Laboratory Glassware Collection and Disposal

A. Purpose
To describe and ensure appropriate management and disposal of laboratory glassware generated from research operations.

B. Applicability/Scope
This policy applies to all generators and handlers of glassware for disposal at the Columbia University Morningside and Lamont campuses.

C. Definitions
1. Pyrophoric Chemicals- Chemicals that readily combust in the presence of air.
2. Water Reactive Chemicals- Chemicals that readily combust or give off toxic fumes in the presence of water or moisture.
3. Acutely Toxic Chemicals- Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof defined in 40 CFR 261.33 (Link in section K).
4. RCRA Empty- Defined by the EPA in 40 CFR 261.7 (Link in section K).

D. Responsibilities

Morningside
1. Laboratories are responsible for:
   a. Purchasing fiber containers for uncontaminated broken or unbroken glassware and requesting sharps and contaminated broken or unbroken glassware containers through EH&S.
   b. Properly segregating and maintaining their glassware waste prior to EH&S pickup.
   c. Stocking and adhering labels to boxes of uncontaminated broken or unbroken glassware.
2. EH&S is responsible for proper disposal of glassware through its University approved vendors, including:
   a. Collecting containers of contaminated broken or unbroken glassware to be incineration.
   b. Providing labels for contaminated broken or unbroken glassware.
   c. All biologically contaminated glass must be collected in sharps containers to be disposed of as regulated medical waste.
3. Chemtracker Team
   a. Collecting unbroken chemical containers to be scanned out of a laboratories chemical inventory and recycle through municipal waste.
   b. Providing white labels to laboratories for uncontaminated broken or unbroken glassware.
4. Facilities is to pick up all closed uncontaminated broken or unbroken glassware containers for recycle.

Lamont Doherty Earth Observatory (LDEO)
1. Laboratories are responsible for:
   a. Contacting the LDEO Safety Office for the delivery of new and pickup of full sharps/glassware containers.
   b. Properly segregating and maintaining glassware waste prior to pickup.
2. The LDEO Safety Office is responsible for the proper disposal of Glassware through its vendors, including:
   a. Uncontaminated broken or unbroken glassware, to be collected and recycled.
b. Contaminated broken or unbroken glassware, to be collected for incineration.
c. All biologically contaminated glass must be collected in sharps containers to be disposed of as regulated medical waste.

3. Lamont Shipping and Receiving by request of the laboratory staff are to collect unbroken chemical containers.

E. Procedures

Morningside

1. Uncontaminated Broken or Unbroken Glassware
   a. Glassware is to be stored in a white fiber box, purchased by the laboratory through either Bio Stores or Chem Stores. For examples of all Morningside glass containers, see Appendix I.
   b. Any glassware that does not contain acutely toxic, pyrophoric or water reactive chemicals, is to be rinsed. Empty glassware and containers should be filled with tap water. Containers larger than 1 L, should be filled with approximately 1 L of water or a sufficient volume for adequate rinsing. The rinsate is then drain disposed, with the container left to dry, and is then placed into the white fiber box for uncontaminated broken or unbroken glassware.
   c. When the white fiber box is full, the top is to be closed by pulling up the open circular flap and taping it shut. A white label (Clean broken glass for recycling label in Appendix II) is to be placed onto the top of the container cataloging the laboratory room number, building and PI name. A picture of the label can be found in Appendix II.
   d. The container is then to be placed in the hall outside the laboratory to be picked up by Facilities.

2. Contaminated Broken or Unbroken Glassware
   a. Blue poly containers (Blue Bins) for the storage of contaminated glassware are obtained through the EH&S Department via the online chemical waste pickup request seen in Section J.
   b. Glassware collected in blue bins must contain no more than residual chemical contamination. Containers contaminated with residue of acutely toxic, pyrophoric or water reactive chemicals must be managed and disposed as hazardous waste, via a chemical waste pickup request.
   c. For laboratories in the Chemistry Department, containers are to be filled in the laboratory; container lids are to remain closed when not being actively filled. Containers are picked up and replaced with empties Tuesdays and Fridays by EH&S.
   d. For all other laboratories, containers are to be filled in the laboratory, container lids are to remain closed when not being actively filled. When nearly full, a chemical pickup request is to be submitted online. The container will be picked up and replaced with an empty on the building’s designated pickup day. The sender will receive an email specifying the designated pickup day.

