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1.0 AUTHORITY

California Code of Regulation (CCR) and Code of Federal Regulation (CFR)

2.0 REGULATORY AGENCY

California Department of Industrial Relations, Division of Occupational Safety and Health, (Cal/OSHA); California Department of Health Services, Department of Toxic Substance Control (DTSC); California State Fire Marshall (CSFM).

3.0 BACKGROUNDS

- 3.1 These regulations require CSUSB to develop, implement and maintain environmental health/occupational safety programs for the humanities program. The Art Safety Plan (ASP) is for the protection of employees, students and the environment from hazards associated with workshops. For this ASP, workshops include: studios, labs, theaters and other applicable areas.
- 3.2 The procedures and methods outlined in the ASP shall be regular, continuing efforts, not merely standby or short-term activities.
- 3.3 Our University has also had to assume the additional challenge of administering instructional workshops, where relatively inexperienced students must be introduced to the safety precautions necessary to conduct various workshop operations.

4.0 SCOPE

The provisions of these regulations apply to all personnel in workshop-type environments, including but not limited to: faculty; artists, musicians; workshop and stockroom technicians/supervisors; student assistants and technical assistants.

5.0 POLICY

- 5.1 It is the policy of the University to maintain, insofar as it is reasonably within its control to do so, campus workshop environments for faculty, staff, students and the public that will not adversely affect their health and safety.
- 5.2 To accomplish this, departments shall provide facilities and equipment that meet federal, state and local (where applicable) safety laws and regulations, and shall promulgate appropriate policies, standards and procedures for governing campus health and safety programs.

- 5.3 While the overall responsibility for campus health and safety rests with the President, the immediate responsibility for workshop health and safety belongs to each campus employee who performs a supervisory role. In addition, individual employees are responsible for preventing workshop accidents. Accordingly, all faculty and staff shall ensure that safe/healthful conditions and practices are identified and followed within areas under their control, while members of the campus community are to cooperate fully with all aspects of the various campus health and safety programs.

6.0 OBJECTIVES

- 6.1 The ASP will assist administration in determining what hazards exist in workshops, how to correct hazards that may occur, and what steps to take to prevent them from recurring.
- 6.2 The University has established an effective system for implementing provisions of the written ASP so that the following objectives can be achieved.
- a. Employee exposure to hazardous environments is reduced.
 - b. The ASP is readily available to all applicable employees.
 - c. The ASP is reviewed and updated as appropriate.
 - d. Workshop equipment is inspected regularly and maintained in safe working condition.
 - e. Provisions are made for additional controls and employee protection for work in particularly hazardous conditions.
 - f. Provisions are made for applicable medical monitoring.
 - g. Provisions are made for employee information and training.

7.0 RESPONSIBILITIES

- 7.1 University Administration
- a. The campus President has ultimate responsibility for establishing and maintaining effective policies regarding environmental health and safety within the institution and should, with other administrators, provide continuing support for institutional safety. Policies which govern the activities and responsibilities of the Environmental Health and Safety (EHS) program are thereby established under the final authority of the President.
 - b. It is recognized that certain responsibilities and expressed procedures in this program cannot be equally applied because of the wide diversity of operations within the University and the necessary differences in

organizational structure within various departments. There are, therefore, some details which might be impossible or impractical for one department chair or department head to implement as directed while another would have no difficulty in applying every one. Departments will, therefore, have some latitude in formulating and implementing alternative methods when necessary as long as the total ASP objectives are not compromised.

7.2 Art Safety Committee (ASC)

- a. Submit and prepare agenda items to be discussed at committee meetings
- b. Assist in dissemination of information and regulatory updates.
- c. Provide recommendations to assist in the evaluation of safety suggestions.
- d. Assist departments in developing procedures and policies for operational use when necessary.
- e. Review and evaluate various departmental safety concerns and regulatory deficiencies.
- f. Seek ways to improve the ASP.
- g. Meet at a minimum quarterly or as requested by the Chairperson.

7.3 Environmental Health and Safety (EHS) Department

It is the responsibility of EHS to develop, maintain and promote compliance of the ASP. Further responsibilities are outlined below:

- a. Provide consultation to Department Deans, Directors, Chairpersons and Coordinators regarding program compliance. Consult on issues of hazard identification and evaluation; procedures for correcting unsafe conditions; advise on procedures for obtaining fiscal resources; determining and implementing control measures; employee information and training programs and employee medical monitoring.
- b. Provide centralized monitoring of campus wide health and safety activities on a consultative basis.
- c. Maintain currency on legal requirements concerning regulated substances.
- d. Seeks ways to improve the ASP.

7.4 Department Safety Coordinators (DSC)

It is the responsibility of the DSC's appointed by Department Chairs or Department Heads to ensure compliance with regulatory guidelines and ASP procedures. Further duties shall include but are not limited to the following:

- a. Department representative on the ASC.
- b. Liaison with the EHS Department
- c. Assist the departments in development and implementation of EHS programs.
- d. Primary resource person for aiding EHS activities.
- e. Ensure that all department surveys and chemical inventories are completed and returned to the EHS Department in the requested timeframe.
- f. Ensure that all copies of the MSDS and training forms are forwarded to EHS Department for centralized record keeping.
- g. Ensure that all markings, labeling and identifications per regulatory requirements are in place.
- h. Assist and expedite correction of identified deficiencies.
- i. Ensure that all regulatory information is disseminated.
- j. Provide access to all department employees for safety concerns without fear of reprisal.

7.5 Deans, Directors, Department Chairs, Department Heads

It is the responsibility of the Deans, Directors, Department Chairs and Department Heads to develop departmental procedures to ensure effective compliance with the ASP and other university health and safety policies as they relate to operations under their control. Specific areas include employee and student education and training, identification and correction of unsafe workshop conditions and recordkeeping. Specifically these individuals will:

- a. Identify a Department Safety Coordinator (DSC).

- b. Provide training to supervisors and technicians regarding requirements for compliance, elements of the program and specifics on what/how to train employees.

7.6 Supervisors

- a. Identify potential workshop hazards.
- b. Provide employee training at initial assignment and prior to new exposure situations.
- c. Define special circumstances under which employees must request approval before engaging in a given work activity.

7.7 Workshop Workers (Technicians, Student Assistants, Technical Assistants, Other Employees)

Employees who work in workshop environments are responsible for the following:

- a. Plan and conduct each operation in accordance with the University and art safety procedures.
- b. Use common sense and good judgment at all times.
- c. Report any significant problems arising from the implementation of the Standard Operating Procedures to the Instructor/Supervisor.
- d. Attend established education and training sessions.
- e. Ask questions to supervisors when there is a concern about unknown or hazardous situations.
- f. Understand the function and proper use of all personal protective equipment (PPE). Wear appropriate PPE when required or necessary.
- g. Contact the Instructor/Supervisor, and/or EHS, if any of the above procedures are not clearly understood.

7.8 Students

Students are expected to always adhere to safe and healthful work practices defined by written and oral campus and departmental safety and health guidelines (**Appendix A**). They must also report workshop hazards that become known to them, to their instructors or other responsible parties. Failure to do so will result

in the initiation of disciplinary measures defined in the campus Progressive Disciplinary Action Plan.

