1. **Program Statement**

Several activities in the art and theater programs at Rutgers have the potential of generating hazardous wastes. Some of these activities include:

- Painting
- Printmaking
- Photography
- Ceramics
- Sculpture
- Graphic Design
- Theater Set Design, Construction and Props

2. **Reason for Program**

This program describes the proper procedures for managing hazardous wastes produced from the art and theater departments at Rutgers in order to protect the faculty, staff and students from chemical hazards and environmental liability. It is also designed to ensure compliance with the following regulatory standards:


3. **Who Should Read this Program**

This program applies to all Rutgers faculty, students and staff who work in art and theater departments that produce hazardous waste.

4. **The Program**

I. **Roles and Responsibilities**

A. Faculty, Students & Staff Who Work with Chemicals in Art and Theater Departments

   1) Minimize the generation of hazardous and non-hazardous waste streams whenever possible.
2) Substitute less hazardous alternative products or chemicals whenever possible.

3) Manage chemical wastes in a safe and environmentally responsible manner in accordance with the procedures in the program.

4) Contact REHS at 848-445-2550 or hazwaste@rutgers.edu if you have any questions regarding the proper management of liquid or solid chemical wastes generated from specific art or theater activities.

B. Rutgers Environmental Health and Safety

1) Provide technical assistance and waste management advice to personnel who work with chemicals and other hazardous materials in art and theater departments.

2) Conduct periodic audits of art and theater classrooms, studios, shops, darkrooms and other associated areas to identify and correct any waste management issues.

3) Pick up and properly dispose of waste chemicals/materials upon request and within required time limits.

II. Definitions

_Acutely Hazardous Waste (P-Listed Waste)_

Wastes that have the potential to cause death, disabling personal injury or serious illness. EPA designates them as “P-Listed” which refers to chemicals that are either 100% pure, technical grade or the sole active ingredient in a chemical formulation. Refer to Acutely Hazardous Chemicals List.

_Hazardous Waste_

A waste with certain properties that make it dangerous or capable of having a harmful effect on human health or the environment. EPA defines a hazardous waste as one that exhibits the characteristics of ignitibility, corrosivity, reactivity and/or toxicity. EPA further defines hazardous wastes as “listed” wastes which are wastes from common manufacturing and industrial processes, specific industries and can be generated from discarded commercial products. Refer to EPA regulations at [https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes](https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes).

III. Procedures

A. Waste Minimization

1) Make every attempt to minimize the generation of hazardous waste by using these guiding principles:

- Only purchase the amount of materials needed to complete a project. Disposal of excess materials often costs more than the original purchase price.
- Purchase non-toxic, non-hazardous alternative products whenever possible
- Use a silver recovery system for photographic developing processes
- Consult the Rutgers Chemicals for Reuse Program at [https://ipo.rutgers.edu/rehs/labenv-chemical](https://ipo.rutgers.edu/rehs/labenv-chemical) for donating chemicals for reuse or obtaining them free of charge
2) Consider the simple replacements shown in Table 1 for reducing hazardous waste and minimizing exposure to toxic materials:

<table>
<thead>
<tr>
<th>Use</th>
<th>Instead Of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strontium Carbonate</td>
<td>Barium Carbonate</td>
</tr>
<tr>
<td>Prussian Blue or Mars Yellow</td>
<td>Chromate Pigment Powders</td>
</tr>
<tr>
<td>Iron Oxide</td>
<td>Uranium</td>
</tr>
<tr>
<td>Lead-Free Solder</td>
<td>Traditional Lead-Based Solders</td>
</tr>
<tr>
<td>Hot Glue</td>
<td>Solvent Based Adhesives</td>
</tr>
</tbody>
</table>

B. Drain Disposal

In general, drain disposal of chemicals is prohibited. However, certain buffers, salts, non-hazardous chemicals and dilute aqueous solutions can be safely drain disposed if the building is connected to a public sanitary sewer system. If however, the building is connected to a septic system (e.g. farms, marine research centers, remote off-campus locations), drain disposal is prohibited.

