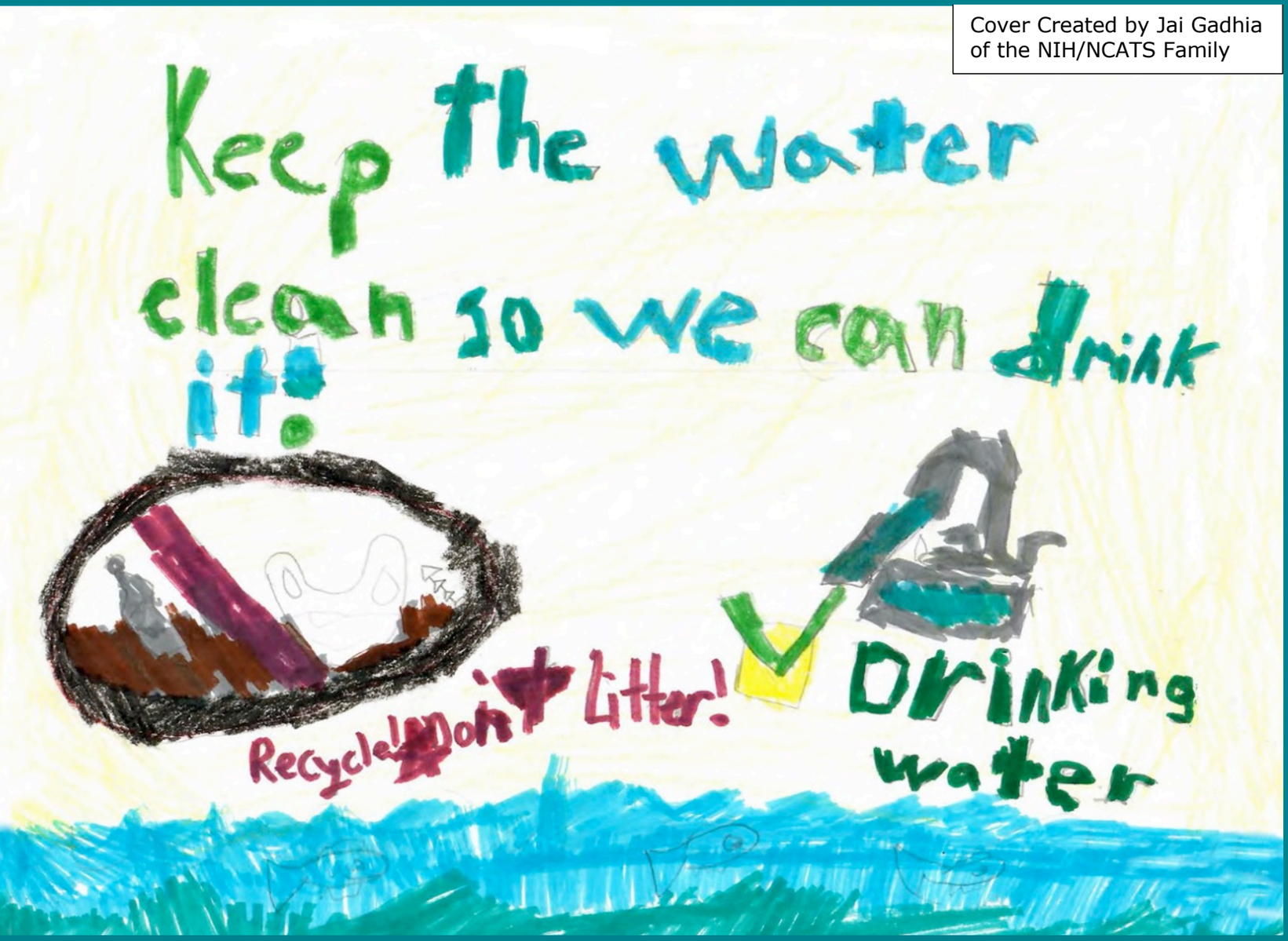
NIH Waste Disposal Guide 2022

NIDA

Cover Created by Jai Gadhia of the NIH/NCATS Family



For routine requests and general information regarding safety contact: NIDASafety@mail.nih.gov
To report work related emergencies or other urgent safety issues contact x2400 (443-740-2400)