8.0 ELEMENTS OF THE PLAN

The Art Safety Plan addresses the following elements:

- a. Standard Operating Procedures (SOPs) relevant to safety and health considerations to be followed when a process or work involves hazardous chemicals or hazardous situations;
- b. The University's Hazard Communication Program will be implemented and maintained throughout the various departments to reduce employee exposure and increase employee safety when working with chemicals;
- c. That emergency action plans are developed by each individual department for the specific activity. Training, documentation and periodic drills are crucial for this plan to work;
- d. Guidelines and the selection of personal protective equipment when applicable;
- e. Waste management and the appropriate documentation, handling and disposal;
- f. General safety requirements;
- g. Provisions for employee information and training;
- h. Designation of personnel responsible for implementation of the ASP.

9.0 STANDARD OPERATING PROCEDURES (SOPs)

SOPs are written safety and health guidelines for workshops and their operations as a part of the ASP. SOPs are written as reference and working documents that the departments can follow to comply with the myriad of regulatory requirements. Departments shall develop workshop specific SOPs on a case by case basis for additional processes. The following general SOPs are included as Appendices:

Appendix A	Workshop/Studio Safety Instructions and Rules
Appendix B	Personal Protective Equipment (PPE)
Appendix C	Labeling
Appendix d	Chemical Storage Suggestions
Appendix E	Chemical Inventories
Appendix F	Hazardous Waste Overview

Appendix G	Hazardous Waste Disposal
Appendix H	Hazardous Waste/Material Inspection
Appendix I	Employee Information and Training
Appendix J	Material Safety Data Sheet (MSDS)
Appendix K	Training Documentation Form
Appendix L	Chemical Donation Procedure
Appendix M	Hazards of Art Techniques
Appendix N	General Inspection Checklist

10.0 HAZARD COMMUNICATION

- 10.1 CSUSB's "Hazard Communication Program" applies to all faculty and staff who are exposed or potentially exposed to hazardous substances in their workplace. The purpose of this program is to ensure that hazards of all chemicals in the workplace are evaluated, and that information concerning their hazards is transmitted to employees by means of a comprehensive hazard communication program. (See **Appendices I, J and K**).
- 10.2 Substances are considered hazardous by law if it poses a physical or health hazard. Health hazards may include both acute and chronic health effects. Physical hazards include flammables, combustible liquids, compressed gases, oxidizers, explosives, organic peroxides, pyrophorics, and unstable or water reactive chemicals.
- 10.3 CSUSB's "Hazard Communication Program" ensures that the following areas are in compliance:
- a. List/inventory of hazardous chemicals
 - b. Material Safety Data Sheets (MSDSs)
 - c. Labels and other forms of warning
 - d. Training

(For further information please review CSUSB's "Hazard Communication Program.")

11.0 EMERGENCY ACTION PLAN

- 11.1 In addition to the campus wide MULTI-HAZARD EMERGENCY PLAN, each individual department should have their own emergency procedures and required evacuation plan when necessary.
- 11.2 A department emergency action plan can be a brief guideline that personnel are familiar with in the event of an emergency that threatens both occupants and property. At a minimum the emergency action plan must contain the following elements:

- a. Emergency escape procedures and escape route assignments;
- b. Procedures to account for all employees after emergency evacuation has been completed;
- c. Procedures to be followed by employees who remain to perform (or shut down) critical processes before they evacuate;
- d. Rescue and medical duties for those employees who are to perform them;
- e. Preferred means for reporting fires and other emergencies;
- f. Names or job titles of persons to be contacted for further information or explanation of duties under the plan.

11.3 Three main steps involved in the preparation and implementation of an emergency plan include:

- a. Planning and documentation;
- b. Training;
- c. Periodic drills coordinated with Environmental Health and Safety and Department of Public Safety.

All three of these steps are crucial if the emergency plan is going to work as intended.

12.0 PERSONAL PROTECTIVE EQUIPMENT

12.1 Personal Protective Equipment (PPE) is not only regulatory required but also good safety practice. PPE should be provided or made available to faculty, staff and students when the process requires such equipment.

12.2 It is the responsibility of the department head/supervisor to conduct a hazard evaluation to determine if hazards are present or likely to be present, necessitating the use of PPE.

12.3 If such hazards are present the department head/supervisor must:

12.4 Employees who are required to wear PPE must be trained in the following:

- a. When PPE is necessary;
- b. What PPE is necessary;
- c. How to don, remove, adjust and wear PPE.

12.5 In the event of a change in procedure or process, a reassessment for the appropriate PPE must be performed.

12.6 PPE may include (see **Appendix B**): respirators, gloves and hand protection, eye and face protection, hearing protectors, protective clothing, foot protection and other PPE that may be appropriate for a specific process.

13.0 HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

- 13.1 Flammable liquids are liquids with a flashpoint below 100 degrees F. Combustible liquids have flashpoints at or above 100 degrees F. The flashpoint of a liquid is the temperature at which enough vapor forms at the surface of the liquid to ignite if a source of ignition is present. Possible sources of ignition include, but are not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, static, electrical and mechanical sparks, spontaneous combustion and radiant heat.
- 13.2 A general recommendation for storage is to use the minimum container size practical to reduce danger of spills and fires. The amount stored should also be kept to a minimum. Good practice dictates re-ordering rather than storing large amounts of flammable and combustible liquids.
- 13.3 Storage of flammable and combustible liquids should be inside storage rooms meeting NFPA 30 requirements, or flammable storage cabinets meeting NFPA standards
- 13.4 Appropriate rated fire extinguishers should be located within 10-25 feet of where solvents are stored and less than ten feet outside storage rooms
- 13.5 Areas where transfers of flammable or combustible liquids are conducted from one container to another must be separated from other operations by distance or walls with adequate fire resistance. Large containers (e.g. 5 to 55 gallon drums should be grounded) and drums should use dispensing pumps. When dispensing liquids from one container to another, the nozzle and container shall be electrically interconnected (bonded). There shall be a method to control spills and-adequate ventilation.

14.0 SPRAYING FLAMMABLE AND COMBUSTIBLE LIQUIDS

- 14.1 Spraying of flammable and combustible liquids is strictly regulated because of the high risk of fire. Spraying area is "any area in which dangerous quantities of flammable vapors or mist or combustible residues are present due to spraying operations." A spray booth is "a power ventilated structure provided to enclose or accommodate a spraying operation to confine and limit the escape of spray vapor and residue and to safely conduct or direct them to an exhaust system."
- 14.2 Requirements for spray booths, ducts and fan motors are regulated and cover a range of requirements from construction to filters, to sprinklers and fire clearance. (For further information, contact Environmental Health and Safety, extension 5179.)
- 14.3 Electrical wiring/equipment and other sources of ignition in and around spraying areas must meet National Electrical Code requirements.

- 14.4 All spraying areas shall be provided with mechanical ventilation during spraying and drying to prevent fires and explosions.
- 14.5 Requirement for operation and maintenance shall include but not be limited to:
- a. Spraying must occur only in pre-determined spraying areas;
 - b. The spraying area must be kept clean of deposits using non-sparking tools for cleaning;
 - c. Spraying residues must be immediately removed from premises;
 - d. Solvent and paint soaked rags must be kept in approved metal containers which are emptied daily;
 - e. Clothing used in spraying must not be kept overnight on premises except in metal lockers;
 - f. Incompatible materials shall not be alternately used in a spray booth without cleaning residue first;
 - g. "NO SMOKING" signs shall be displayed in all spraying areas and paint storage rooms;
 - h. Electrostatic hand spraying equipment must meet all regulatory.

