

GWYNEDD-MERCY COLLEGE
VISUAL ARTS SAFETY
Photography

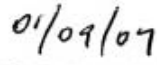


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This plan meets the recommended best management practices set forth by state and federal regulatory agencies: Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and the Pennsylvania Department of Environmental Safety. Gwynedd-Mercy College, as represented by the undersigned individual, adopts this manual and the policies and guidelines stated therein.



Kevin O'Flaherty
Vice President of Finance and Administration



Date

GWYNEDD-MERCY COLLEGE

VISUAL ARTS SAFETY

Photography

MISSION STATEMENT

Gwynedd-Mercy College was founded with the mission of creating a learning environment rich in liberal arts. It is recognized that specific creative processes may produce hazardous chemicals that may adversely affect the environment. Gwynedd-Mercy College realizes our responsibility for the protection of our employees. We hereby institute the enclosed photochemical safety guidelines to assist us in our safety program. The photochemical safety guidelines establish the basic safety principles for studio procedures, equipment, and work practices that are capable of protecting employees from physical and health hazards in studios. This document is intended only to highlight those safety measures necessary for achieving a safe and healthy work environment. Where the scope of hazards is not adequately addressed by this general document, the studio supervisor must develop specific Standard Operating Procedures.

INTRODUCTION

Federal agencies administer numerous federal statutes applicable to photographic hazardous waste management activities. The Resource Conservation and Recovery Act (RCRA) (42 U.S.C.A. §§ 6901-6992) and federal regulations in 40 CFR parts 260-279 contain the basic requirements of the federal hazardous waste program administered by the U.S. Environmental Protection Agency (EPA). Under the Occupational Safety and Health Administration (OSHA) regulatory standards 29-CFR 1910.1450, classification of hazardous chemicals includes some components of photographic chemicals. Additional regulations are found in Title 25 of the Pennsylvania Code.

The guidelines provided in this document address the different types of photo chemicals encountered in the darkroom and provide information on proper safety procedures. There are many hazards associated with photographic chemicals. Typical substances utilized in photo processing include fixer, toner, bleach fixer, developers, stabilizers, and rinse water. Due to the chemical constituents in these substances (used and unused), discharge of these substances to the sewer is generally prohibited. It is important that personnel involved with photo processing be aware of these hazards and that every effort is made to minimize exposure to these chemicals and to ensure proper disposal. Staff and students should be familiar with hazards of photo chemicals by reading Material Safety Data Sheets (MSDS) before use. When using any photo chemical, the following safety procedures should always be observed:

- ✧ **MSDS** for chemicals used must be readily accessible within the area.
- ✧ **Eyewash stations or an emergency shower** must be available where photographic chemicals are used due to their corrosive and/or toxic properties.
- ✧ **Proper ventilation** must be provided where photographic chemicals are used or mixed.

- ✧ **Personal Protective Equipment (PPE)** should be available where photographic chemicals are used. PPE include a face masks, gloves, safety glasses, and aprons.
- ✧ **Cover or close** all chemicals to prevent evaporation and release of toxic vapors.
- ✧ **Store** chemicals by compatibility.
- ✧ **Do not eat, drink, or smoke** in studio, darkroom, or storage areas.
- ✧ **Label** all chemicals with the correct contents. Recycled containers must be properly labeled and contents should be compatible with original contents.
- ✧ **Wash hands** frequently when working with photographic chemicals.
- ✧ **Spill kits** need to be readily available in the darkroom or where chemicals are mixed.
- ✧ **Staff and Students** must be informed and abide by the disposal methods that are set forth by GMC as the appropriate practices to minimize environmental pollution under the guidelines of the [Clean Water Act](#).

DISPOSAL METHODS

Spent and un-used materials containing hazardous chemicals that can not be recycled or re-used must be collected and containerized with a hazardous waste label. Chemical waste should not be mixed and must have individual waste containers. GMC classifies all fixers and toners containing silver or other similar components, hardeners, and reducers containing cyanide as hazardous materials and must be captured by regulation of the municipal water authority governing Gwynedd Valley. All waste containers must include a hazardous waste label which identifies the **chemical name, accumulation start date, full date, and generators name**. Contact the Environmental Safety Manager for needed materials such as containers or hazardous waste labels. When containers are full, forward the GMC Request for Chemical Removal Slip or call Environmental Safety Manager (x489) for pickup.

DEVELOPER

Developer solutions and powders are often alkaline with moderate to high toxicity. They are also sources of the most common health problems in photography. These include skin sensitivity and allergies. Developers are skin and eye irritants and many are strong allergic sensitizers. Some common ingredients in developers are:

- ✧ Hydroquinone
- ✧ Sodium sulfite
- ✧ Mono-methyl-para-aminophenol
- ✧ Bis(4-hydroxy-N-methylanilinium) sulfate
- ✧ Phenidone
- ✧ Sodium tetraborate, pentahydrate

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Avoid using developers that contain para-phenylene diamine or diaminophenol hydrochloride (amidol), pyrogallol, or Catechol.
- ✧ Make sure proper PPE is used. Have gloves and face mask available.

