

Chemical Hazards:

Photo developing can bring people into contact with several chemical hazards including the following:

- Developers (hydroquinone and sodium sulfite)
- Stop baths (acetic acid or similar)
- Fixers (sodium thiosulfate, sodium sulfite, sodium bisulfite, potassium aluminum, boric acid)
- Hypo eliminators (ammonia and iodine)
- Intensifiers (mercuric chloride, mercuric iodide, potassium cyanide)
- Reducers (alkali cyanide salts and carbon tetrachloride)
- Toners (gold, selenium, uranium, lead or similar metal)



Spent fixer contains silver at concentrations that would make the material meet the definition of a hazardous waste. Also, unused photochemical may have to be treated as hazardous waste due to heavy metal content or the corrosive nature of the chemicals.

Employees and students shouldn't assume that photochemical and waste products can be placed in the trash or poured down the drain. This is not the case. Nothing goes down the drain except clean water without Environmental Health and Safety's written approval.

Safety Precautions

Chemical Handling and Disposal

Best practices or regulatory requirements related to waste handling and disposal include the following activities:

1. Perform regular housekeeping activities in waste storage areas.
2. Reuse or recycle materials whenever possible.
3. Inspect waste management areas for spills and waste management containers for leaks.
4. Track waste generated, evaluate the process generating the waste and look for ways to reduce waste generation.
5. Find substitutes for harmful chemicals; properly dispose of unusable chemical inventory.
6. Segregate and separate wastes.
7. Do not dispose of liquid waste such as oils or hazardous materials into dumpsters or drains.
8. Maintain adequate supplies of spill response equipment and materials in accessible locations near areas where spills may be likely to occur.
9. Perform periodic inspections of hazardous and non-hazardous waste storage areas and document these inspections in a logbook.

Employee Training

Training employees in proper procedures and potential impacts on the environment is a best practice. Employee training may include the following:

1. Spill response training for personnel who handle hazardous materials,
2. Right-to-know training to inform users of the dangers inherent to the hazardous materials being used,
3. Proper handling and use of chemicals,
4. Hazardous waste management.

Photo Development Process

1. When mixing powdered developers, ensure proper ventilation (this is required by OSHA), preferably with a fume hood.
2. Ensure good ventilation of the darkroom with between 10 and 20 air changes per hour.
3. Wear gloves and goggles when handling photochemical.
4. To prevent evaporation or release of toxic vapors and gases, cover all solutions when not in use.
5. Keep hypo eliminators away from sources of heat.
6. Read the updated Safety Data Sheets (SDS) on all chemicals used in the development of film. SDSs must always be available to employees.
7. Eliminate trip hazards by keeping containers off the floor.
8. Do not store chemicals that may react with each other in the same area.
9. Do not eat, or drink in the Studio.
10. Using a pre-made liquid developer is safer than mixing powdered developers. If powdered chemicals must be mixed, do so in a fume hood or glove box.
11. All darkrooms should have eyewash stations that connect to the water supply and use "hands-free" operation.
12. Label containers of photochemical.
13. Neutralize any acid spills using a buffering agent prior to cleaning up with inert or other non-reactive adsorbents; use acid spill kits for small to medium size spills.
14. Use a damp towel or sponge to clean up dust and powder spills.
15. Chemicals must not be poured down the drain. Contact EH&S to obtain a written permit for sink disposal. The permit (if granted) will be based on SDS and testing information.

Other Hazardous Waste Issues

- Do not mix waste developer with fixer and vice versa.
- Separate unused developed from used waste developer.
- Mix liquid fixer waste with fixer wash bath for disposal (these can be poured into the same disposal container).
- Unused film is a hazardous waste and must be properly handled, labeled for disposal.
- Developed negatives that are waste are coated with silver and must be placed into a waste storage container for disposal.

Labels

All containers must have labels identifying the content and hazard. Stock chemicals must be labeled Fixer, Developer etc. There should be NO Unlabeled Containers. EH&S will provide the labels and containers

Waste Containers must have the following labels:



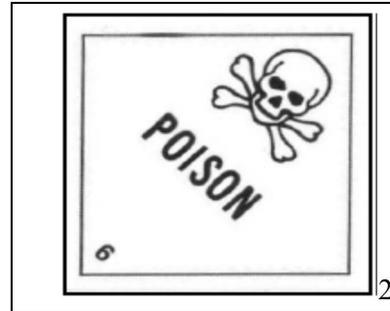
**Workplace
Accumulation Container**

Hazardous Waste

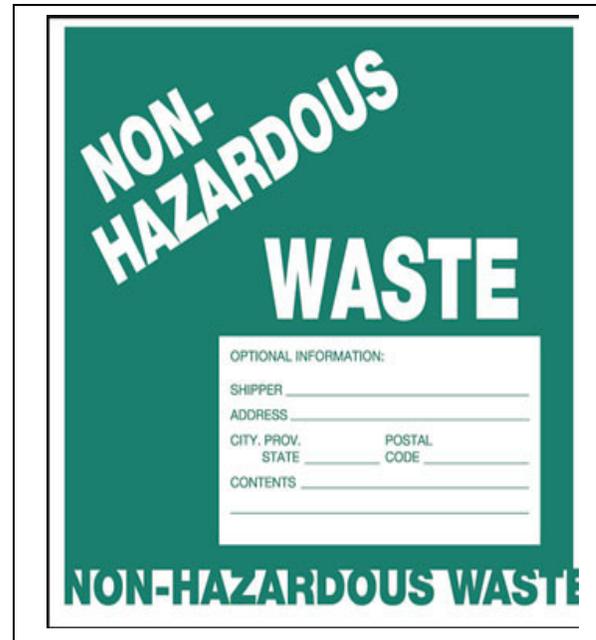
Start Date _____ Complete Full Date _____

Contents _____

In this case the start date is the date you first use the container. Complete Full date is when the container is full. (Full is 90 percent. Do not fill to the top). Contact EH&S right away for a pickup when full. Contents will be whatever is in the container. This label will be used for Fixer waste and developed negative waste, unused chemicals for disposal. Fixer and developed negative containers must be labeled "Silver" to identify the poison.



Use this label to identify the hazard (fixer, developed negatives, some unused films, unused power, or liquid developer. Use this with the hazardous waste label.



**NON-HAZARDOUS
WASTE**

OPTIONAL INFORMATION:

SHIPPER _____

ADDRESS _____

CITY, PROV. _____ POSTAL _____

STATE _____ CODE _____

CONTENTS _____

NON-HAZARDOUS WASTE

Use this label for used developer waste. You can mix the used stop bath with the used developer waste for disposal. Unused or fresh stop bath is a hazardous waste and must not be mixed. It must be labeled as hazardous waste.



When in doubt regarding the hazard, read the label or better yet the SDS

Use this label to identify the hazard when dealing with an acid or base. Unused stop bath and some films would have this label.

REVISION HISTORY		
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1	All	Formatting Changes on all pages, 5/29/14
2	All	Reviewed all 12/10/15
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