15.0 WELDING, CUTTING AND BRAISING

- 15.1 Welding, cutting and braising involve both fire and health hazards. All operations in the workshops need to follow regulatory guidelines in order to ensure a safe educational environment.
- 15.2 Designated areas should be free of flammable or combustible gases, liquids or vapors. Other adjacent or nearby operations must be shielded from heat or sparks. Fire extinguishing equipment must be available and maintained.
- 15.3 Those working in welding and cutting must be trained in the safe operation of the equipment. At least one welder is recommended to be certified by the American Welding Society.
- 15.4 Designated areas must meet ventilation requirements to ensure that employee's exposure remain below the permissible exposure or limit. Any type of work may be done only on materials that are thoroughly cleaned of any flammable or combustible material.
- 15.5 Depending on welding, cutting, braising or hot work operations; goggles, helmets with eye protection, hand shields, fire resistance gloves and closed long sleeve clothing may be required. Individuals in nearby areas must likewise be protected or shielded from heat, sparks and ultraviolet rays.
- 15.6 Compressed gases are commonly used for welding and silver soldering and have strict regulatory requirements. Only clearly labeled cylinders with hoses, valves

and fittings in good condition shall be used. Specific storage handling and transport requirements need to be complied with (For further information, contact Environmental Health and Safety, extension 5179).

- 15.7 The area and equipment must be kept dry and clean during use. Connectors between ground and electrode cables must be specifically designed for that purpose. Welding cables should be spread out during work and neatly stored afterwards. Any damaged cable must be replaced and there should be regular inspection of cables.

16.0 WASTE MANAGEMENT

- 16.1 Various artistic activities often produce waste as a result of their processes. The most important concept in safe waste management is to really know the materials and the hazards involved. For hazardous waste guidelines and requirements, see **Appendix F and G**).
- 16.2 Under federal and local regulations, discharging pollutants with certain characteristics into a publicly owned treatment works (POTWs) are forbidden. Examples of materials that cannot be put into the sewer system include, but are not limited to:
- a. Construction materials, ashes, cinders, straw, shavings, tar, plastic, wood, fur, wax or obstructive solids;
 - b. Flammable or explosive liquids, solids or gases;
 - c. Petroleum hydrocarbons;
 - d. Paints and waste from paint manufacturing;
 - e. Waste water with a pH < 5.0 or > 9.5;
 - f. Toxic substances exceeding permissible concentration (e.g. cadmium, hexavalent chromium, copper, cyanide, lead, mercury, nickel, zinc).

For specific parameters and requirements on our permit, contact Environmental Health and Safety, extension 5179.

- 16.3 There are several categories of chemicals and their by products used in workshops that come under the heading of hazardous waste. The university has specific guidelines and requirements as to the storage, handling and disposal of hazardous waste.
- 16.4 In order to meet CSUSB's Hazardous Waste Minimization program, it is required to identify the best way of minimizing or actually eliminating hazardous waste production. The first step is to understand the hazards of the materials used and then investigate substitution of lesser toxic materials. The following are some examples:

- a. Using lead-free glazes instead of leaded glazes;
- b. Using cadmium-free silver solders;
- c. Using water based materials instead of solvent based ones;
- d. Using liquid materials to replace powders (e.g. wet clay or water based dyes instead of dry clay or powder dyes);
- e. Apply coatings by brushing or dipping instead of spraying;
- f. Eliminate cancer causing chemicals.

17.0 GENERAL SAFETY REQUIREMENTS

- 17.1 All walking and working areas including passageways, store rooms and service rooms should be kept neat, clean, sanitary and dry. Spills must be cleaned up safely and promptly. Floors should be free of scraps, debris, garbage, liquids and other wastes. Likewise passageways and working areas should be kept free of loose boards, nails and other protrusions. Permanent aisles must be recognizable and clear of obstruction.
- 17.2 There must be an exit route that leads to a public way. The area surrounding the exit and exit route should be clear of any obstruction or debris. "EXIT" and "NOT AN EXIT" or other various directional signage should be written in clear, plain, legible letters and must mark each egress. Available exit paths may not prevent escape from inside of the building by locks or fasteners. (For further information, contact Environmental Health and Safety, extension 5179).
- 17.3 Fixed ladders shall be able to hold the required load and meet regulatory specifications for the size and type of load that are acceptable for ladders. The preferred angle for descent is 75 to 90 degrees. All portable ladders should be maintained in good condition and inspected frequently. The standard guardrail is required at every open sided platform, catwalk or runway that is four or more feet above the floor.
- 17.4 Scaffolds should be able to support at least four times the maximum intended load while wire or ropes should be able to support at least six times the intended load. Scaffolds should be solid enough to hold the intended load without settling or shifting. Guardrails and toeboards must be used on all sides of scaffolds. All scaffolds must be maintained and inspected.
- 17.5 Employees using machines and tools need to meet the following guidelines:
 - a. Everyone using tools and machines should be properly trained in their use according to manufacture specifications and general safe/cautious behavior;
 - b. Everyone should wear appropriate PPE where applicable;

- c. Loose clothing, neckties and dangling jewelry should not be worn around power tools or machines. Long hair should also be secured;
- d. Never leave any machine that is running unattended. Turn off the power and wait until the machine isn't moving before leaving the work area;
- e. When energized machines and equipment are being serviced or maintained, lock out or tag out devices are required to ensure that the machine is inoperable. (For further information, contact Environmental Health and Safety, extension 5179).

17.6 Hazards to those working with machinery exist whenever machine parts rotate, reciprocate, move and transfer, cut, punch, nick, shear or bend. Regulations requires machine guards on all machines with these hazards to protect the operator and other employees. Common methods of guarding against machine hazards include:

- a. Closing the operation;
- b. Interlocking devices;
- c. Moving barriers;
- d. Removal devices;
- e. Remote control;
- f. Two handed tripping devices;
- g. Electronic safety devices.

17.7 Woodworking machines require special consideration because there is a high risk of injury from their use. The following are some guidelines, but are not limited to:

- a. Machines should be secured;
- b. Belts, pulleys, chains, sprockets and gears must -be guarded;
- c. V-belts and chain drives must be completely enclosed;
- d. Machine guards should be securely attached to machines and conform to existing standards or be specifically designed for that particular machine;
- e. Every machine needs an accessible stop switch;
- f. Machines should have a master switch. It should be possible to lock the machine in the "OFF" position;
- g. Cutting blades must be maintained and sharp;
- h. Scraps and waste should be kept clear of the working surface of the machine;
- i. All woodworking machines that generate considerable quantities of wood dust should be equipped with dust collectors that exhaust to the outside;
- j. Hearing protection may be necessary when noise levels from the machinery are very high (Refer to CSUSB's "Hearing Conservation Program").