In addition, aqueous solutions must be within the range of 6-9 pH to be drain disposed. Refer to the Rutgers Hazardous Waste Disposal Program at the following link for further information on drain disposal:

https://ipo.rutgers.edu/sites/default/files/hazwaste_disposal%20%281%29.pdf

C. Types of Waste and Disposal

1) Hazardous Waste

The following are considered hazardous waste:

- Paints, stains and wood preservatives – oil based and/or solvent based
- Paint thinner, paint stripper and adhesives
- Ceramic glazes that contain heavy metals such as barium or chromium
- Corrosive liquids such as nitric acid used in etching
- Inks – oil based and/or solvent based
- Aerosol cans – full or partially filled*
- Solvents – mineral spirits, turpentine, paint thinners, alcohols, acetone
- Rags or paper towels contaminated with solvents, paints or oils (refer to Disposal of Contaminated Rags and Towels at: https://ipo.rutgers.edu/sites/default/files/Cont-Rags-Guide-3-16-09%20%281%29.pdf
- Spent fixer from photographic developing process without a silver recovery system (refer to Darkroom Chemical Waste Management Program at: https://ipo.rutgers.edu/rehs/art-dark-room
- Intensifiers, reducers and toners that contain toxic compounds such as mercuric iodide, potassium cyanide, cyanide salts, carbon tetrachloride or heavy metals such as selenium, gold or lead

*NOTE: Empty aerosol cans can be discarded in the regular trash once their labels are defaced.

Procedures for Managing Hazardous Waste

a. Collect hazardous wastes in satellite accumulation areas (SAAs) specifically designated for the temporary storage of hazardous waste.

b. Store liquid wastes in secondary containment unless they are in the 5-gallon carboys provided by REHS.

c. Segregate wastes by chemical compatibility (e.g. do not store acids and flammable liquids in the same secondary container). Make sure the container holding the waste is chemically compatible with the waste (e.g. store corrosive chemicals in plastic containers). See example in Figure 1.

d. Label waste containers with the Rutgers Hazardous Waste Label shown in Figure 2. Make sure the label is completely filled out including checking off one or more pictograms on the bottom of the label to further identify the waste characteristics. Use chemical names (not formulas or acronyms) to identify the constituents.

e. Keep lids securely closed on all hazardous waste containers in storage.

f. Submit an online Request for Hazardous Waste Disposal at the following link to alert REHS to pick up the waste. Request additional replacement waste containers at the online link.
   https://halflife.rutgers.edu/forms/hazwaste.php

g. Contact REHS at hazwaste@rutgers.edu or 848-445-2550 if you have any questions regarding the collection, storage and disposal of hazardous waste.

2) Non-Regulated Waste

The following are considered non-regulated wastes:

- Spent developer that is collected due to the prohibition of drain disposal because a septic system is present

- Linseed oil and other natural oils

- Latex paints*

- Any other chemical intended for disposal where the constituents do not meet the definition of Hazardous Waste (check with REHS if you are unsure).

*NOTE: Latex paint that is completely dried can be placed in the regular trash.

Procedures for Managing Non-Regulated Waste

a. Collect the waste in appropriately sized and chemically compatible containers.
b. Label the container with the Non-Regulated Waste label shown in Figure 3. Mark the contents as “100% Spent Developer”, “Latex Paint”, “Linseed Oil” other appropriate general description.

c. Submit a Request for Hazardous Waste Disposal at the online link below to notify REHS to pick up the waste: https://halflife.rutgers.edu/forms/hazwaste.php

3) Universal Waste

The following items found in art and theater departments are considered universal waste:

- Rechargeable batteries – nickel cadmium (NiCad), nickel metal hydride (NiMH), lithium

    NOTE: Alkaline batteries may be discarded in the regular trash

Procedures for Managing Universal Waste

a. Segregate batteries by type for storage in plastic buckets, drums or sealable bags.

b. Place plastic storage containers in secondary containment bins in the SAA.

c. Label containers with the Rutgers Universal Waste label shown in Figure 4. Make sure to check the “waste type” box for “batteries” and complete the campus, building, room number and accumulation start date information.

d. Never store broken or leaking batteries with intact batteries.

e. Insulate the terminals with duct tape to prevent batteries from discharging when stacked or stored in containers with multiple batteries.

f. Keep stored batteries away from oil or other flammable materials.

4) Unused, Expired or Excess Chemicals

a. Unused, expired or excess chemicals should first be considered as a possible donation to the Rutgers Chemicals for Reuse Program. Contact REHS at (848) 445-2550 or hazwaste@rutgers.edu for advice.

b. All other unused chemicals must be disposed of through REHS by submitting an online Request for Hazardous Waste Disposal form at: https://halflife.rutgers.edu/forms/hazwaste.php

D. Silver Recovery

1) Silver recovery units must be properly maintained at a frequency that ensures acceptable capture of silver (i.e. quarterly). The frequency will depend on how often the equipment is used.