Spills or Emergencies - call:

Fire or Police Emergency – Call 911 or 9-911

Chemical /Biological Spills – Contact – NIDA Safety-443-740-2400

Up to date information can be found at:
https://nems.nih.gov/NEMS-locations/Pages/bayview-campus-at-baltimore-maryland.aspx

National Institutes of Health
Office of Management

Cover Created by Jai Gadhai

A little about Jai:

Jai is a Fourth grader, who loves art and the environment. He's also a cub scout, baseball player, book enthusiast, robotics tinkerer, young entrepreneur, and innovator, excellent student, and a sweet boy all around. He and his older brother created a product called Vegetarian Dreams, which is a wishbone that they designed using polymer clay. Jai wanted to include everyone in the Thanksgiving wishbone tradition, including vegetarians such as himself. So, he designed this product and successfully sold it at a fair last year.

Jai's Mom Bio

https://ncats.nih.gov/staff/gadhiaad

NIH Laboratory Waste Disposal Matrix

	Acceptable Disposal Methods[3]			
Laboratory (Dry) Waste [✓ = Best Practice/Recommended Method]	**Chemical Waste**	**MPW**	**Disposable Labware and Broken glassware (Solid waste/ Trash)**	**Recycle**
PPE (Disposable Lab coats, gloves, booties, face mask, absorbent pads etc.)				
Contaminated during Biomedical[1] procedures	Not Authorized	✓	Not Authorized	Not Authorized
Contaminated during Chemical procedures	✓	Not Authorized	Not Authorized	Not Authorized
General Use (uncontaminated)	✓	✓	Not Authorized	Not Authorized
Labware (Beakers, flasks, graduated cylinders, pipettes, test tubes, etc.)				
Contaminated glassware - Biomedical Residue	Not Authorized	✓	Not Authorized	Not Authorized
Contaminated glassware - Chemical Residue	✓	Not Authorized	Not Authorized	Not Authorized
Decontaminated/Disinfected/Unused or Broken glassware[2]	Acceptable	Acceptable	✓	Not Authorized
Contaminated plastic labware – Biomedical Residue	Not Authorized	✓	Not Authorized	Not Authorized
Contaminated plastic labware – Chemical Residue	✓	Not Authorized	Not Authorized	Not Authorized
Decontaminated empty reagent bottles (plastic or glass) (Autoclave or Bleach)[2]	Acceptable	Acceptable	✓	Not Authorized
Empty Reagent bottles	✓	Not Authorized	Not Authorized	Not Authorized
Non-Hazardous plastic labware (including pipettes and pipette tips)[2]	✓	Acceptable	Acceptable	Not Authorized
Decontaminated/Disinfected/Unused plastic ware	Acceptable	Acceptable	✓	Not Authorized
Labware packaging	Not Authorized	Not Authorized	✓	Not Authorized
Pipette Tip Racks	Not Authorized	Not Authorized	Not Authorized	✓
Pathological materials				
Animal carcasses, anatomical waste, organs, tissues from humans or animals (no liquids)	Not Authorized	✓	Not Authorized	Not Authorized
Sharps				
Sharp's container w/ scalpels, razor blades, Pasteur & micro-fine pipettes, all needles & syringes	Not Authorized	✓	Not Authorized	Not Authorized
Miscellaneous				
Waste containing or contaminated with infectious or pathogenic agent(s)	Not Authorized	✓	Not Authorized	Not Authorized
Animal bedding contaminated with Cytotoxic or Cytostatic drugs which cannot be decontaminated through autoclave	Not Authorized	✓	Not Authorized	Not Authorized
Animal bedding - Decontaminated	Not Authorized	Acceptable	✓	Not Authorized
Animal transport boxes that contained infectious animals	Not Authorized	✓	Not Authorized	Not Authorized
Materials contaminated with residual Cytotoxic or Cytostatic drug(s) (i.e., empty drug vials, patient care materials, towels, absorbent pads, catheters, IV Bags, <3% Liquids)	Not Authorized	✓	Not Authorized	Not Authorized
Biohazard Bags[3]	Not Authorized	✓	Not Authorized	Not Authorized

