

BINGHAMTON UNIVERSITY

**DARKROOM
HAZARDOUS
WASTE
MANAGEMENT
GUIDE**

Revised October 2005

IN CASE OF EMERGENCY: DIAL 911

This booklet will provide you with the information you need in order to run a safe and legal darkroom.

If you have any questions regarding this guide or darkroom safety please contact Environmental Specialist from the office of Environmental Health & Safety at x7-2211 or by e-mail at hazwaste@binghamton.edu

Darkroom Manager Responsibilities

Prior to beginning photo-developing operations, the following procedures must be followed.

◆ **Completely read this guide**

*This guide contains valuable information that will help you run your darkroom safely and efficiently. As the darkroom manager, it is not only your responsibility to read and understand this guide, but you are also responsible to make sure **all** darkroom users read and understand the guide. If you have any questions regarding any of the information covered in this guide, please contact the Environmental Specialist, at (x7-2211).*

◆ **Contact Environmental Health & Safety (x7-2211)**

Environmental Specialist is responsible for darkroom safety on campus and he will be your contact person for training, hazardous waste removal and all other safety concerns. He or She must have your name as the Darkroom Manager so that all appropriate information may be forwarded to you.

◆ **Attend a mandatory training session.**

All people working in a campus darkroom must attend a mandatory training session. Call EH&S to schedule a training session.

◆ **Inventory your safety equipment.**

At a minimum, you should have the following items:

- *Fire extinguisher*
- *Waste container for each chemical*
- *Safety glasses / goggles for each person in the darkroom*
- *Gloves*
- *Tongs*
- *HazWaste pickup schedule (posted on wall)*
- *Darkroom safety guide*

◆ **Inventory all chemicals in your darkroom.**

This should include the chemical name and approximate quantity and be submitted to EH&S at the beginning of each semester. This may be e-mailed to hazwaste@binghamton.edu, please place in email subject "DARKROOM CHEMICAL INVENTORY".

◆ **Dispose of all chemical waste legally**

ALL chemical waste must be properly disposed of through the campus Hazardous Waste Management program. Serious fines and other repercussions could occur if hazardous waste is disposed of improperly. Check the hazardous waste pick-up schedule for dates and procedures.

◆ **Limit access to your darkroom.**

Only people who have attended darkroom safety training from EH&S may be allowed to perform any work in the darkroom. Maintain control of the keys to the darkroom to ensure that only approved people have access to the darkroom. EH&S maintains a list of all people who have attended sessions. A list of all key holders should be forwarded to EH&S.

◆ **Practice good housekeeping**

A clean darkroom is generally a safe darkroom. Don't let trash accumulate, clean the tabletops and sweep the floors on a regular basis. All chemicals shall be stored and labeled appropriately.

EMERGENCY PROCEDURES

For minor spills that are known to be of limited danger:

Begin the cleanup immediately by using the proper personal protective equipment (PPE) such as gloves, goggles, etc.

Spill control usually begins by spreading an absorbent material, like 1:1:1 absorbent clay, sand and sodium bicarbonate on the spill.

After allowing the chemical to absorb, scoop up the material and deposit into an appropriate container, usually a one or five gallon plastic container. Wipe up the contaminated surface with soapy water and a sponge and then place into the disposal container. Seal the container and label it with a "Hazardous Chemical Waste Tag" for disposal. Immediately report the spill to Environmental Health and Safety at x7-2211.

In the event of a MAJOR chemical spill:

A spill will be considered major if the spill involves a large quantity of chemicals, an unknown chemical, a small quantity of a high hazard chemical or a chemical that you are not equipped to safely handle. The following procedures should be followed during a major spill:

- Evacuate the room
- Evacuate the floor and/or building as necessary
- Report the spill (**DIAL 911**) or (**x7-2393**) on your cell phone
- Limit access to the area
- Stand by from a safe place until help arrives

When reporting a spill, you will be asked for the following information:

- Where the spill occurred (building and room number)
- The materials involved (SPELL CLEARLY and SLOWLY)
- The amount spilled
- Any immediate actions you took
- How the spill occurred (if you know or can guess)
- Who first observed the spill and at what time
- Are there any injuries
- A call back number (if available)

Appropriate Storage Practices

All chemicals must be stored appropriately. This includes proper labeling, proper placement (*off the floor*) and compatible storage containers. Improperly stored chemicals can result in the following dangerous conditions:

- Release of potentially toxic vapors
- Degraded containers that allow chemicals to become contaminated.
- Degraded containers releasing vapors that can affect the integrity of nearby containers.
- Degraded labels that result in generation of unknowns.

