waste collection

- **DO NOT PLACE radioactive materials, infectious wastes, liquids, biohazard bags, sharps or broken glass with this waste**
- Place materials in a clear plastic bag (NSN-8105-01-195-8730)
- Close plastic bag with filament tape or bag closure tie
- Place bag in a plain cardboard box or double bag the dry waste
- Complete and attach a Chemical Waste Tag
- Examples of this type of waste: chemically contaminated gloves (non-pathogenic), pipette tips, absorbent paper, and disposable labcoats



*Continued on next page*



# Chemical Waste

## Chemically Contaminated Gels

- Gels contaminated with ethidium bromide, or other stains must be collected as chemical waste
- Do not dispose of gels in MPW boxes
- Gels can be collected in a plastic bag lined box or 5 gallon pail with liner
- To order a 5 gallon pail container call the Chemical Waste Services, (301) 496-4710
- Collection containers must not contain any free liquids
- Complete and attach a Chemical Waste Tag to the container. Identify gel types and contaminants
- Container must be closed except when adding waste



## Explosive/Reactive Chemicals

- **STORE SAFELY** in accordance with manufacturer's instructions
- For explosive/reactive chemicals that appear unstable/compromised call Division of Environmental Protection (DEP), (301) 496-7990 immediately for guidance
- Examples of explosive/reactive chemicals include peroxidized ethers, dry picric acid, organic peroxides, peroxy acids, polynitro compounds, hydrides of sodium, lithium and alkali metals

### Additional information on explosive and reactive chemicals

## Disposal of Narcotics and Controlled Substances

- Human use, call Clinical Center Pharmacy, (301) 496-1914
- Non-human use, call Veterinary Resources Pharmacy, (301) 435-2780

## Laboratory Moves Transferring Chemicals

- Call DEP for guidance as soon as you become aware of your move, (301) 496-7990
- Laboratories are responsible for procuring this service from approved vendors

### Laboratory Chemical Move Procedure

## Empty Chemical Bottles

- All empty bottles (glass, plastic and metal) that previously contained chemicals (liquid, solid), buffer saline solutions can be recycled if collected by the Chemical Disposal Service. Leave cap on the empty bottle
- Call Chemical Waste Services to request collection totes for the empty bottles
- Empty bottles and totes are to be stored in labs prior to pick up
- Empty bottles that previously contained infectious or radioactive material are **not** acceptable for recycling
- Empty bottles can also be reused to collect small quantities of chemical waste. (see Waste Management Procedures)
- **Do not place empty chemical bottles into or around commingled recycling bins or "Disposable Labware & Broken Glass" containers**



## Formalin/Aldehyde Solutions with Tissue, Human and Animal Parts

- Separate the tissue from the formalin or formaldehyde solution; dispose of the liquid through chemical disposal services; dispose of the tissue in **MPW** box. (see MPW Section)

## Batteries

- UPS (uninterruptible power source) Batteries must be removed from the UPS casing prior to pickup. Call DSEIS, (301) 496-4131
- All Batteries must be collected for recycling by the Chemical Disposal Service, including non-UPS batteries internal to equipment
- Examples are alkaline, all rechargeable batteries, lithium, lead-acid and all other types

## Procurement, Use and Disposal of Mercury and Its Compounds

- Purchase and use of mercury and its compounds prohibited in accordance with NIH Mercury Policy (**Manual Chapter 3033**) NIH Mercury Policy Guidance
- Exceptions to the prohibition on procurement and use may be granted for limited scientific and medical uses of mercury or mercury compounds for which there are no acceptable alternatives
- To procure or use mercury product(s) complete NIH Form 2936.
- Contact DEP for guidance (301) 496-7990 NIH's Mercury Abatement Program

# Multihazardous Waste

## Examples of Multihazardous Waste

Multihazardous waste is waste containing two or more of the following: radioactive material, infectious agent(s), or hazardous chemical(s). One type of multihazardous waste is Mixed Waste: Waste that contains both a hazardous component and radioactive material regulated by the NRC. “Mixed Waste” is a subset of multihazardous waste

- Aqueous radioactive wastes containing chloroform or heavy metals
- Methanol/acetic acid solutions from electrophoresis procedures containing radioactive material
- Hazardous liquid scintillation counting fluids with radioactive content
- Radioactive trichloroacetic acid solutions
- Phenol/chloroform mixtures used to extract DNA from radio labeled cells
- Vacuum pump oil contaminated with radioactive material
- Chemical or radioactive wastes containing infectious agents
- Used animal bedding contaminated with at least two of the above listed hazard types (chemical, radioactive and infectious)
- Lead contaminated with radioactive material
- Aqueous radioactive liquids with pH =<2 or >12.5

## General Information

Mixed waste containers (4L, 10L, and 20L) and spill trays are available by calling Radioactive Waste Service at (301) 496-4451. Caution-Radioactive Material labels (NSN-7690-00-833-0318), Radioactive Waste Pickup Receipts (NSN-7530-00-L07-8835), and Chemical Waste Tags (NSN-7530-00-L07-5985) are available at the self-service store. Call (301) 496-4451 or log on to <http://drsportal.ors.od.nih.gov/> to request your mixed waste pickup.



