

HAZARDOUS/RADIOACTIVE MATERIAL COLLECTION PROCEDURES

Most used and/or unwanted chemicals and/or radioactive material must be managed/disposed through Environmental Health and Safety (EHS) to ensure compliance with applicable regulations. This SOP describes the process for accumulating and requesting collection of chemicals and/or radioactive material from your workplace by EHS staff.

Hazardous Material Collection Containers

To ensure compliance with regulatory requirements, observe the following rules pertaining to collection container accumulation, maintenance, and labeling.

1. Ensure that the collection container is labeled immediately upon placement of chemicals into the container. At a minimum, the container must be labeled with the **fully written, proper chemical name** of the material contained within and wording to indicate if the chemicals are "USED," "SPENT," "EXCESS," etc. If it contains a mixture of chemicals, label the container with the names of all components in the mixture. When the material is identified by trade name, include the proper chemical name in parenthesis (if known). If the collected material is one of many solutions provided in a manufactured kit and the chemical composition is not known because it is proprietary in nature, list the manufacturer, the name of the kit, and the solution name (i.e., Biotech, Inc, DNA Preparation Kit, Solution 2). Avoid using the Hazardous Materials Collection Tag as the sole means of labeling.
2. Label the container to indicate the percent composition for mixtures. This is in addition to fully written chemical names of all chemical constituents, which is required. This information will facilitate completion of the collection tag when the container is full
3. Collection containers for radioactive material (including non-liquids) must be additionally identified with the radiation trefoil symbol, the words "Radioactive Material", and the isotope. Collection containers must be segregated by isotope. Only **dry** non-hazardous laboratory trash (e.g., paper, plastic, glass, etc.) containing H-3 and C-14 may be combined.
4. Liquids containing radioactive material must be neutralized to have a pH greater than 4, but less than 10.
5. Only use containers that are in good condition (e.g., tight-fitting lids, no leaks, no corrosion, and no serious dents).
6. Choose containers that are compatible with the contents (e.g., do not place acids in metal containers).



7. Do not place incompatible or unlike chemicals in the same container or use a container that previously held an incompatible chemical. Do not combine used radioactive material with used non-radioactive material.
8. Do not overfill the container. Leave 3-inches of headspace in 1-gallon containers and 1-inch of headspace in 5-gallon containers.
9. Collection containers must be kept closed at all times, except when immediately adding or removing materials. Do not leave funnels in collection containers. Use a lid that will prevent the material from spilling if the container is tipped over.
10. Store the container in a suitable location for the hazards present (for example, in a flammable liquids storage cabinet if the contents are flammable, etc.). Utilize secondary containment to minimize adverse effects of leaks and spills.
11. Store the container only in the same room where it was generated. Never move a container from one location to another while awaiting pickup. Never pour the contents into a central collection container (for example, a drum) located elsewhere.
12. Once the container is full, is at the end of a process, or it is decided that a container of unused or reusable material is no longer needed, request collection by completing a hazardous material collection tag following the process described below. **Note: Submit requests for pickup in a timely manner. Do not wait to accumulate a large quantity of chemicals before requesting pickup by EHS.**

Hazardous Material Collection Tags

A tag system is used to identify those chemicals intended for collection by EHS. The tag is also used as a notification system to alert EHS staff that chemical collection is requested at a given location. Tags are referred to as “Hazardous Materials Collection Tags” and they are used for a variety of materials, including used chemicals, unwanted excess chemicals, regulated empty chemical containers, and radioactive materials.

Usually, a single tag is used for each container. However, small containers (e.g., vials) of the same material that are packaged in a common outer container can be tagged with a single tag. Contact EHS at 402.472.4925 or ehs@unl.edu to request blank tags. Blank tags are sent by campus mail so we will need to know: # of tags you request, your name, your building & room number, the Plus4 of your building’s address. The Plus4 is part of the zip code for the building. For example, the EHS zip code is 68583-0824. -0824 is the Plus4 part of our address.

Note: if you are planning a laboratory cleanout, please refer to the EHS SOP, **Laboratory Decommissioning** and contact us before requesting a large quantity of blank tags.

Tags consist of three sheets of carbon-less paper. Use a pen and press hard when writing to make sure the information is legibly transferred to the bottom copy. A completed tag minus the top copy should be affixed to a container when the container is full, it is decided that a container of unused or reusable material is no longer needed, or no more material is intended to be added to the container (i.e., at the end of a process). The top copy may be dropped at



the EHS offices, weekdays 7:30 a.m. – 4:30 p.m. or sent via campus mail to: EHS, Warehouse1, EC -0824.

Please follow these instructions for completing tags:

EHS Use Only: Do not write in this section of the tag.

Authorized User/Principal Investigator: Enter the first and last name of the researcher/supervisor of the work area. Do not use names of students, temporary employees, or technicians.

Phone #: Enter a phone number for the person who has knowledge of the material.

Completed by: Enter the name of the person who completed the tag.

Department: Enter the name of the department (e.g., Chemistry).