Proper chemical storage includes the following practices:

- All chemicals **MUST** be labeled.
(*Deteriorating labels must be replaced before the chemical becomes an unknown.*)
- Containers must be dated when they arrive.
- Older chemicals should be used first.
- Chemicals must be properly segregated.
- All containers must have lids on at all times (except when pouring).
- Corrosive liquids can't be stored above eye level.

Chemical Inventory

Determine exactly what chemicals are present in your darkroom. Federal and state regulations require BU to maintain accurate inventory records. You should submit an accurate list of chemicals and quantities to EH&S at the beginning of each semester. This inventory must remain accurate throughout the semester even though it is only submitted once per semester.

ORDER ONLY WHAT YOU NEED

Before ordering new chemicals, review your current inventory and use those chemicals first. It may also be possible to borrow small amounts of chemicals from other darkrooms. Please take the time to check with your colleagues. Although chemicals are usually cheaper when purchased in large containers, when the actual usage, storage and disposal are factored in, the cost savings diminish significantly.

In addition, chemicals in large containers that are not used frequently can be rendered useless in time by contamination or degradation. The most important step you can take in knowing what you have on hand is to maintain a running inventory of chemicals present in your darkroom.

CHEMICAL ALTERNATIVES

There are less-hazardous substitutes for hazardous chemicals used in darkrooms that can be substituted satisfactorily in many cases. A few examples of chemical substitutes can be found in Appendix A. Contact EH&S at (x7-2211) to discuss specific chemicals.

Training

State and federal regulations require that anyone who comes into contact with potentially hazardous substances must receive specific training. Binghamton University requires darkroom users to attend Right-To-Know, Fire Safety and Contingency Plan training.

Each individual who wishes to work in a darkroom must complete the required training. The Department of Environmental Health & Safety shall offer this training.

Hazardous Waste

As a chemical user, YOU have a legal and moral responsibility to ensure the proper disposal of any hazardous waste you generate. There are various state and federal penalties that can result from improper disposal of these wastes. In addition to potential citations, fines and imprisonment, improper waste disposal can also result in national media attention and damage to the University's reputation.

***YOU CAN BE PERSONALLY HELD LIABLE FOR
"WILLFULLY AND KNOWINGLY" VIOLATING THESE REGULATIONS.***

You also have a moral responsibility to properly dispose of chemicals that can pose a present or potential hazard to human health or the environment. This includes avoiding accidents and injuries to students, faculty, staff and the campus community.

Hazardous Waste Disposal Procedures

When chemicals are no longer in use the following steps should be followed to properly dispose of the substance.

- Place spent chemical into appropriate container. (*Empty bottles that the chemical was originally stored in are best.*) **DO NOT MIX CHEMICALS**
- Label the container with the chemical name and the date the container is full.
- As soon as the container is full, send an e-mail at hazwaste@binghamton.edu and request that the chemical be picked up. Include your name and phone number, the building and room number, the chemical name, amount, location, and include in the subject line "Waste Pickup".
- Place a completed waste tag on the container. (*If you are unsure of any information, do not guess. A EH&S staff member will contact you if there are any questions.*)
- The chemical will be picked up at your darkroom on a scheduled pickup day. (*See latest hazardous waste disposal flyer for most current scheduled pickup dates.*)

You do not need to be at the darkroom at the time of waste pickup.

DARKROOM SAFETY

Eye Protection

All persons in the darkroom (including visitors) must wear safety glasses / goggles at all times, even when not performing a chemical operation. Contact lenses should not be worn in the darkroom because of the possibility of trapping foreign materials against the cornea and their difficulty to remove in the case of a splash. Safety goggles, not safety glasses shall be worn whenever chemicals are being poured.