## Avoid Generating

- Avoid generating multihazardous wastes as disposal can be difficult and expensive. For help in avoiding generation of multihazardous waste, call the Division of Environmental Protection (DEP), (301) 496-7990 or the Division of Radiation Safety (DRS), (301) 496-5774

## Minimize Generation Inactive Waste

- Minimize volumes generated if generation of multihazardous waste cannot be avoided
- PRIOR to beginning work activities which will generate multihazardous waste, call DEP or DRS for waste management information
- Inactivation of the agent(s) is usually the first step in the disposal process if the multihazardous waste contains an infectious agent(s). Contact your Health and Safety Specialist in DOHS at (301) 496-2346, for appropriate inactivation methods
- Specific procedures for autoclaving radioactive waste must be approved by your Area Health Physicist prior to use of an autoclave to inactivate the waste. (see [Radioactive Waste Section](#))

## Security

- Mixed waste must be secured or held under constant surveillance to prevent unauthorized removal or access. Consult your Area Health Physicist in DRS at (301) 496-5774, for more information

## Incompatible Mixture

### Don't Mix

- Liquid mixed waste with solid radioactive waste
- Hazardous chemicals with radioactive aqueous wastes
- Segregate by isotope half-life: very short (<30 days), intermediate (30-120 days), and long (>120 days)
- Flammable liquids with radioactive material
- Radioactive aqueous wastes with high organic content mixed waste
- Infectious agents with non-infectious materials

# Multihazardous Waste

## Identify and Label

### Identification and labeling

- List on the Radioactive Waste Pickup Receipt an estimate of radionuclide(s) and activity present at time of pick-up
- Record on the Chemical Waste Tag each chemical added to the container and the concentration and volume
- Ensure that all mixed waste containers have a:
  - Caution-Radioactive Material label (NSN-7690-00-833-0318)
  - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)
  - Chemical Waste Tag (NIH 2459, (NSN-7530-00-L07-5985)



**Radioactive Waste Pickup Receipt**

1. Authorized Investigator  
Building / Room No. \_\_\_\_\_

2. ☐ In-Glass Canister ☐ In-Glass Canister  
☐ Dry Waste, SS or C-14 only ☐ Dry Waste  
☐ Animal/Biological Waste ☐ MSW Box  
☐ IARC Waste (Indicate Number of Trays)  
☐ Other (describe): \_\_\_\_\_

3. Isotopes and Activity  

<input type="checkbox"/> H-3 _____ mCi	<input type="checkbox"/> Co-60 _____ mCi
<input type="checkbox"/> C-14 _____ mCi	<input type="checkbox"/> P-32 _____ mCi
<input type="checkbox"/> P-32 _____ mCi	<input type="checkbox"/> S-35 _____ mCi
<input type="checkbox"/> S-35 _____ mCi	<input type="checkbox"/> Tl-201 _____ mCi

4. Laboratory Signature \_\_\_\_\_ Lab Phone # \_\_\_\_\_  
Radioactive Waste \_\_\_\_\_ Pickup Date \_\_\_\_\_  
Technician's Signature \_\_\_\_\_

5. Waste Processing Information  
\_\_\_\_\_

NIH 90-00 (2/85)

**NIH CHEMICAL WASTE TAG**

ALL CHEMICAL WASTE TAGS MUST BE ATTACHED TO THE CONTAINER. THE TAGS MUST BE ATTACHED TO THE CONTAINER BEFORE THE WASTE IS PLACED IN THE CONTAINER. THE TAGS MUST BE ATTACHED TO THE CONTAINER BEFORE THE WASTE IS PLACED IN THE CONTAINER. THE TAGS MUST BE ATTACHED TO THE CONTAINER BEFORE THE WASTE IS PLACED IN THE CONTAINER.