3. Unbroken Chemical Containers
   a. All barcoded chemical bottles that do not contain acutely toxic, pyrophoric or water reactive chemicals, are to be rinsed. RCRA empty glassware and containers should be filled with tap water. Containers larger than 1 L, should be filled with approximately 1 L of water or a sufficient volume for adequate rinsing. The rinsate is then drain disposed,
Laboratory Glassware Collection and Disposal

with the container left to dry, recapped and is then placed into the yellow receptacle on the laboratory floor. For bottles that are not to be rinsed, a chemical pickup request is to be submitted.

b. When adding bottles to the yellow receptacles every effort should be made to not break the bottle, and they must be tightly capped, whenever possible.

c. The Chemtracker team will collect yellow receptacles containing unbroken chemical containers and replace with empty collection receptacles.

4. Pipettes and Biologically Contaminated Glass for Disposal

a. Pipettes and biologically-contaminated glassware are considered regulated medical waste. Specific containers, available in 2, 10 or 17 gallon size, are to be used for collection. For details regarding sharps collection and disposal, see the Morningside RMW Policy in section K.

LDEO

1. Uncontaminated Broken or Unbroken Glassware

a. Glassware is to be stored in a white fiber box available through the Lamont Safety Office. For pictures of all Lamont glass containers, see Appendix IV.

b. Any glassware that does not contain acutely toxic, pyrophoric or water reactive chemicals, is to be rinsed. RCRA empty glassware and containers should be filled with tap water. Containers larger than 1 L, should be filled with approximately 1 L of water or a sufficient volume for adequate rinsing. The rinsate is then drain disposed, with the container left to dry, and is then placed into the white and green fiber box for Uncontaminated Broken or Unbroken Glassware.

c. When the container is full, the top is to be closed by pulling up the open circular flap and taping it shut.

d. The laboratory must then contact the Lamont Safety Office for pickup.

2. Contaminated Broken or Unbroken Glassware

a. White poly containers for the storage of Contaminated Glassware are obtained through the Lamont Safety Office.

b. Glassware collected in chemically contaminated glassware bins must contain no more than residual chemical contamination. Containers contaminated with residue of acutely toxic, pyrophoric or water reactive chemicals must be managed and disposed as hazardous waste, and disposed of through a request to the Lamont Safety Office for a chemical pickup.

c. Containers are to be filled in the laboratory, keeping the lid on when not actively adding to it. When nearly full, the Lamont Safety Office must be contacted for pickup.

3. Unbroken Chemical Containers

a. All barcoded chemical bottles that do not contain acutely toxic, pyrophoric or water reactive chemicals, are to be rinsed. RCRA empty glassware and containers should be filled with tap water. Containers larger than 1 L, should be filled with approximately 1 L of water or a sufficient volume for adequate rinsing. The rinsate is then drain disposed, with the container left to dry, and then placed into the yellow receptacles on the laboratory floor. For bottles that are not to be rinsed, a chemical pickup request is to be submitted.
b. When adding to the yellow receptacles every effort should be made to not break the bottle, and they must be tightly capped. The barcode stickers are to be removed and placed onto the barcode collection sheet.

4. Containers labeled “NON-MEDICAL SHARPS” are to be used for sharps waste. The containers are picked up through the online pickup request form.

F. Emergency Contacts
EH&S Morningside Campus – 212-854-8749
EH&S Columbia University Medical Center – 212-305-6780
Nevis Laboratory – 914-591-8100
Lamont-Doherty Safety Department – 845-365-8822

G. Medical Surveillance
N/A

H. Record Keeping
N/A

I. Appendices
Morningside
Appendix I. Container Guide
Appendix II. Label for Uncontaminated Broken or Unbroken Glassware container
Appendix III. Label for Contaminated Broken or Unbroken Glassware

LDEO
Appendix IV. Container guide

J. Forms
Chemical pickup request form

K. References
40 CFR 261.7- Residues of Hazardous Waste in containers, RCRA empty
40 CFR 261.33- Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof
49 CFR 173.124 (b)- Spontaneously combustible material
49 CFR 173.12 (c)- Dangerous when wet material
Morningside RMW policy
Empty Laboratory Glassware and Reagent Container Disposal Best Management Practice

L. Acknowledgements
N/A
LABORATORY GLASSWARE COLLECTION AND DISPOSAL

APPENDIX I, Pg. 1

CONTAINER GUIDE

**Please visit [http://www.ehrs.columbia.edu/HazardousWaste.html](http://www.ehrs.columbia.edu/HazardousWaste.html) for details on hazardous waste management and waste pick-up/disposal procedures.**

Please contact EH&RS with any questions @ 854-8749 or hazmat@columbia.edu

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For the most current version of this form, visit [http://www.ehrs.columbia.edu/HazardousWaste.html](http://www.ehrs.columbia.edu/HazardousWaste.html)
APPENDIX I, Pg. II

Morningside Campus
Disposal of Empty Laboratory Chemical Containers and Glassware

Chemical Tracking System (CTS)
Unbroken Chemical Containers
- glass or plastic or metal and with or without barcode
  (DO NOT include cylinders)
  - Follow all hazardous waste procedures
  - All barcoded chemical bottles that do not contain acutely toxic, pyrophoric or water reactive chemicals are to be rinsed with tap water. For containers greater than 5L in volume, 1L is to be added to the container; for smaller containers, fill completely and drain. Place container in Yellow Central Receptacle located at your floor. For bottles that are not to be rinsed, chemical pickup request is to be placed.
  - Containers must be tightly capped prior to deposit.
  - Please make every effort not to break glass containers when inserting into receptacle.