2) Vendors who service silver recovery units are required to fill out the Silver Recovery Maintenance Log in Attachment #1.

3) Maintenance logs and any other documentation pertaining to the servicing of silver recovery systems must be maintained for 3 years by the Rutgers department responsible for operating the equipment. These records must be made available upon request during inspections by REHS and/or regulatory agencies.
4) The silver recovered from the unit must be transported by the vendor on a Bill of Lading or other shipping papers (not a Hazardous Waste Manifest). Shipping papers must also be kept for 3 years and made readily available to REHS and/or regulatory agencies upon request.

E. Sharps

The following items found in art and theater departments are considered sharps:

- Razor blades
- Precision knives
- Broken glass

Procedures for Managing Sharps

a. Place sharp objects in a puncture-resistant container. REHS can provide one gallon plastic screw top jars if needed.

b. Label container with the word “Sharps”.

c. Once the container is full, secure the lid and place the entire container in the regular trash.

F. Waste Containers

1) REHS can provide the following containers for collecting and storing wastes:

- **Liquid Wastes**
  - 5-gallon plastic carboys
  - 30-gallon plastic drums
  - 55-gallon plastic or metal drums

- **Solid Wastes**
  - 1-gallon plastic screw top jars
  - 5-gallon plastic screw top pails
  - 55-gallon metal open top drums

REHS will also provide plastic liners for pails and drums used for solid wastes.

2) Do not use your own drums or pails unless approved by REHS. They may not meet US Department of Transportation (DOT) requirements or may have residual material left behind from former uses.

3) Select the smallest container size available that will properly hold the anticipated quantity of waste and still allow sufficient headspace above the liquid for expansion under different storage temperatures.

4) Containers must be leak-proof and sealed with lids secured while in storage.

G. Labeling

Specific labels are required for each type of waste as described in each section of this document. Obtain the necessary labels from REHS. Examples of each type of label are shown in Figures 2-4.
H. Satellite Accumulation Areas (SAAs)

1) Hazardous waste must be stored in the Satellite Accumulation Area (SAA) that is a designated area at or near the point of generation and under the control of the operator generating the waste. Typically there is a SAA in each room where such wastes are generated. REHS can assist in determining appropriate locations for SAAs.

2) Chemical wastes in SAAs must be segregated by waste type and arranged so that incompatible wastes cannot mix.

3) Hazardous wastes must be stored in secondary containment bins in SAAs.

4) Containers in SAAs must be arranged so that the labels are easily visible during inspection.

5) Follow the basic guidelines below for safely storing hazardous wastes:
   a. Store like materials in the same secondary containment bin (e.g. store flammables in one bin, acids in another, toxics in another – See Figure 1)
   b. Separate acids and bases
   c. Keep acids separate from oils, flammables, cyanides and sulfides
   d. Store corrosive chemicals in plastic containers
   e. Keep water-reactive chemicals away from water sources or aqueous solutions
   f. Immediately clean up spilled materials in secondary containment bins
   g. Consult REHS if you encounter shock-sensitive, explosive or air-reactive chemicals

6) No more than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste are allowed to be stored in a SAA.

I. Request for Waste Removal

1) Submit an online Request for Hazardous Waste Disposal whenever hazardous waste containers are full. The link for the online request can be found at: https://halflife.rutgers.edu/forms/hazwaste.php

2) REHS will pick up the waste within 5-10 working days at the New Brunswick/ Piscataway campuses and every 30-60 days at the Newark and Camden campuses. Remote farm research centers and other off-campus locations are generally scheduled within one month of receipt of the online form.
Figure 1. Example of Properly Stored Hazardous Waste in SAA

Figure 2. Rutgers Hazardous Waste Label
Figure 3. Non-Regulated Waste

![Non-Regulated Waste Sign](image1)

Figure 4. Universal Waste Label

![Universal Waste Label](image2)
**Attachment #1**

**Silver Recovery Maintenance Log**

<table>
<thead>
<tr>
<th>Date/Time of Service</th>
<th>Name of Service Company</th>
<th>Name of Service Technician</th>
<th>Type of Service Performed</th>
<th>Quantity of Silver Bearing Material Removed for Reclamation</th>
<th>Signature of Service Technician</th>
</tr>
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*This log must be kept on file for three years from the last date of service listed.*