- ✧ Ensure proper ventilation
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

STOP BATH

Stop baths are acidic and can cause dermatitis; skin ulceration and can severely irritate the respiratory system. Contamination of the stop bath by developer components can increase inhalation hazards. Common ingredients in stop baths include:

- ✧ Acetic acid (dilute or concentrated)

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Purchase dilute solutions of acetic acid rather than the concentrate
- ✧ Use a water rinse step between developer and stop bath to reduce the formation of sulfur dioxide gas
- ✧ Ensure good ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

FIXER

Most fixer solutions contain sulfites. When in contact with strong acids or if heated, sulfites may liberate sulfur dioxide gas. Sulfur dioxide gas is irritating to the respiratory tract and is of particular concern for asthmatics or hypersensitive individuals using the product. Fixer solutions may include:

- ✧ Sodium thiosulfate
- ✧ Sodium sulfite
- ✧ Sodium bisulfite
- ✧ Potassium aluminum sulfate
- ✧ Boric acid

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

HYPO ELIMINATOR

Many hypo eliminators are skin and respiratory irritants. Some are corrosive to the skin, eyes, nose and throat. Common ingredients in Hypo Eliminators include:

- ✧ Hydrogen peroxide
- ✧ Ammonia
- ✧ Potassium permanganate
- ✧ Bleaches
- ✧ Potassium persulfate

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Hypo eliminators are oxidizers and should be kept away from flammable or combustible substances
- ✧ Keep away from sources of heat
- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

INTENSIFIER

Several intensifiers contain extremely hazardous components such as mercuric chloride, mercuric iodide, potassium cyanide, sodium cyanide or uranium nitrate. The more common intensifier ingredients include:

- ✧ Hydrochloric Acid
- ✧ Potassium dichromate or potassium chlorochromate

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Potassium dichromate and chlorochromate are probable human carcinogens and potassium chlorochromate can release toxic chlorine gas if heated or exposed to acids.
- ✧ Hydrochloric acid is corrosive
- ✧ Mercury, cyanide or uranium intensifiers are extremely toxic. Uranium is radioactive while cyanide compounds can react with acids to produce toxic cyanide gas. Avoid using these types of intensifiers.
- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

REDUCER

Reduction of negatives is usually done with Farmer's reducer, consisting of potassium ferrous cyanide and hypo eliminators. Reduction has historically been done with iodine/potassium cyanide, ammonium persulfate, and potassium permanganate/sulfuric acid.

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Do not heat or add acid to cyanide compounds because toxic cyanide gas can be released
- ✧ Persulfate and permanganates are oxidizers and can cause fire or explosions in the presence of solvents and other organic material
- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

TONER

Toning a print usually involves replacement of silver by another metal, for example, gold, selenium, uranium, platinum, or iron. In some cases, the toning involves replacement of silver metal by brown silver sulfide, for example, in the various types of sulfide toners.

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Uranium, Lead, Selenium, Gold and Platinum are toxic compounds and MSDS should always be available for staff and students.
- ✧ Sulfides and Selenium can release highly toxic gas during toning, or if treated with acids
- ✧ Gold and platinum salts are strong sensitizers and can produce allergic skin reactions
- ✧ Avoid using toners containing thiourea due its probable cancer status
- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

HARDENER

Hardeners often contain formaldehyde (carcinogen and sensitizer), which is toxic, very irritating to the eyes, throat and breathing passages. It can also cause dermatitis.

RECOMMENDED SAFETY PRECAUTIONS

- ✧ Formaldehyde is a sensitizer, so the more a person is exposed to it, the smaller a dose it takes to have an effect on a person.
- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

COLOR PROCESSING

Color processing is much more complicated than black and white processing, using a wide variety of reagents and entailing a wide variation in processes. Instructors are required to contact the Environmental Safety Manager before beginning color processing to discuss any questions on how to incorporate safety and waste disposal procedures based on reagents used. Some common chemicals associated with color processing include:

- ✧ Solvents –including benzyl alcohol and ethylene glycol
- ✧ Various types of amines
- ✧ Color coupling agents
- ✧ Hydroquinone
- ✧ Bleaching which uses a number of chemicals, including potassium ferrous cyanide, potassium bromide, ammonium thiocyanate, and acids

RECOMMENDED SAFETY PRECAUTIONS

Ensure good ventilation (color processing requires more ventilation than black and white due to solvents and other toxic components used at elevated temperatures)

- ✧ Ensure proper ventilation
- ✧ Make sure proper PPE is used. Have gloves and face mask available
- ✧ If any contact splash occurs, flush for at least 15 minutes using eyewash station or safety shower
- ✧ Keep solutions covered, stored properly, and labeled when not in use.

Reference

McCann, Michael. *Photographic Processing Hazards*, Art Hazard News, Published by Safety in the Arts. New York, NY

GMC REQUEST FOR CHEMICAL REMOVAL

**CONTACT: HEAVEN KOZUP
ENVIRONMENTAL SAFETY MANAGER
KEISS HALL 236, EXT. 215-646-7300 X489**

Date: _____

Location of Chemicals - Bldg. & Room #:

Contact Person: _____ **Phone:** _____

Department: _____

Pickup Availability - Date/Time _____

ESM USE ONLY	IDENTIFICATION/ DESCRIPTION (Do not submit unknowns)	PHYSICAL STATE (L or S)	NUMBER, SIZE & TYPE OF CONTAINER	VOLUME or WEIGHT in CONTAINER	CAS #	KNOWN HAZARD

Special Notes or Handling Instructions:

Please sign below. Certification: "I hereby declare that the identification/description of chemicals is accurate and complete to the best of my knowledge and that I have made a reasonable effort to neutralize, detoxify and/or recycle this material."

Signature _____ Date: _____

Date of Pickup _____	ESM Use Only
Transportation Method: _____	
Disposal Arrangement/Storage _____	
Location: _____	