1. Chemical Name(s) \_\_\_\_\_  
2. Concentration(s) \_\_\_\_\_  
3. Volume(s) \_\_\_\_\_  
4. Date of Collection \_\_\_\_\_  
5. Date of Disposal \_\_\_\_\_  
6. Name of Investigator \_\_\_\_\_  
7. Name of Laboratory \_\_\_\_\_  
8. Name of Building \_\_\_\_\_  
9. Name of Room \_\_\_\_\_  
10. Name of Technician \_\_\_\_\_  
11. Name of Pickup Service \_\_\_\_\_  
12. Name of Pickup Date \_\_\_\_\_  
13. Name of Pickup Time \_\_\_\_\_  
14. Name of Pickup Location \_\_\_\_\_  
15. Name of Pickup Contact \_\_\_\_\_  
16. Name of Pickup Phone \_\_\_\_\_  
17. Name of Pickup Fax \_\_\_\_\_  
18. Name of Pickup Email \_\_\_\_\_  
19. Name of Pickup Address \_\_\_\_\_  
20. Name of Pickup City \_\_\_\_\_  
21. Name of Pickup State \_\_\_\_\_  
22. Name of Pickup Zip \_\_\_\_\_  
23. Name of Pickup Country \_\_\_\_\_  
24. Name of Pickup Continent \_\_\_\_\_  
25. Name of Pickup Ocean \_\_\_\_\_  
26. Name of Pickup Sky \_\_\_\_\_  
27. Name of Pickup Land \_\_\_\_\_  
28. Name of Pickup Water \_\_\_\_\_  
29. Name of Pickup Air \_\_\_\_\_  
30. Name of Pickup Fire \_\_\_\_\_  
31. Name of Pickup Earth \_\_\_\_\_  
32. Name of Pickup Wind \_\_\_\_\_  
33. Name of Pickup Sun \_\_\_\_\_  
34. Name of Pickup Moon \_\_\_\_\_  
35. Name of Pickup Stars \_\_\_\_\_  
36. Name of Pickup Planets \_\_\_\_\_  
37. Name of Pickup Comets \_\_\_\_\_  
38. Name of Pickup Meteors \_\_\_\_\_  
39. Name of Pickup Asteroids \_\_\_\_\_  
40. Name of Pickup Satellites \_\_\_\_\_  
41. Name of Pickup Rockets \_\_\_\_\_  
42. Name of Pickup Spacecraft \_\_\_\_\_  
43. Name of Pickup Missiles \_\_\_\_\_  
44. Name of Pickup Bombs \_\_\_\_\_  
45. Name of Pickup Weapons \_\_\_\_\_  
46. Name of Pickup Armaments \_\_\_\_\_  
47. Name of Pickup Munitions \_\_\_\_\_  
48. Name of Pickup Explosives \_\_\_\_\_  
49. Name of Pickup Fuels \_\_\_\_\_  
50. Name of Pickup Lubricants \_\_\_\_\_  
51. Name of Pickup Oils \_\_\_\_\_  
52. Name of Pickup Greases \_\_\_\_\_  
53. Name of Pickup Solvents \_\_\_\_\_  
54. Name of Pickup Acids \_\_\_\_\_  
55. Name of Pickup Bases \_\_\_\_\_  
56. Name of Pickup Salts \_\_\_\_\_  
57. Name of Pickup Sugars \_\_\_\_\_  
58. Name of Pickup Proteins \_\_\_\_\_  
59. Name of Pickup Enzymes \_\_\_\_\_  
60. Name of Pickup Vitamins \_\_\_\_\_  
61. Name of Pickup Minerals \_\_\_\_\_  
62. Name of Pickup Elements \_\_\_\_\_  
63. Name of Pickup Compounds \_\_\_\_\_  
64. Name of Pickup Mixtures \_\_\_\_\_  
65. Name of Pickup Solutions \_\_\_\_\_  
66. Name of Pickup Suspensions \_\_\_\_\_  
67. Name of Pickup Emulsions \_\_\_\_\_  
68. Name of Pickup Colloids \_\_\_\_\_  
69. Name of Pickup Gels \_\_\_\_\_  
70. Name of Pickup Foams \_\_\_\_\_  
71. Name of Pickup Powders \_\_\_\_\_  
72. Name of Pickup Crystals \_\_\_\_\_  
73. Name of Pickup Fibers \_\_\_\_\_  
74. Name of Pickup Films \_\_\_\_\_  
75. Name of Pickup Papers \_\_\_\_\_  
76. Name of Pickup Textiles \_\_\_\_\_  
77. Name of Pickup Plastics \_\_\_\_\_  
78. Name of Pickup Metals \_\_\_\_\_  
79. Name of Pickup Ceramics \_\_\_\_\_  
80. Name of Pickup Composites \_\_\_\_\_  
81. Name of Pickup Polymers \_\_\_\_\_  
82. Name of Pickup Monomers \_\_\_\_\_  
83. Name of Pickup Oligomers \_\_\_\_\_  
84. Name of Pickup Macromolecules \_\_\_\_\_  
85. Name of Pickup Nanomaterials \_\_\_\_\_  
86. Name of Pickup Biomaterials \_\_\_\_\_  
87. Name of Pickup Biodegradables \_\_\_\_\_  
88. Name of Pickup Non-biodegradables \_\_\_\_\_  
89. Name of Pickup Biocompatibles \_\_\_\_\_  
90. Name of Pickup Bioinert \_\_\_\_\_  
91. Name of Pickup Bioactive \_\_\_\_\_  
92. Name of Pickup Bioresorbable \_\_\_\_\_  
93. Name of Pickup Bioabsorbable \_\_\_\_\_  
94. Name of Pickup Bioadhesive \_\_\_\_\_  
95. Name of Pickup Bioconductive \_\_\_\_\_  
96. Name of Pickup Bioinspired \_\_\_\_\_  
97. Name of Pickup Bio-inspired \_\_\_\_\_  
98. Name of Pickup Bio-mimetic \_\_\_\_\_  
99. Name of Pickup Bio-mimetic \_\_\_\_\_  
100. Name of Pickup Bio-mimetic \_\_\_\_\_