1 Biomedical– waste with the presence of pathogenic agents, human tissues, animal carcasses, tissues from biomedical research, and other discarded materials that are regulated as medical waste by the U.S. Department of Transportation, state or local laws.

2 Disposal through Solid waste requires material containment in the Disposable Labware & Broken Glass box (NSN-8115-00-N19-2305)

3 Call the Division of Radiation Safety (DRS) for proper disposal of all dry radioactive materials/wastes from laboratories even if combined with another waste stream.

Chemical Waste

Non-radioactive chemical (solids, liquids, gases) and other waste with hazardous chemicals. Waste Minimization and Pollution Prevention Guidance **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/chemicalwaste.aspx)**

Examples of Chemical Waste

- 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 or Cytostatic agents & prescription drugs and antibiotics (non-controlled substances)
- Non-returnable gas cylinders and lecture bottles
- Gels contaminated with ethidium bromide, acrylamide, or other stains
- Pharmaceuticals containing items (e.g., 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 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

Additional information on chemical waste tag **(https://nems.nih.gov/environmental-programs/Pages/Chemical-Waste-Tag.aspx)**

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)
- Strong 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 **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/chem_compat.aspx)**

Waste Container Storage

- Store in the laboratory where the waste is generated while awaiting pickup
  - **DO NOT PUT WASTE CONTAINERS IN THE HALLWAY 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 (Except where authorized by the NIH Drain Discharge Guidance - **https://nems.nih.gov/Documents/NIH_Drain_Discharge_Guide.pdf)**, in Medical Pathological Waste (MPW) boxes, or trash bins and dumpsters
- Discarding radioactive materials, oxidizers, heavy metals, phenols, acids, bases, chemicals deemed toxic by inhalation hazards, explosive and reactive chemicals 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**

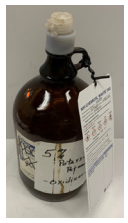
Waste Minimization and Toxic Chemicals Reduction

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 Initiative **(https://nems.nih.gov/environmental-programs/Documents/Toxic_Chemical_Reduction_Initiatives.pdf)**
- Before purchasing new chemicals, check out NIH's free surplus chemical inventory at the NIH FreeStuff website **(https://stuff.nih.gov/Pages/Home.aspx)**. Contact DEP (301-496-7990) for information on NIH's solvent recycling program

Waste Management Procedures

Chemical Waste Collected in Empty Chemical Bottles



Waste collection in empty containers

- Empty chemical bottles may be used to collect small quantities of chemical waste
- Cross out the original label and use a chemical waste tag
- A completed chemical waste tag is required for each bottle before pick-up by the Chemical Waste Services

Multiple Containers of Chemical Waste

- Multiple containers of compatible chemicals may be placed in a single box for disposal
- The chemical 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 their original containers can be placed into an empty box with a chemical waste tag attached to the box. Complete generator information and chemical characteristics
- Do not stack chemical containers on top of each other
- Do not seal the box

Larger Volume of Aqueous Mixtures Containing Organic Compounds

Large volume of aqueous waste collection

- Chemical waste containers (3 or 5 gal) can be requested from Chemical Waste Services, **Pittj@mail.nih.gov**
- Combine only compatible chemicals in a container. Information on chemical compatibility **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/chem_compat.aspx)**
- Examples of waste placed in these containers include formalin, phenol, chloroform, and aqueous liquids with trace organics. Information on what goes in these containers **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/WhatGoesinChemicalWasteContainers.aspx)**
- 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