Gloves

Gloves should be worn at all times when working near chemicals. Check to ensure the absence of cracks or small holes in the gloves before each use. Prior to leaving the work area, gloves should be removed to prevent the spread of chemicals. Only gloves approved for the use with darkroom chemicals shall be used.

In general, nitrile gloves work well with many chemicals and are a good all-purpose glove. However, no glove is compatible with all chemicals and glove compatibility should be verified prior to the start of chemical handling.

Clothing

Clothing in the darkroom should offer protection from splashes and spills. The clothing should be easily removable in case of accident and should be fire resistant. High-heeled, sandals, open-toed shoes or shoes made of woven material should not be worn. Shorts and miniskirts are also inappropriate.

Handling Chemicals

- ALWAYS use a water rinse between developer and stop bath (*or else sulfur dioxide gas will form*).
- ALWAYS discard stop bath solutions contaminated with developer.
- ALWAYS add acids to water, not water to acids.
- ALWAYS cover all baths when not in use (*to prevent release of toxic vapors*).

MATERIAL SAFETY DATA SHEETS (MSDS)

As part of the OSHA Hazard Communications Standard, Binghamton University is required to have Material Safety Data Sheets (MSDS) available to any individual working with hazardous chemicals. The regulations state that faculty, staff and students “have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring.”

Information that can be found in a MSDS includes:

- The identity of the chemical substance
- Physical and chemical characteristics
- Physical and health hazards
- Primary routes of entry
- OSHA Permissible Exposure Limits (PEL's)
- Carcinogenic status
- Precautions for safe handling and use (including personal protective equipment)
- Spill response
- Emergency and first aid procedures
- Date of the MSDS

Appendix B contains generic MSDS related to a few of the common chemicals found in darkrooms. These MSDS are intended for general hazard information only and should not replace the specific MSDS from your chemical supplier. A central campus file of MSDS sheets is maintained at the Department of Environmental Health & Safety. Any chemical shipment received should be accompanied by an MSDS. Please send a copy to EH&S to help keep our files up to date and current. If you do not receive a MSDS with a shipment or would like to request a MSDS for a previously purchased chemical, contact EH&S at x7-2211.

MSDS sites on the Internet

There are many sites on the internet that list darkroom related MSDS. Below is a list of web sites that either contains actual MSDS databases or links to databases.

- <http://www.kodak.com/US/en/corp/hse/prodSearchMSDS.shtml>
- <http://www.siri.org/>
- <http://www.ilpi.com/msds/index.html>

GENERAL SAFETY RULES

- Read the MSDS prior to working with a chemical.
- Keep the work area clean and uncluttered to prevent tripping hazards.
- Wet and dry areas should be clearly separated.
- Always segregate chemicals. (Don't store acids near Farmer's reducer).
- Do not store chemicals on the floor.
- Do not eat, drink or smoke in the darkroom.
- The darkroom should be well ventilated (10 – 20 air changes per hour).
- Always wear appropriate Personal Protective Equipment (PPE) (Gloves, Goggles, etc.)
- Always wash hands with soap and warm water after working with chemicals.
- Know how to use emergency equipment prior to an actual emergency.
- **Always Add Acid** to water, never water to acid. (Remember 'AAA')
- Keep a spill kit in the darkroom.
- Do not use paper towels or saw dust to clean up acid spills as this may cause a fire.
- Pregnant women should not be exposed to powdered developer.
- Store all chemicals in locations that will minimize the chance of breakage and splashing.
- Label all containers.
- Keep all containers and trays closed or covered when not in use to prevent the release of toxic gases.
- Do not wash any chemicals down the sink.
- All spent chemicals should be placed into an appropriate waste container. (A container the same as the one the chemical was originally shipped in is best).
- E-mail hazwaste@binghamton.edu for waste pickup when container is full.

Appendix A

Chemical Alternatives / Recommendations

CHEMICAL	ALTERNATIVE / RECOMMENDED CHEMICAL
Developer	Phenidone
Stop Bath	Dilute solution of acetic acid (rather than concentrated acetic acid)
Fixer	
Hypo Eliminators	
Intensifier	Chromium Intensifier
Reducer	Farmer's Reducer
Toner	<i>All Known To Be Highly Toxic</i>
Hardener	