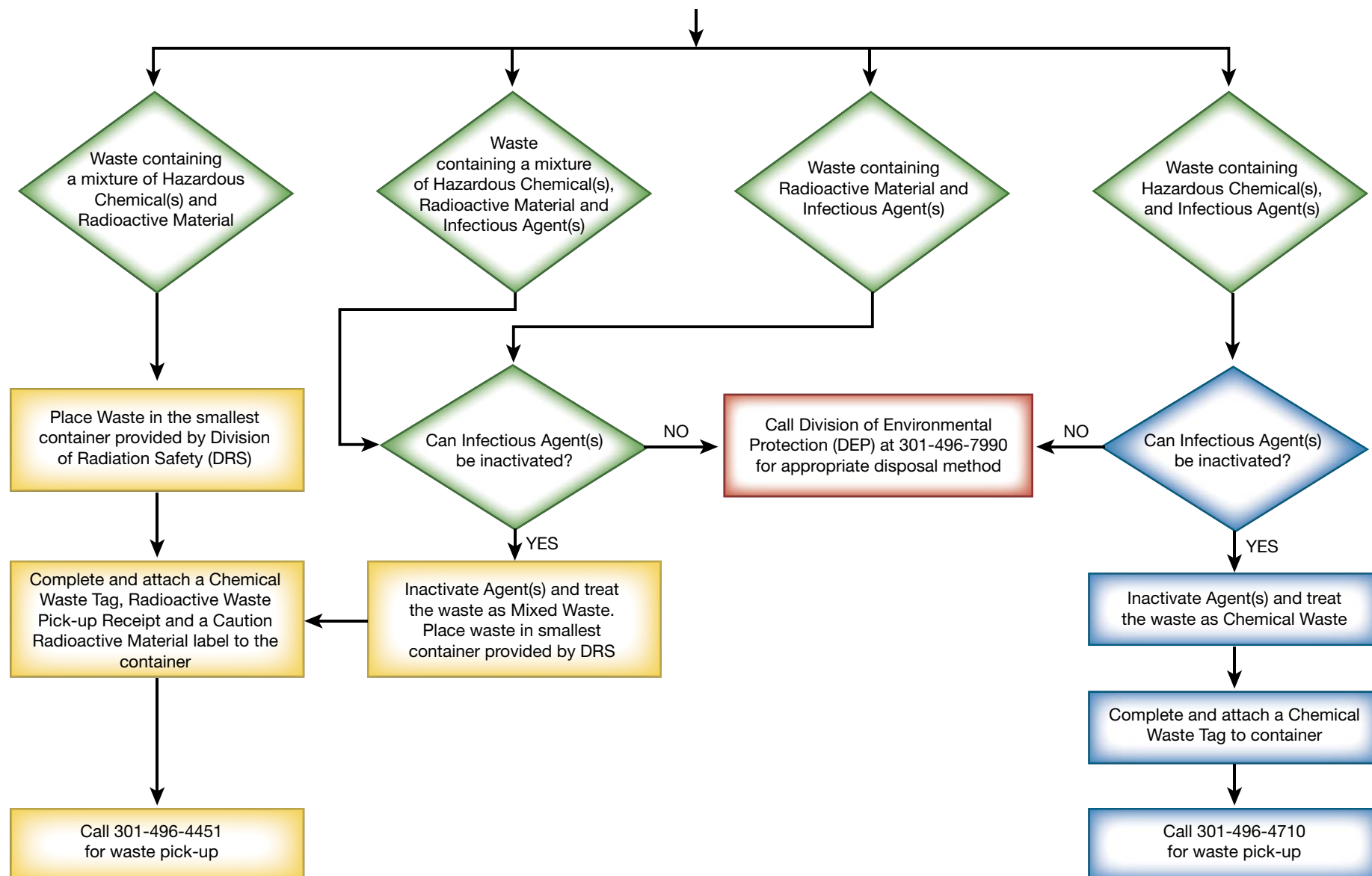
## Shielding Requirements

- Shield radioactive material such that:
  - Radiation levels are less than 2 millirem/hour @ 10 cm within a posted laboratory, AND radiation levels are less than 0.5 millirem/hour or 50 millirem in a year in any unrestricted area (e.g., space adjacent to a posted laboratory or corridor)
- The Radioactive Waste Service recycles beta/plastic and lead shielding – call (301) 496-4451 and inquire if shielding is available

## Waste Storage

- Mixed waste containing radioactive material must only be stored in laboratories posted for use of radioactive material
- NEVER place mixed waste in corridors- even while awaiting pickup
- Ensure that all waste containers are closed securely to prevent leaks, spills or escape of vapors
- Mixed waste must be stored in appropriate spill containment trays or devices
- Mixed waste must be picked up within 60 days of the collection start date

## Waste Management and Disposal Procedures for Multihazardous Waste



### Liquid Scintillation Vials With Flammable Material

### Specific Types of Mixed Waste

- Ensure vials caps are securely tightened
- Place vials in original tray or box (with plastic liner)
- Separate by radionuclide - Vials with the same nuclide may be grouped together and H-3 & C-14 may be grouped together
- Attach to tray or box:
  - Caution-Radioactive Material label (NSN-7690-00-833-0318)
  - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835). Add name of Scintillation Cocktail to Pickup Receipt



### Lead Contaminated With Radioactive Material

- Place lead in box and attach:
  - Caution-Radioactive Material label (NSN-7690-00-833-0318)
  - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)
  - Chemical Waste Tag (NSN-7530-00-L07-5985)



# Radioactive Waste

## Examples of Radioactive Waste

Radioactive waste is any waste that contains or is contaminated with radioactive material.  
Waste Minimization and Pollution Prevention Guidance.

- Aqueous radioactive solutions
- Liquid scintillation counting fluids and vials (**if LSC fluids and vials are flammable, it's “mixed waste”**)
- Materials contaminated with radioactive material after inactivation of infectious agents, such as:
  - Animal carcasses and excreta
  - Experimental or spill clean-up materials, absorbent paper, gloves
  - Patient care materials
  - Plastic or glassware

## General Information and Assistance

- In the planning stages of your experiment, review disposal procedures with your Area Health Physicist, (301) 496-5774. Radioactive waste containers (stepcan, 2 gallon and 5 gallon carboys) are available by calling Radioactive Waste Service at (301) 496-4451. Radioactive Waste Pickup Receipts (NSN-7530-00-L07-8835) and Caution-Radioactive Material labels (NSN-7690-00-833-0318) are available at the self- service store. Call (301) 496-4451 or log on to: <http://drportal.ors.od.nih.gov/> to request your radioactive waste pickup.



## Security

- Radioactive waste must be secured or held under constant surveillance to prevent unauthorized removal or access
- Source vials, when not in use, must be stored in a locked container at all times
- Consult your Area Health Physicist, (301) 496-5774, for more information

## Incompatible Mixture

### Don't Mix

- Liquid waste with dry waste
- Short half-life (< 120 days) with long (> 120 days) half-life waste
- Waste containing chloroform or trichloroacetic acid (TCA) with any other aqueous radioactive waste
- Aqueous solutions with mixed wastes
- For mixed wastes see segregation policy in Multihazardous Waste section

## Adjust pH

- Aqueous liquid waste solutions should be adjusted to a pH between 6 and 10. Use caution; call your Area Health Physicist, (301) 496-5774, for assistance

## Identify and Label

- List on the Radioactive Waste Pickup Receipt an estimate of radionuclide(s) and activity present at time of pick-up
- Ensure that all radioactive waste containers have a:
  - Caution-Radioactive Material label (NSN-7690-00-833-0318)
  - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)



## Shielding Requirements

- Shield radioactive material such that:  
Radiation levels are less than 2 millirem/hour @ 10 cm within a posted laboratory, AND radiation levels are less than 0.5 millirem/hour or will total 50 millirem in a year in any unrestricted area (e.g., space adjacent to a posted laboratory or corridor)
- The Radioactive Waste Services recycles beta/plastic and lead shielding – call (301) 496-4451 and inquire if shielding is available