- 17.8 All employees using power hand tools must be appropriately trained and familiar with equipment to utilize in a safe fashion. The following are some general guidelines but are not limited to:
- a. All electrical cords must be in good condition and inspected/maintained;
 - b. Special precautions must be taken if the work is damp or contains flammables/combustibles;
 - c. All guards shields and attachments should be in place and functioning;
 - d. Hand held electrical power tools must have a quick release (dead-man) control that shuts off power when control switch is released;
 - e. The frame of electrical tools must be grounded or double insulated and thus labeled;
 - f. Pneumatic tools must be securely fastened to the hose; All hand tools must be maintained in good condition and replaced if damaged;
 - g. All hand tools must be maintained in good condition and replaced if damaged;
 - h. Tools should be stored safely and neatly. There should be procedures for the control of tools;
 - i. Tools should only be used for their intended purpose.
- 17.9 All electrical safety need to meet the National Electrical Code, basic requirements for electrical safety include but are not limited to:
- a. Permanent wires should be used over extension cords, cubes, taps and multiple jacks;
 - b. Flexible cord should be inspected, maintained and replaced if there are any signs of damage, fraying or deterioration;
 - c. It is prohibited to run flexible cords through holes, windows, doors, ceilings, floors or walls. Cords should not be attached to building surfaces;
 - d. Circuit breakers and fuse boxes must either be recognizable or labeled. Outlets, switches and junction boxes must be covered;
 - e. Electrical motor frames must be grounded;
 - f. Ground fault circuit interrupters which shut off the electrical current in case of shorts should be installed whenever required;
 - g. 220-volt and 110-volt wiring should be separate and identifiable. Do not use compatible plugs;
 - h. Don't allow sawdust or other debris to build up around motors since the debris may ignite if the motor overheats.

18.0 EMPLOYEE INFORMATION AND TRAINING

- 18.1 It is the responsibility of supervisors to ensure that all employees are informed and trained on the hazards in the workplace. These may include health, physical and environmental hazards. Such information shall be provided at the time of an employee's initial assignment to work area and prior to assignments involving new procedures or processes. (See **Appendix I and K**).

18.2 Employees shall be informed of the following:

- a. The content of the ASP and its appendices, which shall be made available to employees;
- b. Locations and availability of applicable Environmental Health and Safety Programs;
- c. The identification of department heads, supervisors, DSC's or EHS available for requesting additional information;

18.3 Employee training shall include;

- a. Methods and observations that may be used to detect the presence or identify hazardous processes;
- b. Physical and health hazards of chemicals in the work areas;
- c. Measures employees can take to protect themselves from these hazards, including specific procedures the university has implemented to protect employees from exposure to hazardous chemicals and work procedures (e.g. work practices, emergency procedures, PPE, etc. Applicable details of the ASP.);
- d. Applicable details of the ASP.

19.0 MEDICAL MONITORING

CSUSB's Medical Monitoring Program is designed to assist in the maintenance of employee health and to ascertain the effectiveness of hazard control methods. Certain occupational categories and work with hazardous chemicals may require medical consultation and examination. Employees who meet specific criteria shall be provided appropriate medical consultation and exams at no cost to the employees, without loss of pay and at a reasonable time and place.

20.0 RECORDKEEPING

Inventories, surveys and records related to environmental health and occupational safety and other activities relevant to this area shall be provided to the Environmental Health and Safety Department. EH&S will maintain centralized recordkeeping requirements. Detailed responsibilities and procedures are contained in the CSUSB "Environmental Health and Safety Policy."

APPENDIX A

Workshop/Studio Safety Instructions

WORKSHOP/STUDIO SAFETY INSTRUCTIONS

1. **Emergency Equipment:** Know the locations and procedures for use of emergency equipment in the studio or classroom: fire extinguishers, safety showers, eyewash fountains, fire blankets, emergency on-campus telephones, fire alarms and all exits.
2. **Eye Protection:** One of the most common (and dangerous) types of accidents involves the eyes. Because of this, state regulation requires that "Employees working in locations where there is a risk of receiving eye injuries, such as punctures, abrasions, contusions, or burns as a result of contact with flying particles, hazardous substances, projections or injurious light rays which are inherent in the work environment, shall be safeguarded by means of face or eye protection suitable for the exposure" (Title 8, CCR Section 1516 (a)).
All faculty, instructors, or instructional assistants should determine the risk of eye injury and require eye protection as needed. Eye protection shall comply with ANSI Z 87.1 - 1989 (contact EH&S Department for further information).

The following suggestions are presented for situations in which eye protection is required.

- a. All persons working where flying particles are possible should wear eye protection. This would include grinding, sanding, cutting, chipping, etc.
 - b. Persons who may be subject to splashes, mists, dusts, or fumes of materials.
 - c. Persons who may be subject to harmful radiation from ultraviolet, infrared, visible glare radiation, etc.
3. **Accident or Injury:** Report any injury to an instructor, instructor's assistant, or technician immediately. The instructor will evaluate an injury situation and arrange for the appropriate emergency response if needed.
 4. **To Report an Emergency:** When police, fire department, or paramedics are needed, call 5911. Report as follows: "My name is _____. I am calling from the _____ Department to report _____ in Room ____." (You fill in the blanks). Follow any directions given by the University Public Safety Department.
 5. **FIRE:** Use an extinguisher, if knowledgeable and safe to do so, or leave the building immediately and quietly. **Pull a fire alarm as you exit.** Do not remain in the area to use an extinguisher if it appears unsafe to do so.
 6. **EARTHQUAKE:** Protect yourself from loose equipment or objects. Stay in the building and protect yourself from breaking windows or objects falling from above. When the quake subsides, quickly check, if possible, that all gas valves are closed and

all electrical equipment is off/unplugged to prevent fires. Exit the building. Do not use elevators.

7. **Preparation for Class:** All students are expected to have read and prepared thoroughly prior to starting the class or project. Questions about procedures or precautions should be resolved by asking the instructor before beginning. It is essential to arrive on time to hear all necessary instructions. Students more than ten minutes late may not be admitted into the workshop or studio without instructor's approval
8. **Workshop/Studio Behavior:** No eating, drinking, or smoking is permitted. Do not store food in the workshops or studios. Unauthorized projects are not permitted. No chemicals or supplies may be taken from storeroom, workshops, or studios for home use. Do not deliberately taste chemicals. No horseplay or visitors are allowed in workshops or studios. Do not play radios, CD's, etc. in workshops or studios without prior permission.
9. **Safe Conduct:** Read labels and make sure you are using the correct chemicals or materials. Never leave heat sources unattended (gas burners, torches, etc.). Take only the amount of material needed. Never adulterate bulk materials by pouring used or unused, adulterated portions back into stock bottles. If you end up with extra, give it to someone who needs it or consult with the instructor on how to dispose of it properly. While they contain chemicals, never look directly into containers or vessels or point them at someone. No flames are to be used unless directed to do so by the instructor. Use the hood when working with chemicals that emit toxic fumes. To reduce risk of cuts, always use a lubricant such as glycerin when inserting a glass tube or thermometer into a rubber stopper. Never pipette with the mouth. Always wash chemical spills off the skin immediately with plenty of water when appropriate.
10. **Proper Clothing:** No open-toed shoes or sandals may be worn without instructor approval. Long hair must be secured. Lab coats or aprons must be worn over shorts or short skirts. It is suggested that you wear old clothes to class, as some of the chemicals and materials can burn holes or cause stains in fabric.
11. **Waste Disposal:** Discard waste as instructed. Your instructor will indicate which chemicals may be washed down the drain. All other waste must be placed into the proper containers. Be certain the waste containers you use are correct. If in doubt, ask the instructor. Clean up broken glass with a broom and dust pan.
12. **Chemical Spills:** Clean up minor spills as they occur. Report major spills, mercury spills (including broken thermometers), spills of hazardous chemicals and spills of unknown chemicals to the instructor.

- 13. Leaving the Workshop/Studio:** Return all equipment and materials to their proper location. Clean equipment and your work area. Wash your hands with soap and water.

