

RADIOACTIVE WASTE MANAGEMENT

Environmental Health & Safety



VISION STATEMENT

We provide expert guidance and timely service to the University Community through our commitment to health and safety. Employing best practices and collaboration, and by building long term relationships, we promote a productive and safety conscious work environment.

Environmental Health & Safety
Morningside Campus: 212-854-8749
Columbia University Medical Center:
212-305-0303
www.ehs.columbia.edu

In Case of a Spill:

1. Immediately call the RS Office at (212) 854-8749 or (212) 305-0303 to report any radioactive spill.
2. Avoid walking through the spill.
3. To clean small spills, wear disposable gloves, shoe covers and lab coats to clean the spill with absorbent pads from the outside, inward.
4. Use a labeled radioactive waste container to collect spill debris.
5. Using wipe testing techniques, check the area for any residual contamination using liquid scintillation counting methods.
6. If readings are above background, re-clean using a generic cleaner such as RadCon spray, then resurvey.
7. Wash your hands thoroughly and check your clothing and shoes for contamination using a Geiger counter.

Spill kit contents should include:

Nitrile gloves, shoe covers, safety glasses, spill pads, general cleaner/detergents such as RadCon spray, "Caution Radioactive Material" labels, radioactive waste labels, clear plastic bags and wipe testing kit.



RSO re-cleaning a small radioactive spill area.

Radioactive Clearance Procedures:

Lead and Equipment Disposal

- Contact RSO for clearance.
- All sources &/or standards and chemicals must be removed from the equipment by the lab and managed as radioactive waste.
- All surfaces must be decontaminated by the lab.

In addition, for Lab Exit Clearances

- Contact RSO to perform exit clearance.
- All radioactive wastes must be removed.
- Wipe tests must be conducted by the lab.



Useful tips:

- Eating and Drinking are strictly prohibited while in the laboratory.
- Wear a lab coat when working with radioactive materials (RAM).
- Always wear disposable gloves when handling RAM.
- Use appropriate shielding.
- Wash your hands frequently.
- Use a fume hood when working with volatile materials.
- Check the area for contamination after you finish using liquid scintillation counting.



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Radioactive Waste:

Radioactive materials are strictly regulated at the federal, state and local levels. Proper management of radioactive isotopes from receipt through disposal is critical to ensuring a safe workplace that complies with all applicable rules and regulations.

Waste Guidelines:

- Do not mix different types of waste together, such as LSV & dry solid waste.
- Tritium (^3H) & Carbon-14 (^{14}C) may be collected together in a labeled waste container; separate all other isotopes.
- Labels must be completed accurately & legibly including header information and all radioactive waste components.
- One isotope per label per container. If using more than one isotope, permitted only for ^3H & ^{14}C , then use separate columns on the waste label.

Decay In Storage Guidelines:

Radioactive wastes containing short-lived isotopes may be submitted for pickup & decay by EH&S. EH&S will then store the material for a minimum of 10 half-lives.

Afterwards:

- EH&S will meter the material to ensure the dose rate is at background.
- EH&S will confirm all radioactive markings and labels are defaced upon clearance for disposal.



Radioactive Waste Pick-up Request:

<http://vesta.cumc.columbia.edu/ehs/radioactivewastepickup/>

Types of Waste:

Dry Solid Waste

- Debris including: gloves, bench pads, empty defaced radioactive containers.

Radioactive Animal Carcasses

- Radioactive animal carcasses must be placed in labeled, sealed, clear bags.
- Animal carcasses containing ^3H &/or ^{14}C $< 0.05 \mu\text{Ci/g}$ are exempt and may be disposed of as regulated medical waste. After clearance by RSO, radioactive warning labels must be removed prior to disposal.

Biological Radioactive Waste

- Material containing radioactive isotopes and potentially infectious substances such as bodily fluids.
- The biological radioactive waste must be rendered non-infectious prior to waste pickup from the lab.

Liquid Scintillation Vials (LSV)

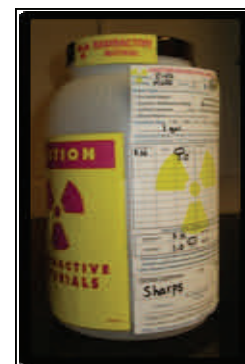
- Nonhazardous scintillation cocktails with a flash point $>140\text{F}$ must be used such as UltimaGold.
- LSV containing ^3H &/or ^{14}C $< 0.05 \mu\text{Ci/g}$ must not be mixed with other isotopes.

Mixed Waste

- Labs that generate mixed waste (chemical and radioactive) must review the Mixed Waste Policy on the EH&S website at: <http://www.ehs.columbia.edu/mwPolicy.html>
- Examples of mixed waste include: HPLC waste containing acetonitrile and a radionuclide, phenol chloroform mixtures used in extractions of radiolabeled nucleic acids.

Radioactive Sharps

- Needles, pipette tips, scalpels, razor blades.
- Sharps must be placed in a rigid container for collection. Affix a “Caution Radioactive Material” and radioactive waste label to the container.
- Infectious sharps must be collected in a **red** regulated medical waste sharps container.
- Replacement red, sharps containers may be requested through EH&S at Morningside or Facilities at CUMC at 5-HELP ext. 3.



Aqueous Radioactive Waste

- Water and buffer (salt or sugar solutions).
- Do not mix solvents (ex. ethanol), dyes, urine, blood, or animal feces into aqueous radioactive waste.
- ^3H & ^{14}C may be consolidated together in a labeled waste container; separate all other isotopes.