Waste Storage

- Radioactive waste must only be stored in laboratories posted for use of radioactive material
- NEVER place radioactive waste in corridors-even while awaiting pickup
- Ensure that all waste containers are closed securely

Waste Management Procedures for Material Contaminated With Radioactive Material

- **Do not discard radioactive wastes into sinks drains**
- Use plastic carboys available from Radioactive Waste Service, (301) 496-4451
- Contents should NOT exceed the “Fill line” on the container
- Secure the cap of container tightly
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)



Solvents/Other Hazardous Chemical Constituents

- Refer to Multihazardous Waste Section
- Use special mixed waste containers available from the Radioactive Waste Service, (301) 496-4451
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835) and a Chemical Waste Tag (NSN-7530-00-L07-5985)
- As chemicals are added to the container, record chemical name and amount on the Chemical Waste Tag

Disposable Labware

- Use Disposable Labware & Broken Glass box (NSN-8115-01-154-2305)
- Use absorbent paper pads for residual liquid in the bottom of the box.
- Close and secure box with filament tape
- Affix Caution-Radioactive Material label (NSN-7690-00-833-0318)
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)

“Sharps” (needles, syringes, scalpel blades/razor blades, micro-fine pipette tips, etc.

- Place “sharps” in a puncture resistant container: (small: NSN-6530-01-294-2865; syringes, scalpel or medium: NSN-6530-01-274-5099)
- Fill only 3/4 full, snap lid closed, then place sharps box inside MPW box
- Affix Caution-Radioactive Material label (NSN-7690-00-833-0318)
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)



MPW, Patient Care Materials, Animal Carcasses and/or Tissues, Bedding and/or Solid Excreta With Radionuclides

- Use MPW box (NSN-8115-00-L04-0680), add absorbent material if necessary
- Fold the flaps down on the outside of the box. Only use the two black plastic bags that comes with MPW box
- Place TWO plastic bags (one inside the other) into the MPW box and pull the bag tops down over the flaps
- A filled MPW box should weigh NO MORE than 40 pounds or be no more than 3/4 full (DO NOT OVERFILL)
- Seal each bag SEPARATELY. Twist plastic bag at the top; bend the twisted portion to form a loop and seal using the plastic bag closure tie
- Close the box. Fold Flap A down into box, fold the B Flaps over Flap A, push Flap C down to lock with Flap A
- PRINT your building, room number, type of waste (sharps, patient care, animal tissue, etc.) on box top label area
- Clearly affix Caution- Radioactive Material label (NSN-7690-00-833-0318) and Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)



**NOTE: For animal tissue or carcasses, refrigerate or freeze if held longer than 4 hours; freeze if held more than 24 hours**

*Continued on next page*

# Radioactive Waste

## Infectious Waste to be Autoclaved

- Contact your Area Health Physicist for guidance on autoclaving radioactive material prior to using an autoclave to process the material
- A Caution Radioactive Material label must be affixed to any autoclave in which radioactive material will be processed
- Use TWO (one inside the other) autoclavable Biohazard bags imprinted with process indicator (small: NSN-6530-01-282-6378; medium: NSN-6530-01-142-2255; large: NSN-6530-01-218-4644)
- Place bags in pan for transporting and autoclaving
- Add 50 ml water to the inner autoclave bag BEFORE closing and seal each bag SEPARATELY with autoclave tape
- Process for 60 minutes at minimum 121° Centigrade
- Cool and affix Caution-Radioactive Material label (NSN-7690-00-833-0318) and Radioactive Waste Pick-up Receipt (NSN-7530-00-L07-8835)
- Specific procedures for autoclaving radioactive waste must be approved by your Area Health Physicist prior to use of an autoclave to inactivate the waste
- Survey the inside of the autoclave for radioactive contamination following use of the autoclave
- Chemical indicator should be included in every run to ensure adequate sterilization

**NOTE: Autoclaves must be maintained to manufacturer’s specifications and validated monthly**

## Lead

- Lead which contains or is contaminated with radioactive material is a mixed waste—see the [Multihazardous Waste Section](#)

## Liquid Scintillation Vials

- Vials with hazardous chemical(s) are a mixed waste—see the [Multihazardous Waste Section](#)
- Segregate securely capped vials according to radionuclide—H-3 and/or C-14 may be disposed of together
- Segregate securely capped vials according to cocktail type
- Place vials in original shipping tray or box—trays with the same radionuclide may be grouped together
- Clearly affix Caution-Radioactive Material label (NSN-7690-00-833-0318)
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835). Add name of Scintillation Cocktail to Pickup Receipt



## Source Vials

- Empty vials may be disposed of in stepcan as dry solid radioactive waste
- For vials containing radioactive fluid or vials with lead packaging:
  - Place securely capped vials in a small box (with plastic bag liner)
  - Affix a Caution-Radioactive Material label (NSN-7690-00-833-0318) to the box
  - Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)



## Other Types of Dry/ Solid Material

- Use labeled stepcan containers (with liner bags) available from Radioactive Waste Service, (301) 496-4451
- Clearly affix Caution-Radioactive Material label (NSN-7690-00-833-0318)
- Attach a Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)

## Contaminated Equipment

- Call the Radioactive Waste Service, (301) 496-4451, for guidance on disposing contaminated equipment

## Survey Instruments

- Contact your Area Health Physicist to see if your survey instrument can be recycled
- Remove the radioactive source from the side of the instrument and call Radioactive Waste Service at (301) 496-4451 to pick-up the check source. Dispose of the survey meter and accessories through the NIH property management system
- Attach a Radioactive Waste Pick-up Receipt (NSN-7530-00-L07-8835) to the check source
- Contact your Area Health Physicist or visit the DRS website at: [http://drs.ors.od.nih.gov/policies/Pages/equip\\_clearance.aspx#xrayclear](http://drs.ors.od.nih.gov/policies/Pages/equip_clearance.aspx#xrayclear) for guidance on how to surplus Liquid Scintillation or Gamma counters and other laboratory equipment containing internal radioactive sources