WORKSHOP/STUDIO SAFETY RULES

1. No unauthorized projects are permitted - not even projects from other courses. Do not modify or change the design of your project without instructor approval.
2. Except for chemicals and materials issued by the stockroom as a component for the project, students are required to have a note signed by the instructor to obtain chemicals from the class stockroom.
3. No chemicals or supplies may be taken from storerooms, workshops, or studios for home use.
4. Do not deliberately smell or taste chemicals.
5. Reagents such as strong acids and bases and many toxic substances may be kept under the fume hood. These substances should be measured and added under the hood.
6. Most organic solvents burn extremely well. **NO FLAMES ARE TO BE USED** unless directed to do so by the instructor, and then only when you are certain that no flammable solvents are present on either your or your neighbor's bench tops.
7. Sources of high heat (kilns, burners, and torches) require special care. Only keep one of these units on for the time that you need it and never leave one unattended. Secure any long hair or loose clothing that might come into contact with the heat source. Hot plates can stay very hot long after they have been turned off so handle them carefully.
8. Do not mix different materials unless you are instructed to do so.
9. Read the bottle labels carefully and thoroughly. Report unlabeled chemicals to the instructor.
10. Never adulterate materials by "pouring back" unused portions into stock bottles without prior approval. Try not to take excess material but, if you do, let your neighbor use it or ask your instructor how to dispose of it.
11. Discard waste as instructed. **DO NOT** dump chemicals into trash cans or toilets. Your instructor will indicate when a chemical may be washed down the drain. All other waste chemicals are to be deposited in a waste container; they should be placed in the **PROPER** labeled container, **NOT** the most convenient waste bottle. If in doubt, ask.
12. Never put your mouth on a pipette, stir rod, brush, or other tool that has come into contact with chemicals.

13. Clean up broken glass immediately, and dispose of glass in the appropriate container. Remember, however, the potential for small pieces of broken glass contaminated with materials or chemicals always exists on bench tops or floors.
14. . Keep common areas clean.
15. Most cuts stem from forcing glass tubing into rubber corks. Always use a lubricant (such as glycerin), and cover the glass with a towel.
16. Always wash chemicals and materials off your hands at once with plenty of water. Always wash hands before leaving the studio or workshop.
17. Absolutely no horseplay of any kind is permitted in workshops or studios.
18. No eating, drinking, smoking, applying cosmetics, chewing on pencils, finger nails, is permitted in workshops or studios. Since you don't know if the person in the area before you cleaned up properly, assume everything in the area is contaminated. Wash your hands before leaving the workshop or lab.
19. No visiting by friends is allowed during class sessions.
20. Do not drink water from faucets, use drinking fountains.
21. Immediately report any broken equipment or unsafe situations to the instructor.
22. Immediately report any spills, cut, burn or other injury to the instructor.
23. Be sure gas jets and torches are OFF before you leave. Check that adjacent gas jets and torches are off before lighting your burner.

GENERAL ART SAFETY SURVEY

INSPECTOR: _____
 DATE: _____

DEPARTMENT: _____
 BLDG. _____ ROOM: _____

VENTILATION	PASS	FAIL	N/A	ELECTRICAL	PASS	FAIL	N/A
Room Functioning				All Equipment Grounded			
Fume Hood Functioning				Equipment in Good Repair			
Fume Hood Surveyed Annually				Emergency Shutoffs Functional			
Spray Booth Functional				Emergency Shutoffs Labeled			
Manometer Functioning				No Frayed/Cut Cords			
Filters Clean				Cords Have Ground			
Local Exhaust Undamaged				Cords Not Spliced			
Supply Grill				No Multiple Plug Adapters			
Return Grill				No Bare Wires			
Thermostat				Faceplates on Outlets			
Temperature (comfort level)				Faceplates on Switches			
Humidity (comfort level)				Circuit Breakers Accessible			
				Circuit Breakers Identified			
FIRE/LIFE SAFETY	PASS	FAIL	N/A				
Door(s) Self Closing				"GFI's" Tested			
Door(s) Kept Closed				EQUIPMENT/TOOLS	PASS	FAIL	N/A
Extinguisher Available				Training for All Tool Users			
Extinguisher Charged				Tools in Good Repair			
Extinguisher Tagged				Tools Securely Stored			
Extinguisher Sealed				Faceguards/Goggles at All Locations			
Extinguisher Mounted				Sufficient Space Between Machines			
Extinguisher Inspected Monthly				Power Shutoff Within Reach of Operator			
Fire Blanket				Equipment Area Uncluttered			
Fire Hose Undamaged				Stationary Power Tools Guarded			
Fire Pull Station Undamaged				Hand Power Tools Have Guards			
Hallways/Paths Unobstructed				Guards on All Belts/Pulleys Etc.			
Rubbish/Combustibles No Hazard				Pneumatic Hoses in Good Repair			
Flammable Material Storage				Hydraulic Hoses in Good Repair			
< 10 Gallons Flammables				Bench Mounted Equip. Secure			
No Unsealed Wall Penetrations				Abrasive Wheel RPM Ratings Compatible with Grinders			
"Exit" Signs Unobstructed				Abrasive Wheels in Good Repair			
Handicap Evacuation Plans				Dust Collectors Functional			
FIRST AID	PASS	FAIL	N/A	WELDING, CUTTING, BRAZING	PASS	FAIL	N/A
Telephone Available				Only Trained Users Authorized			
Emergency Numbers Posted				Cylinders Examined for Damage			
First Aid Kit Available				Regulators, Valves, Etc. in Good Repair			
Emergency Eyewash/Shower				Hoses, Torches, Tips, Etc. in Good Repair			
Inspected Monthly				All Equipment Clean, Free of Grease/Oil			
Unobstructed				All Cylinders Labeled			
				No Cylinders Physically Damaged			

WELDING, CUTTING, BRAZING	PASS	FAIL	N/A	SPRAY OPERATIONS	PASS	FAIL	N/A
Cylinders Secured				Adequate Ventilation			
Cylinders Kept From Heat Sources				Spray Area Free of Hot Surfaces			
Empty Cylinders Marked & Secured				Spray Area 20 Separation From Ignition Sources			
Hoses Correctly Colored				Portable Lamps Explosion Proof			
Red = Acetylene				Fire Control Sprinklers Clean			
Green = Oxygen				Area Clear of Combustibles			
Black = Inert Gas/Air				No Damaged Fixtures/Exposed Wires			
Arc Welding Voltage Low as Possible				Drying Areas Adequately Ventilated			
Grounding Straps/Cords Condition				HAZARDOUS MATERIALS	PASS	FAIL	N/A
Switches/Outlet Condition				Personnel Trained in Safe Use			
Power Off When No One at Welder				MSDS's Available for All Materials			
Appropriate Fire Extinguisher				Inventories Submitted to EH&S Dept.			
Adequate Ventilation at Welders				Appropriate PPE Available			
Appropriate Hood/Eye Protection				All Containers Appropriately Labeled			
Appropriate Respiratory Protection				AH Containers Undamaged			
NO CONFINED SPACE WORK				All Containers Kept Closed			
COMPRESSORS	PASS	FAIL	N/A	All Containers Stored Safely			
Equipped With Pressure Relief Valve				Incompatibles Stored Separated			
Equipped With Pressure Gauge				Spill Contingencies in Place			
Intakes Drawing Fresh Air				Hazardous Wastes Stored Separately			
Air Filters Installed/Clean				Hazardous Wastes Stored in Secure Area			
Maintenance Records Maintained				Hazardous Wastes Labeled			
"Automatic Start" Signs Posted				Hazardous Waste Containers Undamaged			
Beats Fully Enclosed				GENERAL CONDITIONS	PASS	FAIL	N/A
Safety Chains/Cables at Couplings				Slip or Fall Hazards Eliminated			
Abrasive Blast Gun Auto Stop				Lighting Adequate for All Areas			
HOIST	PASS	FAIL	N/A	Emergency Gas/Electric/Water Shut Offs Identified/Accessible			
Campus Hoist Policy Followed				Emergency Evacuation Plan in Place			
FORKLIFT	PASS	FAIL	N/A				
Campus Forklift Policy Followed							
Only Certified Drivers Allowed to Operate							
Roll Protection Intact							
Lights/Horn/Back Up Alert Functional							
Brakes, Including Parking Brake							