Flammable Liquids

Large volume of flammable waste collection

- Use only the chemical waste carboys provided by the Chemical Waste Services, email **Pittj@mail.nih.gov** to request a chemical waste carboy.
- 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 within the chemical waste carboy should not exceed the "fill" line demarcated on the can
- HPLC users can request containers with special fittings to connect to the HPLC machine, **Pittj@mail.nih.gov**
- Do not place radioactive material, inorganic/organic acids, bases, metallic compounds, or mixtures with high water content in these containers
- Store waste containers in secondary containment pans away from ignition and heat sources

Chemically Contaminated Dry Waste

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 lab coats

Continued on next page

Chemical Waste

Chemically Contaminated Gels

- All Gels contaminated with ethidium bromide, polyacrylamide, 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, contact the Chemical Waste Services, **Pittj@mail.nih.gov**
- 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, contact Division of Environmental Protection (DEP), **Pittj@mail.nih.gov** 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 **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/ExplosiveandReactiveChemicals.aspx)**

Disposal of Narcotics and Controlled Substances

- Human use, call Clinical Center Pharmacy, (443) 740-2350
- Non-human use, call Veterinary Resources Pharmacy, (443) 740-2138

Laboratory Moves Transferring Chemicals

- Contact DEP for guidance as soon as you become aware of you move **Pittj@mail.nih.gov**
- Laboratories are responsible for procuring this service from approved vendors

Laboratory Chemical Move Procedure **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/LaboratoryChemicalMoveProcedures.aspx)**

Empty Chemical Bottles

- All empty bottles (glass, plastic, and metal) that previously contained chemicals (liquid, solid) or buffer saline solutions can be recycled if collected by the Chemical Disposal Service. Leave the cap on the empty bottle
- Contact Chemical Waste Services to request collection totes for the empty bottles **Pittj@mail.nih.gov**
- Empty bottles and totes are to be stored in labs before 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 **Page 5 - Waste Collection in Empty Bottles**)
- **For further guidance, refer to Lab Waste Disposal Matrix (See Table in the beginning of this guide)**
- **Do not place empty chemical bottles into or around commingled recycling bins**

Batteries

- UPS (uninterruptible power source) Batteries must be removed from the UPS casing before pick up. Email **Pittj@mail.nih.gov** for Battery pick up.
- 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 are prohibited in accordance with NIH Policy Manual Issuance 3033 **(https://policymanual.nih.gov/3033)**
- Exceptions to the prohibition on procurement and use may be granted for limited scientific and medical benefits of mercury or mercury compounds for which there are no acceptable alternatives
- To procure or use mercury product(s), complete NIH Form 2936 **(https://oma.od.nih.gov/Lists/DMSFormsList/Attachments/304/NH2936.pdf)**.
- For incidents involving mercury spills/thermometer breakages, contact the Fire Department. Follow-up notification should be made to DEP **Pittj@mail.nih.gov** and DOHS Safety at **NIDASafety@mail.nih.gov**

NIH's Mercury Remediation Program **(https://orf.od.nih.gov/EnvironmentalProtection/MercuryFree/Pages/MercuryContaminationinFacilities.aspx)**

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

Multihazardous Waste

Examples of Multihazardous Waste

Multihazardous waste contains 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 radiolabeled 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 the generation of multihazardous waste, contact the Division of Environmental Protection (DEP), **Pittj@mail.nih.gov** or the Division of Radiation Safety (DRS), (301) 496-5774

Minimize Generation Inactive Waste

- Minimize volumes generated if the generation of multihazardous waste cannot be avoided
- PRIOR to beginning work activities that 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 the Department of Health and Safety (DOHS) at **NIDASafety@mail.nih.gov** or443-740-2400, 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