## Uranium and Thorium Compounds

- Call the Radioactive Waste Services, (301) 496-4451, for guidance on disposing all forms of Uranium and Thorium waste

# Medical Pathological Waste (MPW)

## Examples of MPW

MPW Contaminated with Radioactive Materials or Hazardous Chemicals

Decontaminate

Disinfectants

Steam Sterilization/ Autoclave

**Waste must not be contaminated with radioisotopes or hazardous chemicals**

- Waste containing or contaminated with infectious or pathogenic agent(s)
- Pathological waste includes: animal carcasses, anatomical waste (organs, tissue from humans or animals)
- Sharps containers (scalpels, razor blades, Pasteur pipettes, micro-fine pipette tips, all needles and syringes). (See “Sharps” section.)
- Animal bedding contaminated with pathogenic agents which cannot be decontaminated through autoclaving
- Any material potentially contaminated with cytotoxic drug(s): empty cytotoxic drug vials, cytotoxic drug dispensing apparatus, patient care materials, towels, absorbent material, or similar materials

**General Information**

- For disposal of MPW which contains or is contaminated with radioactive material or hazardous chemicals, refer to the [Multihazardous Waste Section](#)

**MPW Minimization - Converting MPW to General Waste:**

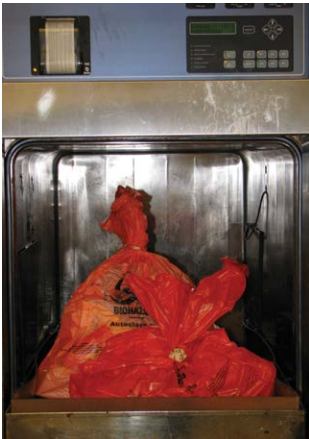
- Examples of MPW which may be converted to general waste through decontamination/inactivation:
  - Liquid clinical specimens (urine, blood)
  - Patient care materials: towels, absorbent material, or similar materials
  - Cultures and media
- For assistance with decontamination procedures, call your Health and Safety Specialist, (301) 496-2346

- Suitable chemical disinfectants include:
  - Sodium hypochlorite (bleach at 5.25%), **(Mercury Free)**, 1:10 dilution
  - Wescodyne (NSN-6840-00-526-1129), use according to manufacturer’s directions

**Always use a disinfectant appropriate to the infectious material you wish to inactivate**

- Use autoclavable Biohazard bags imprinted with **process indicator**: (small: NSN-6530-01-282-6378; medium: NSN-6530-01-142-2255; large: NSN-6530-01-218-4644)
- Place in an autoclaveable pan for transporting and autoclaving.
- Add 50 ml water to the autoclave bag BEFORE closing, secure with autoclave tape, but not air-tight
- Waste must be processed for 60 minutes at **minimum** 121° Centigrade
- Cool, discard bag and contents: use the Disposable Labware & Broken Glass box;  
**Don’t discard autoclave biohazard bags in the general waste dumpster (place in MPW boxes)**
- Chemical indicator should be included in every run to ensure adequate sterilization

**Note: Autoclaves must be maintained to manufacture specification and validated monthly**



*Continued on next page*

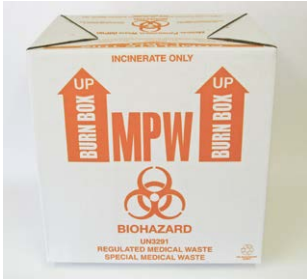
# Medical Pathological Waste (MPW)

Use MPW Box Kit  
ONLY for MPW

## Packing Procedure

### The MPW Box (“Burn Box”)

- The MPW box kit (five boxes, ten bags, and plastic bag closures ties) is available from the NIH Self-Service Store and NIH Stock Catalog (NSN-8115-00-L04-0680). **Use 2 bags per box for double containment**
- The MPW box **MUST NOT** be used for disposal of general waste such as soda cans, papers, cardboard, bottles, etc., or for storage or moving laboratory equipment, office equipment, or household items
- The MPW box **MUST NOT** contain free liquids
- Only use the two black plastic bags that comes with MPW box



**Pathological waste (tissues and carcasses) MUST be packaged separately from other MPW to avoid odors and sanitation problems**

1. Fold the flaps down on the outside of the box.
2. Place TWO plastic bags (one inside the other) into the box and pull the bag tops down over the flaps
3. A filled MPW box should weigh NO MORE than 40 pounds or be no more than 3/4 full
4. Close each bag SEPARATELY. Twist plastic bag at the top; bend the twisted portion to form a loop and seal using the plastic bag closure tie
5. Close the box. Fold Flap A down into box, fold the B Flaps over Flap A, push Flap C down to lock with Flap A
6. PRINT your building, room number, and waste type (pathological or non-pathological ) on box top label area



“Sharps” (needles, syringes, scalpel/ razor blades, microfine pipette tips, etc.)