Notes: _____

Art Safety
Project Safety Inspection Form

Project Title: _____

Class: _____

Instructor: _____

Emergency Preparation	Yes	No	N/A
Instructor or supervisor is aware of my presence and purpose in shop			
Emergency route and exit clear of obstructions and functional			
Appropriate fire extinguisher available			
Emergency eyewash/shower available			
Emergency shut-off available for process(es)			

Personal Protective Equipment (PPE)	Yes	No	N/A
Equipment or process I will be using requires PPE			
Equipment, Tools, and Guards			
Appropriate, undamaged PPE is available and will be worn			

Flammable and/or Hazardous Materials	Yes	No	N/A
I am familiar with the hazards of all of the materials I will use including health hazards (e.g. inhalation, skin contact) and physical hazards (e.g. fire)			
Potential sources of ignition have been eliminated			
Appropriate storage and use containers available			
When transferring material between two metal containers, the containers will be bonded and the primary storage container is grounded			
Ventilation is adequate to exhaust all vapors			
A spray booth is available and will be used when necessary			

Welding, Cutting, and Braising	Yes	No	N/A
Designated areas free of flammable or combustible materials			
Equipment (hoses, cylinders, valves, tips, cables, clamps, etc.) clean and in good repair			
Ventilation adequate for work area			
Work area clean, dry, and free of obstructions			
Other:			

Instructor/Supervisor Signature: _____ Date: _____

I have been instructed in, and am familiar with, the safe method of operation of:
 All equipment I will be using;
 All tools I will use for the project;
 All applicable guards and safety equipment.

Student Name

Student Signature

Date

APPENDIX B

Personal Protective Equipment (PPE)

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All handling of chemicals or working near physical hazards in workshop or studio settings can be done without undue risk if appropriate precautions are taken. The most important reason for taking precautions is to prevent the exposure of personnel to a chemical substance or physical hazard. By preventing or protecting against exposure, adverse health affects and injuries can be prevented. This must be the standard that all personnel strive to maintain - the prevention of all adverse health affects and injuries caused by chemical exposure or physical hazards. When engineering and administrative controls are not adequate the next most effective means of preventing exposure is to wear personal protective equipment (PPE).

PPE is the clothing and equipment that is worn to protect a person from chemical exposure or physical hazards. Goggles, gloves, boots, respirators, and smocks are all components of PPE. However, there is no single type of PPE that is appropriate for all conditions. The type of PPE that is required is dependent upon the chemical or physical hazard expected to be encountered.

Selection of PPE must be made prior to commencement of work/project. Material Safety Data Sheets, reference books, and instruction manuals can all be consulted for information on types of PPE to wear when handling a particular chemical or material. **If you are uncertain as to the appropriate level of protection needed to handle a chemical or material, DO NOT HANDLE THAT MATERIAL.** Contact your instructor, supervisor, or the Environmental Health and Safety Department (Ext. 5179) for guidance.

Standards for all personnel working with or around chemical or physical hazards include, as a minimum, the following:

- a. Goggles or full face shields which should be worn at all times (safety glasses offer protection against direct splashes but minimal or no protection against peripheral or tangential splashes); Contact lens wearers are encouraged to wear glasses inside of goggles; Contact lenses can be permeated and altered by certain hydrocarbons or adhere to the eye upon exposure to certain chemicals; If contact lenses must be worn the wearer should use a non-vented goggle;
- b. Appropriate respirators should be worn when the possibility of an inhalation exposure that exceeds OSHA Permissible Exposure Limits exists;
- c. Gloves compatible with work to be performed;
- d. Appropriate apron, lab coat, smock or coveralls;
- e. Closed toed, impervious shoes.

APPENDIX C

Labeling

LABELING

General

The safe handling and storage of materials in a workshop or studio requires knowing and identifying all materials that are used or stored. The safest and most consistent method of allowing identification is to provide labels for all containers. Labeling is not only a good policy, it is required by state regulation. At a minimum, each container should be labeled with the identity of the material (chemical and/or common name), associated physical hazard (flammable, reactive, etc.) and health hazard (poison, corrosive, etc.). Other useful information can be provided and it is suggested that the following minimum information be provided on each container:

- Name of material (chemical and/or common name);
- Physical hazard;
- Health hazard;
- Date of purchase or preparation;
- Material receiver or preparer.

All containers received and labeled by the manufacturers must have at least the above listed minimum information as well as the manufacturers name and address.

Manufacturers' labels typically have more detailed hazard information as well. For this reason, it is suggested that the manufacturers' original container and labels be used if at all possible. Any container received from a manufacturer that does not have the minimum labeling information should not be accepted. However, if the receiver chooses to accept the container he or she must immediately affix an appropriate label to the container.

Note: Even though employers are not required to label portable containers into which hazardous substances have been transferred from labeled containers and which are intended for the immediate use of the person who performs the transfer it is still suggested that all containers be labeled. (Title 8 CCR 5194 f 6)

Substance Specific Labeling Requirements

There are substances for which specific labeling requirements have been developed. These substances include regulated carcinogens (8 CCR 5200 et. seq.) as well as substances that are highly toxic, flammable, corrosive, or reactive (8 CCR Article 112). It is the responsibility of the instructor or supervisor to confirm that substances that require more specific labeling have that labeling.

APPENDIX D

Chemical Storage Suggestions

CHEMICAL STORAGE SUGGESTIONS

1. Establish a separate and secured area for chemical storage.
2. Storage area should be well ventilated (at least four air changes per hour) and isolated from the building ventilation system. Humidity should be maintained below fifty percent. Lighting should be between fifty and one hundred foot candles/square foot.
3. Doors leading to chemical store rooms should be marked as such; label storage area and cabinets to identify the hazardous nature of the materials stored within.
4. Shelving sections should be secured to walls or floor to prevent tipping of entire section.
5. Shelving should have lips or rails to prevent items from sliding off.
6. Shelving should have a chemical resistant coating to prevent corrosion or adsorption.
7. Chemicals should not be stored on the floor or above eye level.
8. Chemicals should not be stored in a standard refrigerator (non-explosion proof), under a fume hood, or on bench tops.
9. If possible, keep certain chemical containers in the original protective shipping packages, e.g. acids and bases in the original shipping styrofoam cubes.
10. Confirm that accurate and appropriate labels are attached to each container. No unlabeled containers should be stored or left unattended.
11. A permanent and perpetual inventory should be maintained.
12. **All chemicals should be stored in chemically compatible families. Avoid alphabetical storage systems.**
13. Chemicals that are highly toxic or have other extremely hazardous characteristics should be stored in unbreakable secondary containers.
14. Stored chemicals should be examined routinely for deterioration, crystallization, and container integrity.
15. Storage of concentrated acids and bases should be limited to a maximum of one

liter each unless there is a special storage area designed and equipped for more. (Consider acquiring an acid storage cabinet for highly concentrated acids).