Do Not Mix

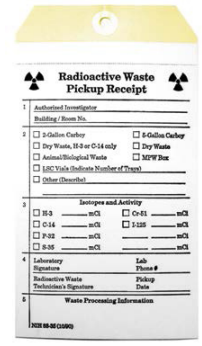
- Liquid mixed waste with solid radioactive waste
- Hazardous chemicals with radioactive aqueous wastes
- Segregate by isotope half-life: very short (<30 days), intermediate (30-120 days), and long (>120 days)
- Flammable liquids with radioactive material
- Radioactive aqueous wastes with high organic 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 with 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) or equivalent chemical waste contractor supplied tag



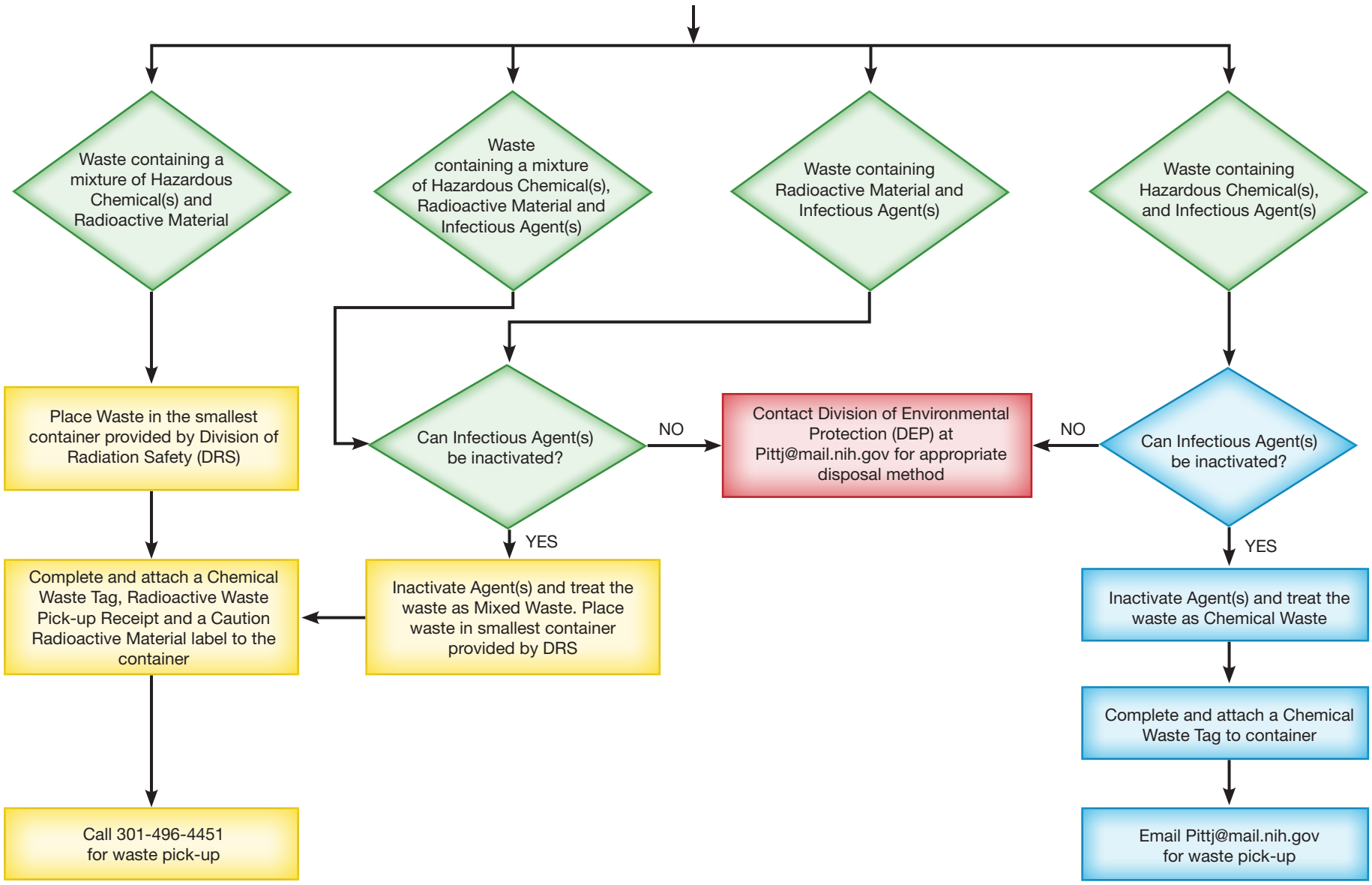
Shielding Requirements

- 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 millirems in a year in an 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 the 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 the 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 **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/rad_procedures.aspx).**

- 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://drsportal.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

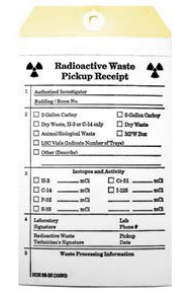
- Liquid waste with dry waste
- Short half-life (< 120 days) with long (> 120 days) half-life waste
- Waste containing chloroform or trichloroacetic acid (TCA) with any other aqueous radioactive waste
- Aqueous solutions with mixed wastes
- For mixed wastes, see segregation policy in see **Multihazardous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

Aqueous Waste

- **Do not discard radioactive wastes into sink 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 the 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, amount, and concentration on the Chemical Waste Tag

Disposable Labware

- Use Disposable Labware & Broken Glass box (NSN-811500-N19-2305)
- 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 or Tissues, Bedding 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 come 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 the 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 the 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 the manufacturer's specifications and validated monthly

