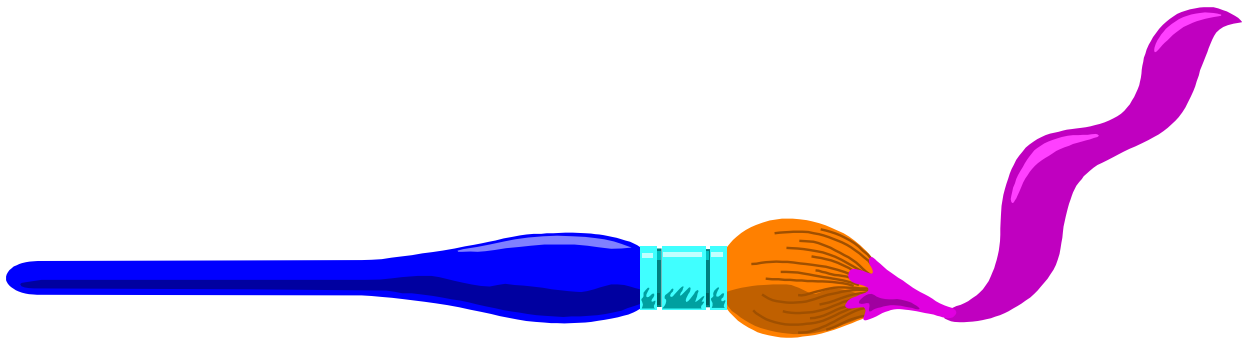


WESTERN CAROLINA UNIVERSITY
ART DEPARTMENT SAFETY MANUAL



SAFETY & RISK MANAGEMENT

**WESTERN CAROLINA UNIVERSITY
ART DEPARTMENT SAFETY MANUAL
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ADMINISTRATIVE RESPONSIBILITIES

The effectiveness of the art safety program depends on cooperation and understanding among all parties involved, particularly among faculty. The general safety responsibilities of each of these key participants is summarized below:

Faculty:

- 1. Enforce safety rules on students and on visitors.**
- 2. Assure that proper safety equipment, such as eye protection, gloves, guards, and fire extinguishers are readily available, operable, and known to all people in the studio.**
- 3. Maintain ventilation for hazardous fumes/dusts as much as possible.**
- 4. Ensure that appropriate warning signs are placed within the studio.**
- 5. Provide training on chemical hazard information, safety rules, recommended good practices, etc.**
- 6. Assure material safety data sheets for hazardous chemicals used in the studio are available.**
- 7. Prohibit eating, drinking or smoking in the studios.**

Students:

- 1. Follow safety rules at all times.**
- 2. Report unsafe conditions.**
- 3. Report accidents.**

Safety Officer:

- 1. Keep the Art Department Safety Manual up to date.**
- 2. Conduct safety inspections of studios.**
- 3. Check safety equipment.**
- 4. Monitor hazardous material storage and disposal.**
- 5. Investigate accidents and hazardous material incidents.**

CERAMICS

Clay

Clays are minerals composed of hydrated aluminum silicates, often containing large amounts of crystalline silica. The primary health hazard is associated with repeated breathing of clay dusts. Excessive dusts will occur if dry clay is mixed without ventilation or allowed to accumulate on surfaces.

1. Always use the ventilation system during mixing.
2. Always be alert to the potential to get your hands or clothing caught in the plug mill, never put your hand in the hopper.
3. Make sure the studio is cleaned daily by wet mopping and washing.
4. Dry sweeping and vacuuming is to be avoided unless a HEP vacuum is used.

Glazes

Glazes contain a mixture of silica, fluxes and colorants. Fluxes and colorants can be highly toxic by inhalation. Highly toxic glaze constituents include:

Antimony	Lead
Barium	Lithium
Cobalt	Manganese
Vanadium	Arsenic
Cadmium	Beryllium
Chromium	Nickel

1. Mix and weigh glazes in an exhaust hood. Wet glazes are not an inhalation hazard. Wet mop spilled powders.
2. Perform all glaze spraying in a ventilated booth.
3. Hand washing after each use is important.