16. Flammable materials should be stored in an approved flammables storage cabinet. Flammables containers stored outside of a cabinet should be in a *safety can*.
17. Open ether cans should be drained after use and not stored unless absolutely necessary. (Crystal formation on an ether can may indicate the formation of explosive peroxides).
18. Be aware of other chemicals that can form explosive peroxides after prolonged storage, e.g. sec-Butyl Alcohol and tert-Butyl Alcohol.
19. Water reactive materials (sodium metal, potassium metal, etc.) should be stored under dry oil.
20. Cylinders of compressed gases should be handled as high energy sources and considered potentially explosive.
21. Cylinders should always be stored securely and chained to prevent falling.
22. Always protect the cylinder valve and never lubricate or modify a cylinder valve.
23. Neutralizing chemicals, spill kit, dry sand, vermiculite and other spill control materials should be readily available.
24. There should be two ways to exit a chemical storage area. These exits should be free of hazardous materials.
25. All emergency exits should be clearly marked with signs easily readable from a distance twenty feet.
26. An approved eye wash station and fire blanket should be within twenty-five feet of a chemical storage area.
27. A telephone and emergency telephone numbers should be readily available.
28. The proper type (Tri-Class ABC) and size (minimum 15 pounds gross weight) of fire extinguisher should be in the chemical storage area.
29. Keep sources of ignition away from chemical storage areas. (Sources of ignition include appliances with bi-metallic sparking switches).
30. Access to chemical storage areas should be restricted and controlled by only one person.

APPENDIX E

Chemical Inventories

CHEMICAL INVENTORIES

Developing and maintaining an inventory of all chemicals stored and used in workshops, studios, store rooms, and other approved areas is an important part of material management. Accurate chemical inventories are required by law but they also have several benefits. Chemical inventories allow managers to efficiently use chemicals, recognize and dispose of unneeded or unwanted chemicals, identify and isolate severe hazards, maintain a chemical "compatibility" storage system, as well as plan purchases to reduce stock.

Chemical inventories should be taken on a routine basis to be kept accurate. They should also be part of the permanent records that are filed and readily available for review. The Sample Inventory Sheet that follows can be modified to suit specific needs or software programs but should contain at least the same information. When completing the inventory form please use the following abbreviations:

Abbreviations to be Used With Chemical Inventory Form

<u>Unit</u>	<u>Container Type</u>	<u>Physical State</u>	<u>Hazard</u> (List all that apply)
l = liters	G = Glass	S = Solid	F = Fire
ml = milliliters	M = Metal	L = Liquid	R = Reactive
gal = gallons	F = Fiber/Wood	G = Gas	S = Sudden Release of Pressure
oz = ounce	P = Plastic	C = Cryogenic	
cf = cubic feet			
g = grams			CH = Chronic Health (long term affect)
kg = kilograms			AH = Acute Health (immediate affect)
lbs = pounds			

Department: _____

Name: _____

Building: _____ Room: _____

Date: _____

Aisle: _____ Shelf: _____

CHEMICAL INVENTORY FORM

Chemical Name	Purchase Date	Manufacturer	Qty.	Unit	Cont. Type	Phys. State	Hazards

APPENDIX F

Hazardous Waste Overview

HAZARDOUS WASTE OVERVIEW

Identifying what materials are hazardous wastes is important because of the severe restrictions and myriad regulations that govern the handling of such wastes. This brief outline is not intended as a complete review of the ways in which a waste is identified as hazardous; it is only a synopsis of some primary sources. It will, nevertheless, provide a basis for determining the status of a waste material.

Statutory Definition

Hazardous Waste as defined in Health and Safety Code, Section 25117:

- (a)(1) *A waste or combination of wastes which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either:*
- a. *Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or,*
 - b. *Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed; or,*
- (b)(2)
- a. *A waste that meets any of the criteria for the identification of a hazardous waste adopted by the department pursuant to Section 25141;*
 - b. *"Hazardous waste" includes, but is not limited to, RCRA hazardous waste.*

Listed Hazardous Wastes

A waste is a hazardous waste if it appears on the lists of hazardous wastes in 40 Code of Federal Regulations, Part 261 or in the California Code of Regulations, Section 66261.126.

Identifying Hazardous Wastes by Characteristics

A waste that is not on federal or state lists as a hazardous waste will be considered a hazardous waste if it has one of the following characteristics:

Ignitability

- A liquid with a flashpoint equal to or less than 140° F (60° C);

- A non-liquid capable under standard temperature and pressure of causing fire by means of friction, absorption of moisture, or spontaneous chemical changes and which, when ignited, burns so vigorously and persistently that it creates a hazard;
- A flammable, compressed gas;
- An oxidizer.

Corrosivity

A waste is corrosive if it dissolves metals and other materials, or burns the skin or eyes on contact. The category includes wastes having any of the following characteristics:

- Is aqueous and has a pH equal to or less than 2, or equal to or greater than 12.5, or by mixture with an equivalent weight of water it produces a solution with those pH characteristics;
- A liquid or when mixed with an equivalent weight of water it produces a liquid and corrodes steel (SAE 20) at a rate greater than 0.250 Inch (6.35 millimeters) per year.

Reactivity

A waste is reactive if it is unstable or undergoes rapid or violent chemical reaction, such as catching fire, exploding, or giving off fumes, when exposed to or mixed with water, air or other materials. This category includes any waste which:

- Is normally unstable and readily undergoes violent change without detonating;
- Reacts violently with water;
- Forms potentially explosive mixture with water;
- Generates toxic gases, vapors, or fumes when mixed with water and does so in a quantity sufficient to present a danger to human health or the environment;
- Is a cyanide- or sulfide-bearing waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors, or fumes;
- Is capable of detonation, explosive reaction or explosive decomposition.

Toxicity

A waste is toxic if it exceeds concentrations of specified metals, organic compounds, or has metal concentrations above listed levels when tested by the Toxicity Characteristic Leaching Procedure (as identified in 22, CCR Section 66261.24).

A waste is also toxic if it has:

- Carcinogenic substances in a combination of 0.001% by weight;
- An acute oral LD₅₀ less than 5,000 mg/kg;
- An acute dermal LD₅₀ less than 4,300 mg/kg;
- An acute inhalation LC_{j0} less than 10,000 ppm;
- An acute aquatic 96-hour LQ₀ less than 500 mg/kg.

APPENDIX G

Hazardous Waste Disposal

HAZARDOUS WASTE DISPOSAL

The purpose of a planned and controlled hazardous waste disposal program is to ensure that minimal risk to humans, other organisms, and the environment will result from the disposal of such wastes. It is the responsibility of the chemical user to follow approved methods of disposal. The chemical user should understand that indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse destined for landfill burial is unacceptable.