Lead

- Lead which contains or is contaminated with radioactive material is a mixed waste—see **Multihazardous Waste Section**

Liquid Scintillation Vials

- Vials with hazardous chemical(s) are a mixed waste—see **Multihazardous Waste Section**
- Segregate securely capped vials according to radionuclide—H-3 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 the 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** 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

Waste must not be contaminated with radioisotopes or hazardous chemicals

- Waste containing or contaminated with the infectious or pathogenic agent(s)
- Pathological waste includes: animal carcasses and anatomical waste (organs, tissue from humans or animals)
- Sharps containers (scalpels, razor blades, Pasteur pipettes, micro-fine pipette tips, capillary pipettes, pathology glass slides, 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 or cytostatic drug(s): empty cytotoxic or cytostatic drug vials, drug dispensing apparatus, patient care materials, towels, absorbent material, or similar materials
- Other discarded materials that are regulated as medical waste by the U.S. Department of Transportation, state or local laws

MPW Contaminated with Radioactive Materials or Hazardous Chemicals

General Information

- For disposal of MPW which contains or is contaminated with radioactive material or hazardous chemicals, refer to the **Multihazardous Waste Section**

Decontaminate

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, (443) 740-2400

Disinfectants

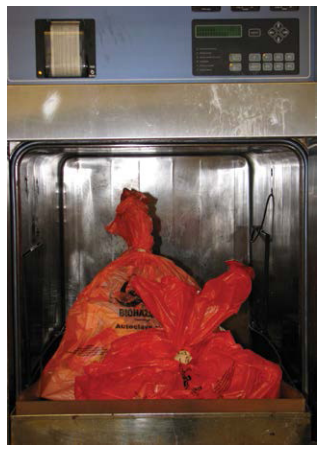
- Suitable chemical disinfectants include:
  - Sodium hypochlorite (bleach at 5.25%), (**Mercury Free**), 1:10 dilution

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

Steam Sterilization/ Autoclave

- 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 autoclavable 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 a minimum 121° Centigrade
- Allow bags to 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



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Medical Pathological Waste (MPW)