Kilns

Only persons who have been instructed in firing procedures may operate the gas kilns. A complete understanding of firing procedures and safety components is essential to avoid injuries or damage to the kiln.

Raku Firing, Salt Glazing, etc.

These processes present unique safety hazards. Close faculty or graduate assistant supervision is required at all times.

PRINT MAKING/SILK SCREEN PRINTING/ETCHING

Print Making and Silk Screen Printing

A primary hazard in printmaking and silkscreen printing is exposure to organic solvents during plate preparation and plate clean up.

Repeated or prolonged exposure of skin to organic solvent dries out the skin by defatting the tissue.

Prolonged inhalation of solvent vapors in sufficient quantities can cause dizziness, nausea, loss of coordination even unconsciousness.

Accidental ingestion either from poor hygiene or unlabeled containers can cause long-term toxic effects or can be fatal if significant quantities are ingested.

Solvents are flammable and can be easily ignited.

Screen washing presents a moderate hazard of irritation to the lungs a skin and a severe hazard to the eyes. Bleach and some soap used in the process are corrosive depending on the concentration.

Acids used in etching are severely corrosive to the body and reactive with many other chemicals.

Nitric acid etching releases toxic nitrogen dioxide, which has poor odor warning properties.

Mixing hydrochloric acid with potassium chlorate to make dutch mordant produces toxic chlorine gas.

Potassium chlorate is very reactive with organic compounds.

Resin and asphaltum dusts are combustible.

- 1. Learn the specific hazards of what you are working with by reading the label and reviewing the safety Data Sheets if necessary.**
- 2. Gloves and goggles are necessary when using acids and may at times be necessary when using acids and may at times be necessary when using solvents or bleach.**
- 3. Maintain good ventilation, use the exhaust hoods.**
- 4. Be aware of the location of eye wash stations or other water source for drenching the skin and eyes.**
- 5. Store acids below eye level. Segregate the storage of chemicals.**
- 6. When diluting acids pour acid solution into water (not water into acid).**

PHOTO PROCESSING

Photo Processing

Photographic processing i.e. mixing, developing, stop bath, fixing, reducing, intensifying, etc. involves a wide variety of chemicals that are corrosive to the skin/eyes and in some cases, toxic by inhalation. Good chemical hygiene procedures are essential during all types of processing.

1. Know the specific hazards of what you are working with by reading the label or safety data sheets.
2. Use gloves and eye goggles when necessary.
3. Maintain good ventilation.
4. Plan how to quickly flush your eyes in case of accidental exposure.
5. Wash your hands after use.
6. Store corrosive chemicals below eye level.
7. Make sure all containers are labeled properly

SCULPTURE

Sculpture

Sculpture hazards are generally those presented by welding, power machinery and dusts which may be toxic.

Welding

1. All fire hazards shall be removed from the area of welding.
2. Goggles are required for torch soldering which does not require filter lenses.
3. When arc welding is suspended and unattended all electrodes shall be removed, and the machine disconnected. For fuel gas, the cylinders shall be shut off.
4. The exhaust ventilation system must be used to remove fumes.
5. The welding screen must be in place.
6. Gas cylinders must be stored in the up right position.

Machine and Tools

1. Guards and shields, which are provided with the equipment, must not be removed.
2. Eye protection is required for most machine and tool operation.
3. Damaged tools, including cords shall not be used and should be reported to the faculty.

Dust

Plaster dust is currently not classified by OSHA as toxic. However, metal dusts may be toxic depending on the metal. The exhaust ventilation system must be used when grinding metals.

PAINTING

Painting

Paints are pigments mixed with a binder. Poisoning can occur if toxic pigments are inhaled or ingested. Water based paints include water, color, acrylic, gouache, tempera and casein. The preservatives used in water-based paint may cause an allergic reaction in some people. Oil paints and brush cleaners include solvents. The solvents are toxic by inhalation, poisonous if ingested and may cause skin contact dermatitis.