Containers and Laboratory Glassware to be RECYCLED
Uncontaminated Broken or Unbroken Glassware
- Remove barcode, if applicable, or write down the numerical barcode sequence and provide to the barcoder located within Chandler Chem Stores or Pupin Room 200 (adjacent to loading dock) so chemical can be removed from inventory.
- Any glassware that does not contain acutely toxic, pyrophoric or water reactive chemicals is to be rinsed. For containers greater than 1L in volume, 1L is to be added to the container for smaller containers, fill completely and drain.
- Containers are then placed into the white fiber box for Uncontaminated Broken or Unbroken Glassware.
  - Close box once filled, tape closed, fill out white label and place in corridor for Facilities to recycle.
  - Obtain replacement Glassware Disposal Box from Chem Stores or Bio Stores or through other process your lab follows to obtain replacement items.

Containers and Laboratory Glassware to be INCINERATED
Contaminated Broken or Unbroken Glassware
- Follow all hazardous waste procedures
- Place contaminated (i.e., unable to be rinsed clean or is grossly contaminated) glassware in blue plastic containers in your lab.
- Remove barcode, if applicable, or write down the numerical barcode sequence and provide to the barcoder located within Chandler Chem Stores or Pupin Room 200 (adjacent to loading dock) so chemical can be removed from the laboratory’s chemical inventory.
  - Submit pickup when full.

Regulated Medical Waste (RMW) for Off-site Treatment
All Pipettes and Biologically Contaminated Glass for disposal
- Place in 2, 10 or 17 gallon Sharps Container

For the most current version of this form, visit http://www.ehrs.columbia.edu/HazardousWaste.html
APPENDIX II

Label for Uncontaminated Broken or Unbroken Glassware container

<table>
<thead>
<tr>
<th>CLEAN BROKEN GLASS FOR RECYCLING**</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVESTIGATOR: _____________________</td>
</tr>
<tr>
<td>BUILDING: _________________________</td>
</tr>
<tr>
<td>FLOOR/ROOM#: ____________________</td>
</tr>
</tbody>
</table>

**Attention Custodians:

DO NOT discard this box unless the above information is filled in, and the box has been securely taped closed.

Extra labels can be obtained through either Chem Stores or Bio Stores
APPENDIX III

Label for Contaminated Broken or Unbroken Glassware

BUILDING: ___________ ROOM # _______

CHEMICALLY CONTAMINATED GLASS ONLY

- NO Sharps (Syringes, Needles, or Razors)
- NO Garbage (Food or Beverage Containers)
- NO Hazardous waste
- NO Chemicals (Powders, Free Liquids etc.)

Any glass bins not in compliance WILL BE RETURNED to the lab.
APPENDIX IV

LDEO CONTAINER GUIDE

Disposing of empty chemical containers (e.g. Fisher, Sigma-Aldrich):

- Thoroughly Rinse empty containers with tap water: place a blue “RINSED” label on the container and then place the container in the fume hood overnight so that all remaining water evaporates. Once dry, place the cap securely on the container.
- Carefully place rinsed container into yellow bin located in hallway.
- NOTE: Do not put Safe-Coat / Rubber coated glass containers in the yellow bin. Instead, these containers will be picked up from your lab with your hazardous waste.
- DO NOT rinse extremely toxic, pyrophoric, or water reactive chemical containers. Instead these containers are to be labeled with a Hazardous Waste label and treated as such.

DEPOSIT GLASS HERE / BROKEN GLASS containers are for disposing of:

- Non-contaminated broken glass
- Clean glass or plastic pipettes (no needles)
- Clean beakers and other pyrex type glassware

NON-MEDICAL SHARPS Containers are used for disposing of:

- Needles
- Razors
- Other non-biological contaminated sharps
- Clean glass or plastic pipettes

CHEMICALLY CONTAMINATED GLASS Containers are used for disposing of:

- All chemically contaminated broken or unbroken glassware (i.e. unable to be rinsed clean or is grossly contaminated)
- Pipettes with chemical residue
- NO Sharps (Syringes, Needles, or Razors)
- NO Hazardous waste