The MPW Box ("Burn Box")

Use MPW Box ONLY for MPW

- Lab personnel are responsible for restocking their work spaces with MPW boxes, bags, tape and/or ties. MPW boxes, bags, tape and ties are located in the NIDA Medical Pathological Waste (MPW) Holding Area **02B416** for the BRC and the loading dock for Triad. If supplies are low in the restocking areas, please contact the Environmental Manager, **Pittj@mail.nih.gov**. The MPW box MUST NOT be used for disposal of general trash such as soda cans, paper, cardboard, bottles, etc., or for storage or moving laboratory equipment, office equipment, or household items The MPW box MUST NOT contain free liquids, or solids, such as ice, that may melt.
- Only use provided MPW box. Please contact **Pittj@mail.nih.gov** for any questions and concerns

Packing Procedure

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 the 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 the box top label area

Waste Management Procedures

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

- 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 an MPW Box**
- Fill 3/4 full, snap the lid closed, and discard container in an MPW box
- Do not compress or pack down materials in container
- Items or apparatus that require a large sharp box, please contact DEP for the guidance (E.g., Da Vinci Surgical Apparatus).
- Contact DEP for assistance for safe and proper disposal of sharps (needles & syringes) for personal use at work.

Labware

- 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

Cell Culture Media, Blood and Body Fluids or Solid Media

- All materials contaminated with agents used BSL-2, or lower practices must be packed in a clear autoclave bag. Autoclave or chemically decontaminate and transfer into disposable labware box/solid waste.
- 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

MPW Collection Services

Bayview

Biomedical Research Center (BRC)

- MPW pickups will occur on Tuesday's and Thursday's
- Prior to proper closure, MPW shall never be more than 3/4 full or weigh more than 40lbs.
- For MPW pickups on floors outside of 5-8, please submit a work request for a pickup (**https://58000.nih.gov/default.aspx**)

MPW accumulation areas
- BRC-Room 02B410
- BRC Vivarium-Cool Room 02C001b.1

Triad Technology Building

- MPW pickups will occur daily, place the MPW box outside of laboratory door. at the end of the day.
- Prior to proper closure, MPW shall never be more than 3/4 full or weigh more than 40lbs.

MPW accumulation areas
- Triad Loading dock, 1st Floor

NIH Recycles: Reduce, Reuse & Recycle

General Information - Contact the Recycling Coordinator at **Pittj@mail.nih.gov**

Web Page

- Check the NIH Recycles web page **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/recycling.aspx)** and the NIH Environmental Management System web page **(https://nems.nih.gov/Pages/default.aspx)** for additional updated information

Containers

- All recycling containers will be identified blue or green - to request additional containers or for recycling information about the specific material that can be recycled in the container email **Pittj@mail.nih.gov**.

Please Rinse

- Please rinse food/beverage containers before placing into the recycling container

Do Not Recycle

- 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

Green Procurement

Information on Green Purchasing **(https://orf.od.nih.gov/EnvironmentalProtection/GreenPurchasing/Pages/default.aspx)**

What Can I Recycle?

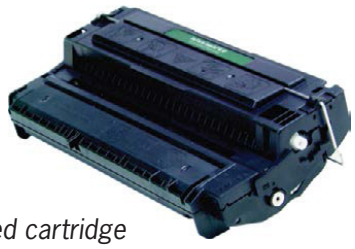
Recycling Info Email
Pittj@mail.nih.gov

Reduce ~ Reuse ~ Recycle

All paper products
Newspaper, magazines, scientific journals, catalogs,
Post-It notes, manila folders, envelopes, tissue and paper towel boxes only – (**NO** tissues or towels), white or colored paper, frozen food boxes, and all paperboards recycled in the Mixed Paper bins

What Can I Recycle?