Campus: Enter either East Campus (EC) or City Campus (CC).

Building/Room #: Enter the actual location where the material is located. Do not use office or mailing addresses.

Container Size: Enter the actual size of the container (e.g., vial, pint, gallon, quart, 5-gallon, 13-gallon bag, 30 gallon, 55 gallon, etc.).

Physical State: Check the box that most correctly describes the material (i.e., liquid, solid, or gas).

Container Type: Check the appropriate box to indicate if the container is fiber (e.g., bag), metal, glass, or plastic.

Used/Unused/Unopened: Check the appropriate box to indicate whether the chemical has been used in a process or is unused. If the chemical is unopened, enter the expiration date.

Chemical Composition/Item Description: Enter the full chemical name of all chemical constituents reasonably expected to be present in the material. ALL CHEMICAL CONSTITUENTS MUST BE LISTED REGARDLESS OF CONCENTRATION--THERE ARE NO DE MINIMIS QUANTITIES. LIST CHEMICALS WITH FULL NAMES – DO NOT USE ABBREVIATIONS. List the approximate concentration of each chemical constituent (see examples below).

- If the material is a commercial product, include both the product name (e.g., Lime Green Paint manufactured by ABC Paint Company) and chemical constituents listed on the label (e.g., contains 98% petroleum distillates, 1.999 % sodium silicate, and 0.001% mercury)
- If the material is a mixture, indicate the approximate percentage (or amount) of each component (e.g., 1 mL chloroform extract in 99 mLs of Scintiverse). If the collected



material is one of many solutions provided in a manufactured kit, the chemical composition may not be known because it is proprietary. In this case, list the manufacturer, the name of the kit, and the solution name (e.g., Biotech, Inc, DNA Preparation kit, Solution 2). If the waste is a lab made solution, indicate the percentage of all constituents (20% Ethanol, 80% Acetone).

If the material does not contain a radioactive isotope, tear off the "Radioactive Material Only" section of the tag at the perforation and discard before sending the top copy of the tag to EHS, 3630 East Campus Loop, Warehouse 1, EC -0824. Leave the remaining copies attached to the collection container. Contact EHS if your materials have not been collected within seven (7) working days of mailing the tag.



Examples of Completed Collection Tags for Materials Without Radioactive Isotopes

Chemicals

QUALITY RESOURCE GROUP INC. LINCOLN, NE 68512 37056354-DZ

EHS USE ONLY

HMCT # **100074**

Date _____ EHS Staff _____ Weight _____ lbs

Bulk N H FA FB Fixer Other _____

LP _____ EB SP SW(nr) SG Other _____

Recycle SpW LF POTW

HAZARDOUS WASTE No

EPA #(s) _____

pH _____ OX _____

Container ID # _____

HAZARDOUS MATERIAL COLLECTION TAG (HMCT)

The following information **MUST** be provided. Attach the completed HMCT to the container. Complete or remove the radioactive section as applicable. Mail top sheet to:

EHS, EC, 0824.

For questions, go to <http://ehs.unl.edu> or call 2-4925.

Auth. User/Principal Investigator Dr. M. Kemling

Completed by Larry Phone 2-0123

Department Chem Eng. Campus East City

Container Location (Bldg/Rm#) Othmer 202

Physical State Size 4 (mL/L/lb/Kg/gal)

Solid Liquid Gas Empty Container

Container Type

Glass Plastic Metal Fiber/Cardboard

Other

Used Unused Unopened (Exp. date _____)

Chemical Composition/Item Description (must equal 100%)

| | | |
|-----------------|-----|---|
| Acetonitrile | 50 | % |
| Acetic Acid | 3.5 | % |
| Tetrahydrofuran | 1.0 | % |
| Triethylamine | 1.5 | % |
| Water | 44 | % |

Attach additional chemical information if necessary

Commercial Products

QUALITY RESOURCE GROUP INC. LINCOLN, NE 68512 37056354-DZ

EHS USE ONLY

HMCT # **100348**

Date _____ EHS Staff _____ Weight _____ lbs

Bulk N H FA FB Fixer Other _____

LP _____ EB SP SW(nr) SG Other _____

Recycle SpW LF POTW

HAZARDOUS WASTE No

EPA #(s) _____

pH _____ OX _____

Container ID # _____

HAZARDOUS MATERIAL COLLECTION TAG (HMCT)

The following information **MUST** be provided. Attach the completed HMCT to the container. Complete or remove the radioactive section as applicable. Mail top sheet to:

EHS, EC, 0824.

For questions, go to <http://ehs.unl.edu> or call 2-4925.

Auth. User/Principal Investigator Dr. M. Kemling

Completed by Larry Phone 2-0123

Department Chem Eng Campus East City

Container Location (Bldg/Rm#) OTHMER 202

Physical State Size 4 (mL/L/lb/Kg/gal)

Solid Liquid Gas Empty Container

Container Type

Glass Plastic Metal Fiber/Cardboard

Other

Used Unused Unopened (Exp. date 12/02)

Chemical Composition/Item Description (must equal 100%)

| | | |
|--------------|-----|---|
| Acetonitrile | 100 | % |
| | | % |
| | | % |
| | | % |
| | | % |

Attach additional chemical information if necessary



Additional Instructions for Completing Tags for Radioactive Material

AU #: Enter the Authorized User number assigned by the EHS Radiation Safety Program.