- 1. Know the toxicity of the pigments you are using and use the least toxic possible. Toxic colors are; colors with lead, cadmium, mercury, arsenic and chromium.**
- 2. If possible use mineral spirits to clean oil brushes instead of turpentine.**
- 3. Wear neoprene gloves when cleaning brushes in solvents clean brushes under a fume hood.**
- 4. Paint can be removed from your hands with baby oil and then soap and water.**
- 5. Avoid intermixing drinking, eating containers with paintbrush containers.**
- 6. Practice good hygiene. Do not put the brush in your mouth. Do not eat while painting. Keep your hands out of your mouth. Wash your hands after painting.**

WASTE DISPOSAL

Printmaking

1. Rags and paper with oils and solvents, characteristic flammable waste. (Mineral Spirits, Kerosene, Alcohol).

Disposal - Small quantities can be set out in the hood so that the solvent evaporates. Then they can be disposed of as ordinary waste because they no longer exhibit the flammable characteristic. A cleaning service is preferred for rags.

2. Weak nitric bath with zinc. (1 gal. a month)

Disposal - Neutralize with baking soda, flush to sewer with 10 parts water after pH reaches 5 or above. Wear eye goggles while doing this.

Graphic Design Room

1. Darkroom - Photo chemicals (<1 gal. a month)

Disposal - Flush to sanitary sewer.

Photo Lab Room

2. Photo chemicals, (2-5 gallons a month)

Disposal - flush to sanitary sewer.

Painting

Petroleum solvents (mineral spirits) or turpentine with inks or paint solids (1 gallon month during the year).

Disposal - Collect in metal can for Safety & Risk Management to pick-up.

CHEMICAL SPILL PROCEDURES

Hazardous Materials Incidents

The scope of this section is limited to incidental spills or releases of chemicals or gases which can be safely corrected at the time of the release by either personnel in the work area or by maintenance personnel.

For spills and releases beyond the control of employees at the scene, university personnel will evacuate the release area and call for help from outside emergency responders. Designated Facilities Management workers will attempt to contain the release from a safe distance, keep it from spreading and prevent exposures.

Management of chemical spills and gas leaks usually requires the technical support of the supervisor or faculty member responsible for the material and/or the campus Safety Officer.

Campus Police Officers and/or the SECT team may be the first to arrive at the site. However, they should not enter spill or gas leak areas without knowledge of the material hazards and protective equipment required.

The following activities should be conducted prior to actual clean-up or leak correction:

- Determine the exact physical location of the release (e.g. in a room, hallway, or the floor, in a hood, storage room, on a table etc.) and the quantity.
- Isolate the spill or release as much as possible. Exhaust ventilation should be established if possible.
- Evacuate all personnel from the spill or release area and attend to persons who may have been contaminated.
- Obtain the Material Safety Data Sheet (MSDS) or consult the person responsible for the material to identify the material, its chemical and physical properties, hazards presented and the types of protective equipment needed.
- If the material is highly flammable attempt to turn off ignition sources if safe to do so.
- Clean-up personnel must wear protective clothing and equipment in accordance with the hazards of the material.

Spills of Chemicals:

Confine the spill material as much as possible.

Use clay safety absorbent or diatomaceous solid absorbent to absorb any liquid.

Note: A neutralizing agent may be used on inorganic acids and bases but only under the supervision of a faculty member or the Safety Officer.

If the material is volatile let it evaporate and be exhausted by the mechanical exhaust system if safe to do so.

Carefully pick-up cartons or bottles and place in a solid wall box.

Place the absorbed liquid or solid in a plastic or metal container and label the container.

Dispose of residue according to Hazardous Waste Policies.

Gas Leaks: In cases involving highly flammable or toxic gases immediately dangerous to life the building should be evacuated.

Maintain the mechanical exhaust system if safe to do so.

Gases which are immediately life threatening should be shut off using a self contained breathing unit and full body protection for highly toxic gases.

Leaks which are not immediately life threatening may be localized with soapy water or a gas leak detector.

The supplier should be contacted for all leaks, which cannot be remedied by a simple act such as tightening a valve gland or packing nut.