Container, Can, Bottle (Commingled) Recycling
(Empty aluminum cans and foil, all plastic bottles and containers - #1, 2, 3, 4, steel and tins cans, and containers).
No Laboratory Bottles, Medical Plastics, Plastic Wrap or Bags, Utensils, Chip Bags, Food Wrappers, Foam, Yogurt containers, Prescription bottles, Aerosol Cans, or glass bottles and jars
Recycle in Commingled bins



Printer & Copier Toner Cartridges
Recycle in Toner/Injet 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 flowerpots

Electronics
(Computers, monitors, laptops, flash drives, keyboards, memory cards, and hard drives)
Email Personal Property Services at **quindell.jones@nih.gov** for collection.

All Batteries
Email **Pittj@mail.nih.gov** for collection. For UPS Batteries see Chemical Waste Section

Wooden Shipping Pallets
Place at the loading dock pallets accumulation area.

Construction Debris
(wood, metal, plastic, cardboard, drywall, dirt, ceiling tile, carpet, and concrete)
Email **phelpsra@mail.nih.gov** with questions.

Cardboard Recycling
Flatten cardboard and place them next to general recycling bins.

General Waste

Material free of any apparent or actual pathological/infectious, radioactive, or hazardous chemical contamination. Note: Some laboratory materials may be decontaminated and then discarded as general waste.
Waste Minimization and Pollution Prevention Guidance **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/GeneralWasteMinimizationandPollutionPreventionGuidance.aspx)**

MOST GENERAL WASTE CAN BE RECYCLED!

Examples of General Waste That Cannot Be Recycled

- Decontaminated media or labware
- Pyrex glassware (other glassware can typically be recycled)
- Contaminated animal bedding
- Items heavily covered in food residue

Materials Which Are NOT General Waste

- NEVER use an MPW box to dispose of general waste or confidential materials.
- Items that contain chemical, radioactive materials, or the actual or perceived presence of pathogenic agents-
- "Sharps" (needles, syringes, scalpel blades, etc.). (see **Laboratory Waste Disposal Matrix**)
- Empty 5 gallon (or larger) plastic or metal containers, such as those used for solvents or paint. (see Empty Chemical Bottles Recycling Program - **https://nems.nih.gov/environmental-programs/Documents/EMPTY_CHEMICAL_BOTTLES_RECYCLING.pdf**)

Waste Management Procedures

Office or Lab Waste

- **Reduce, Reuse and Recycle – think recycling first before you trash it!**
- Strive for ZERO WASTE **(https://orf.od.nih.gov/EnvironmentalProtection/WasteDisposal/Pages/ZeroWaste.aspx)** where possible.

Glass/Plastic Labware

- Place non-recyclable uncontaminated or decontaminated labware in the Disposable Labware & Broken Glass box (NSN-811-500-N19-2305)
- Before disposal, close box and secure with filament tape
- Glassware/labware that cannot readily be chemically decontaminated should be autoclaved prior to disposal as general waste

Liquid Culture Media

- 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

Solid Media

- Autoclave (see **MPW Section**), then dispose of the bag and solid media into a Disposable Labware & Broken Glass box

Animal Bedding

- 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

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	15" X 24"	Collect chemically contaminated solids
NSN-8115-00-L04-0680	MPW Box Kit (5 boxes,10 bags, ties)	Kit, 5 boxes	MPW collection and disposal
NSN-8105-01-L04-0681	Replacement bags for MPW boxes, 25-count	19" X 44"	Animal carcasses/tissue/bedding
NSN-8105-00-N20-4150	**Replacement bags for MPW boxes, 100-count**	37" X 45"	Animal carcasses/tissue/bedding
NSN-8115-00-N19-2305	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-7930-00-N20-3088	Sodium hypochlorite (**Mercury Free** bleach)	1 gal	Disinfect/inactivate
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 of 25	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 Pittj@mail.nih.gov

Description	Size/Unit	Usage
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	3/5 gallon
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 Pittj@mail.nih.gov

Description	Size/Unit	Usage
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