## Labware

Cell Culture Media, Blood and Body Fluids or Solid Media

### Waste Management Procedures

- Do not recap, bend, remove, or clip needles
- Place intact needles and syringes in the sharps container: (small: NSN-6530-01-294-2865; medium: NSN-6530-01-274-5099). **Do not use large sharps containers that may not fit in a MPW Box**
- Fill 3/4 full, snap lid closed, and discard container in an MPW box
- Do not attempt to compact contents of containers



- Chemical decontamination
  - Submerge the labware for 30 minutes in an appropriate disinfectant solution
  - Collect disinfectant solution as chemical waste. **It is prohibited to discard the disinfectant solution down the sink drain**
  - Discard labware in Disposable Labware & Broken Glass box
  - If glassware/labware cannot be chemically decontaminated, it must be autoclaved to decontaminate

- All materials contaminated with agents used at BSL-3 or BSL-2/3 practices must be packed as MPW after decontamination
- Decontaminate chemically or by autoclaving.
- For chemical decontamination use an appropriate chemical decontaminant following manufacturer’s directions
  - Let stand for 30 minutes.
  - Decontaminated fluid must be collected as chemical waste and called for pick up by Chemical Waste Services
  - Dispose of empty decontaminated cell culture vessel in Disposable Labware & Broken Glass box



Building 10

Building 10C, ACRF,  
Animal Facilities in  
Building 10

Other NIH Buildings  
on Campus, including  
Animal Facilities

NIH Buildings off  
Campus

MPW Collection Services

<ul style="list-style-type: none"><li>• Packaged and labeled MPW from laboratories and patient care areas are to be placed in corridors for collection by the medical waste contractor</li></ul>	7:30 a.m. – 4:00 p.m. Seven days a week
<ul style="list-style-type: none"><li>• Packaged and labeled MPW will be picked up from the 10C elevator lobby</li></ul>	7:30 a.m. – 4:00 p.m. Seven days a week
<ul style="list-style-type: none"><li>• Take packaged and labeled MPW, as specified in packaging procedures above, to building loading dock or designated cold room</li></ul>	7:30 a.m. – 2:30 p.m. Seven days a week Monday through Friday (except holidays)
<ul style="list-style-type: none"><li>• Take packaged and labeled MPW, as specified in packaging procedures above, to building loading dock or designated cold room</li></ul>	Collected on scheduled days

**NOTE: After 2:30 p.m., Monday through Friday, weekends or holidays, MPW boxes should be stored in an appropriate refrigerator or freezer until disposal is available.**

# NIH Recycles: Reduce, Reuse & Recycle

Web Page

Containers

Please Rinse

Do Not Recycle

Green Procurement

**General Information** - Contact the Recycling Coordinator at (301) 402-6036 or (301) 496-7990

- Check the [NIH Recycles web page](#) and the [NIH Environmental Management System web page](#) for additional updated information

- All recycling containers will be identified by the blue and green NIH recycling logo and with information as to the specific material which can be recycled in the container. Call (301) 402-6349 to request additional containers

- Please rinse food/beverage containers before putting in recycle container

- Material contaminated with food products, infectious material, hazardous chemicals, radioactive materials or empty containers previously containing infectious material, hazardous chemicals, or radioactive materials
- Other materials which are not recyclable: Pyrex glass labware, polystyrene, glass slides, window or sheet glass

[Information on Green Purchasing](#)



What Can I Recycle?

Recycling Info  
Call (301) 402-6036  
or (301) 496-7990

Reduce ~ Reuse ~ Recycle



**All paper products**  
(Newspaper, magazines, scientific journals, catalogs, binders, Post-It notes, manila folders, envelopes, tissue and paper towel boxes - no tissues or towels, white or colored paper, frozen food boxes, and all paperboard)  
*Recycle in All Paper Products bin*

# What Can I Recycle?



## Commingled Recycling

(Empty aluminum cans and foil, all plastic bottles and containers - #1, 2, 3, 4, 5, 6, and 7 yogurt containers, steel and tins cans, glass bottles and jars, prescription bottles, and containers).

*Recycle in Commingled bins*



## Printer & Copier Toner Cartridges

*Recycle in Toner/Ink Jet Cartridge bin.  
NIH Charities receive \$1 for each recycled cartridge.*



## Pipette Tip Racks and Plastic #5

*Recycle in Pipette Tip Rack bin.  
The plastic is reused for flower pots*



## Electronics

(Computers, monitors, laptops, flash drives, keyboards, memory cards and hard drives)  
Call Personal Property Services at (301) 496-4247 for collection.



## All Batteries

Call (301) 496-4710 for collection For UPS Batteries see Chemical Waste Section



**Wooden Shipping Pallets** Call (301) 496-7990 for collection from loading docks.



## Construction Debris

(wood, metal, plastic, cardboard, drywall, dirt, ceiling tile, carpet and concrete) Project Officers submit a Site Selection Request Form for a dumpster. [Additional information on construction debris](#), call (301) 496-7990 with questions.



## Animal Bedding Compost

Call (301) 496-7990 to arrange the collection of uncontaminated animal bedding comprised of pine shavings, corn cob, hardwood (maple, birch, or beech), wood pulp from plants, bedding bags, and animal feed.



## Cafeteria Post-Consumer Compost

Use appropriate compost bins for these items ONLY: leftover food, paper products (i.e. napkins, containers, shells, trays, and cups without lid), and other compostable items (i.e. Greenware products).

## Styrofoam Take Back Program

Life Tech Styrofoam containers and gel packs are being collected at Building 10-B2 loading dock, Building 35, 37, and 50 loading dock in cubic yard boxes.



# General Waste

## Examples of General Waste That Cannot Be Recycled

## Materials Which Are NOT General Waste

Material free of any apparent or actual pathological/infectious, radioactive or hazardous chemical contamination.  
Note: Some laboratory material may be decontaminated and then discarded as general waste.  
[Waste Minimization and Pollution Prevention Guidance](#)

**MOST GENERAL WASTE CAN BE RECYCLED!**

- Decontaminated media or labware
- Pyrex glassware (other glassware can typically be recycled)
- Contaminated animal bedding
- Styrofoam or any polystyrene type materials with the exception of take back program. (see [Recycling Section](#))
- Non-compostable items grossly covered in food residue. (see [Recycling Section](#))

.....