Nuclide: Enter the radionuclide in the material (i.e., H-3, C-14, S-35, or P-32). Only one nuclide should be present in each container. Only **dry** laboratory trash (e.g., paper, plastic, glass, etc.) containing H-3 and C-14 may be combined into a single container.

Activity: Enter the total activity (mCi) of the material in the container (one mCi = 1000 μ Ci = 2.2×10^9 dpm).

Total Liquid Volume: If the material is liquid, enter the total volume. For liquid scintillation vials, enter the total volume of liquid in all of the vials. Include the words "LSC Vials" under the Chemical Composition/Item Description. Also, include the trade name the LSC cocktail (see example below).

Number of Scintillation Vials: If the material consists of scintillation vials, enter the total number of vials in the package. Otherwise leave this field blank.

Volume of Scintillation Vials: If the material consists of scintillation vials, enter the volume of liquid in each vial.

Mail the top copy of the tag to EHS at 3630 EC Loop, EC-0824, and attach the remaining copies to the collection container. Contact EHS if your materials have not been collected within seven (7) working days of mailing the tag.

Examples of completed Collection Tags for materials with radioactive isotopes are referenced below.



Radioactive Solids

QUALITY RESOURCE GROUP INC. LINCOLN, NE 68512 37056354-DZ

EHS USE ONLY

HMCT # **100809**

Date _____ EHS Staff _____ Weight _____ lbs

Bulk N H FA FB Fixer Other _____

LP _____ EB SP SW(nr) SG Other _____

Recycle SpW LF POTW

HAZARDOUS WASTE No

EPA #(s) _____

pH _____ OX _____

Container ID # _____

HAZARDOUS MATERIAL COLLECTION TAG (HMCT)

The following information **MUST** be provided. Attach the completed HMCT to the container. Complete or remove the radioactive section as applicable. Mail top sheet to:

EHS, EC, 0824.

For questions, go to <http://ehs.unl.edu> or call 2-4925.

Auth. User/Principal Investigator Dr. Example

Completed by Jane Doe Phone 2-1111

Department Biochem Campus East City

Container Location (Bldg/Rm#) Beadle N123

Physical State Size 2.5 (mL / L / lb / Kg / gal)

Solid Liquid Gas Empty Container

Container Type

Glass Plastic Metal Fiber/Cardboard

Other

Used Unused Unopened (Exp. date _____)

Chemical Composition/Item Description (must equal 100%)

| | | |
|---------------------------------|------------|---|
| <u>Solid Dry Waste</u> | <u>100</u> | % |
| <u>(Paper, plastic, gloves)</u> | | % |
| | | % |
| | | % |

Attach additional chemical information if necessary

(Caution: Radioactive Materials)

REMOVE/DISCARD IF MATERIAL IS NOT RADIOACTIVE

AU# 444

Nuclide(s) H-3, C-14 Activity 0.5, 0.25 (mCi)

Total Liquid Volume NA

Radioactive Liquids

QUALITY RESOURCE GROUP INC. LINCOLN, NE 68512 37056354-DZ

EHS USE ONLY

HMCT # **100910**

Date _____ EHS Staff _____ Weight _____ lbs

Bulk N H FA FB Fixer Other _____

LP _____ EB SP SW(nr) SG Other _____

Recycle SpW LF POTW

HAZARDOUS WASTE No

EPA #(s) _____

pH _____ OX _____

Container ID # _____

HAZARDOUS MATERIAL COLLECTION TAG (HMCT)

The following information **MUST** be provided. Attach the completed HMCT to the container. Complete or remove the radioactive section as applicable. Mail top sheet to:

EHS, EC, 0824.

For questions, go to <http://ehs.unl.edu> or call 2-4925.

Auth. User/Principal Investigator Dr. Example

Completed by John Doe Phone 2-1111

Department Biochem Campus East City

Container Location (Bldg/Rm#) Beadle N123

Physical State Size 20 (mL / L / lb / Kg / gal)

Solid Liquid Gas Empty Container

Container Type

Glass Plastic Metal Fiber/Cardboard

Other

Used Unused Unopened (Exp. date _____)

Chemical Composition/Item Description (must equal 100%)

| | | |
|------------------------------|------------|---|
| <u>LSC Vials</u> | <u>100</u> | % |
| <u>cocktail = Ultimagold</u> | | % |
| | | % |
| | | % |

Attach additional chemical information if necessary

(Caution: Radioactive Materials)

REMOVE/DISCARD IF MATERIAL IS NOT RADIOACTIVE

AU# 444

Nuclide(s) C-14 Activity 0.005 (mCi)

Total Liquid Volume 4000mL