- NEVER use an MPW box to dispose of general waste or confidential materials.
- Items which contain chemical, radioactive materials or the actual or perceived presence of pathogenic agents-
- “Sharps” (needles, syringes, scalpel blades, etc). (see [MPW Section](#))
- Empty 5 gallon (or larger) plastic or metal containers, such as those used for solvents or paint. (see [Chemical Waste Section](#))

## Office or Lab Waste

## Glass/Plastic Labware

## Liquid Culture Media

## Solid Media

## Animal Bedding

### Waste Management Procedures

- **Reduce, Reuse and Recycle – think recycling first before you trash it!**
  - Strive for [ZERO WASTE](#) where possible.
- .....
- Place non-recyclable uncontaminated or decontaminated labware in the Disposable Labware & Broken Glass box (NSN-8115-01-154-2305)
  - Close box and secure with filament tape
  - Glassware/labware that cannot readily be chemically decontaminated should be autoclaved prior to disposal as general waste
- .....
- Before disposal, cell culture media must be decontaminated (see [MPW Section](#) for instructions) either by steam autoclave or adding disinfectant directly to vessel or treating pooled spent media
  - Decontaminated media must be collected as chemical waste and called for pick up by Chemical Waste Services
  - Dispose of empty, decontaminated cell culture vessels in the Disposable Labware & Broken Glass box
- .....
- Autoclave (see [MPW Section](#)), then dispose of the bag and solid media into a Disposable Labware & Broken Glass box
- .....
- Most contaminated bedding may be decontaminated by autoclaving and disposed of as general waste
  - Contaminated animal bedding which cannot be decontaminated by autoclaving must be disposed of as MPW
  - Uncontaminated animal bedding should be composted, (see [Recycling Section](#))





# Waste Collection and Disposal Supplies

Stock Number	Description	Size/Unit	Usage
NSN-8105-00-L04-2610	Bag closures, plastic bag ties	12" long	Seal bags w/animal carcass/bedding
NSN-6530-01-282-6378	Bag, biohazard autoclave w/process indicator	small 8" X 12"	Autoclave MPW/media/labware
NSN-6530-01-142-2255	Bag, biohazard autoclave w/process indicator	medium 19" X 23"	Autoclave MPW/media/labware
NSN-6530-01-218-4644	Bag, biohazard autoclave w/process indicator	large 25" X 35"	Autoclave MPW/media/labware
NSN-8105-01-195-8730	Bag, clear plastic	13" X 24"	Collect chemically contaminated solids
NSN-8115-00-L04-0680	MPW Box kit	5 boxes,	10 bags & ties MPW collection and disposal
NSN-8105-41-044-5727	Replacement bags for MPW boxes	19.5" X 44.5"	Animal carcasses/tissue/bedding
NSN-8115-01-154-2305	Box, disposable labware/broken glass	floor	Disposable labware and broken glass
NSN-6530-01-294-2865	Container, puncture resistant	small	Collect sharps for disposal
NSN-6530-01-274-5099	Container, puncture resistant	medium	Collect sharps for disposal
NSN-7690-00-833-0318	Label, Caution – Radioactive Material tape	roll	Identify radioactive material
NSN-8135-01-025-2532	Pads, absorbent paper	18" X 20"	Absorb residual liquids
Call DEP, 301-496-7990	Sodium hypochlorite (Mercury Free bleach)	1 gal	Disinfect/inactivate
NSN-6840-00-526-1129	Wescodyne povidine-iodine based solution	bottle	Disinfect/inactivate pathogen(s)
NSN-7530-00-L07-5985	Tag, Chemical Waste	pack of 10	Identify chemical waste
NSN-7530-00-L07-8835	Tag, Radioactive Waste Pick-up Receipt	pack	Identify radioactive waste
NSN-7510-00-290-8036	Tape, filament	roll	Close waste bags/seal boxes

Available from Radioactive Waste Service (301) 496-4451

Description	Size/Unit	Usage
Stepcan	One size	Collect solid radioactive waste
Carboy plastic container	2/5 gallon	Collect aqueous radioactive waste
Mixed waste container	4/10/20 liter	Collect liquid mixed waste

Available from Chemical Waste Disposal Service (301) 496-4710

Solvent safety cans	3/5 gallon	Collect flammable chemical waste
Liquid waste container	3/5 gallon	Collect chemical waste
Plastic waste pail	5 gallon	Collect solid gels
Funnel with lid closure	3/5 gallon containers	
Secondary containment pan rectangular	18" X 26"	Collect spills and overfills
Secondary containment pan round	17" diameter	Collect spills and overfills
Empty chemical bottle tote rectangular	19"x16"x15.5"	Collect empty chemical bottles
Empty chemical bottle tote rectangular	19.5"x15.5"x13"	Collect empty chemical bottles
Empty chemical bottle tote upright	15.25"x11"x19.9"	Collect empty chemical bottles

Available from Recycling Service (301) 402-6349

Interior metal collection container for recycling "All Paper Products"	37" X 15" X 15"	Collect all paper products, for corridors or office suites
Interior metal collection container for recycling "Commingled Materials"	37" X 15" X 15"	Collect commingled materials, for corridors or office suites
Interior metal collection container for recycling "Toner/Ink Jet Cartridges"	37" X 15" X 15"	Collect Toner/Ink Jet, copier cartridges, for corridors or office suites
Interior metal collection container for recycling "Pipette Tip Racks"	37" X 15" X 15"	Collect pipette tip racks
Large cardboard collection container for paper recycling in copy rooms	30" X 24" X 20"	Collect all paper products
30 cubic yard dumpster for construction debris recycling	30 yard open dumpster	Collected mixed construction debris for building renovation projects

Hamper for office clean out



Collect all paper products from office clean out