Hazardous wastes from a workshop or studio must be handled with the same care that is used when handling pure materials or mixtures. Hazardous wastes can be produced in numerous ways including the following:

1. Hazardous wastes are those materials for which no further use or reuse is planned.
2. The most common way to produce waste is to utilize materials in a project or demonstration after which the materials have no further value.
3. A material may become a waste at the expiration of its shelf life.
4. A material is considered a waste when the label is inadequate, damaged, or unreadable unless the label is corrected within ten days of discovery.
5. A material will also be considered a waste if its container is deteriorated or damaged unless the material is re-containerized within ninety-six hours of discovery (California Health & Safety Code Section 25122).

The following definitions will help identify hazardous wastes.

HAZARDOUS WASTE: any waste (including recyclable materials), solid, liquid, or gas, that may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

A waste is hazardous if it has one or more of the following characteristics:

IGNITABLE: easily combustible or flammable; a liquid with a flash point of 140 degrees Fahrenheit; a flammable compressed gas; an oxidizer;

CORROSIVE: dissolves metals, other materials, or burns skin or eyes on contact; an aqueous solution with a pH less than 2 or greater than 12.5;

REACTIVE: is unstable or undergoes rapid and violent chemical reactions when exposed to air, water, or other materials;

TOXIC: exceeds specified limits for metals, organics or other compounds listed in CH&S Code; or has the following characteristics:

- Acute oral LD50 < 5,000 mg/kg;
- Acute dermal LD50 < 4,300 mg/kg;
- Acute inhalation LC50 < 10,000 ppm.

PERSISTENT & BIOACCUMULATIVE: metals, organic compounds, and inorganic compounds that do not readily degrade when released into the environment.

Once a material has been determined to be a hazardous waste appropriate steps should be taken to assure proper disposal. Following are some suggestions:

1. Collect remnants and residues and containerize them in a container that is compatible with the materials.
2. Pure or unused materials or mixtures that are to be disposed of should remain in their original container if possible. If the original container has been damaged or has deteriorated it should be placed into a compatible secondary container.
3. Provide detailed labels on all waste containers including:
 - a. Chemical name, common name, or chemical composition;
 - b. The words "HAZARDOUS WASTE" on the label or container;
 - c. Date material was determined to be a waste;
 - d. Department or location from which the material was generated;
 - e. Name of the person who packaged or labeled the material;
 - f. Special hazards, storage conditions, or precautions that should be observed;
 - g. pH, concentration, molarity, or other pertinent information if known.
4. Prepare an inventory of all materials for disposal.
5. Transport materials to an isolated and dedicated waste storage location. Hand carried materials should be placed in an unbreakable secondary container (plastic bucket, etc). Use a utility cart when moving multiple containers and use a freight elevator if necessary.
6. Contact the EH&S Department to arrange transport and disposal.

APPENDIX H

Hazardous Waste/Material Inspection

HAZARDOUS WASTE/MATERIAL INSPECTION

YES	NO	N/A	STORAGE AREA
___	___	___	Secured against unauthorized entry
			Signs Posted:
___	___	___	“Hazardous Waste Area Unauthorized Personnel Keep Out “ (Waste areas only)
___	___	___	“No Smoking”
___	___	___	“Emergency Telephone Numbers”
___	___	___	Telephone or alarm available
___	___	___	Fire extinguisher or adequate water available
___	___	___	Spill control material available

CONTAINERS

___	___	___	Containers maintained closed unless adding or removing wastes or materials
___	___	___	Container integrity good: no leaking, bulging, or corrosion
___	___	___	Incompatible wastes or materials stored separate and apart
___	___	___	Containers stored in a way that minimizes fire, explosion, or releases
___	___	___	Adequate aisle space maintained
___	___	___	Containers not stored on wood or other adsorbent material

CONTAINER LABELS (Containers labeled with the following information):

___	___	___	“Hazardous Waste” (Waste containers only)
___	___	___	Chemical composition of waste or material
___	___	___	Physical and Health Hazards of waste or material
___	___	___	University and Department Name/University Address/Telephone Number
___	___	___	Accumulation start date (Wastes only)
___	___	___	Purchase of formulation date (Materials only)

HAZARDOUS WASTE/MATERIAL INSPECTION FORM INSTRUCTIONS

Hazardous waste/material storage areas are areas that may pose additional risk to a facility and as such they are required to be inspected weekly. The enclosed "Hazardous Waste/Material Inspection Form" will help users of hazardous waste/material storage areas to conduct an inspection by identifying items that are important to safe storage. The form also identifies some of the items that are a concern to regulatory agencies. The result is that if the hazardous waste/material storage areas are inspected at least weekly and meet the conditions listed on the "Hazardous Waste/Material Inspection Form" the areas will meet the majority of regulatory requirements when inspected by an outside agency.

The Form itself should be self-explanatory but some users may benefit from the following additional information:

Secured against unauthorized entry: Hazardous waste/material storage areas should be maintained in a way that prevents intentional or unintentional entry by unauthorized people or animals;

Signs Posted: The three sign titles listed in quotation marks should be posted and readable at the storage area;

Spill control material available: There should be available materials that can be used to stop or slow a release of waste or material; an example would be sand or "kitty litter" stored in a five gallon bucket;

Containers maintained closed: Containers must be closed *at all times* unless adding or removing wastes or materials; Do not allow a cap or bung to be left off of a container that is not being immediately worked;

Incompatible wastes or materials: Wastes or materials that may combine to form a reaction must be stored in a way that prevents their contact if their drums or containers are knocked over or spilled;

Containers stored in a way that minimizes fire: Wastes or materials that may ignite should be protected from ignition sources (pilot lights, sparking switches, etc.); Metal drums should be bonded and grounded; Containers should be stored in a way that prevents their falling or tipping;

Containers not stored on wood: If a hazardous waste or material leaks onto wood or another adsorbent material that material itself becomes hazardous waste and must be stored and disposed of accordingly;

CONTAINER LABELS: All hazardous waste and materials containers must be labeled - *no matter how small the container*,

"Hazardous Waste": The words "Hazardous Waste" must be on waste containers;

Chemical composition: What the components of the waste or material are;

Hazardous properties: Fire, Reactive, Pressure Release, Acute Health, or Chronic Health hazards;

Accumulation start date: For hazardous waste containers only; the first day waste began to accumulate in the container or, for small waste containers, the day the material was determined to be a waste.

Purchase or formulation date: For hazardous materials only; the date the material was purchased or the mixture prepared.

APPENDIX I

Employee Information and Training

EMPLOYEE SAFETY AND TRAINING

1. Departments shall provide employees with information and training on hazardous substances in their work area at the time of their initial assignment and whenever a new hazard is introduced into their work area.
2. Departments shall furnish employees with an explanation of what the MSDS is and of the contents of the MSDS for any hazardous substance to which the employees are exposed, either in written form or through training programs.
3. When training employees who may be exposed to hazardous substances, the department shall ensure that each of the following hazard communication training requirements are covered:
 - a. When training employees who may be exposed to hazardous substances, each department shall ensure the following information is explained as outlined in the MSDS:
 1. Any health hazards associated with the use of this substance or mixture;
 2. Proper precautions for handling, necessary personal protective equipment or other safety precautions necessary to prevent or minimize exposure to the hazardous substance;
 3. Emergency procedures for spills, fire, disposal, and first aid. The information may relate to an entire class of hazardous substances to the extent appropriate and related to the job;
 4. Significant revisions in the MSDS shall be provided to all employees.
 - b. Each department shall inform employees of their right:
 1. To personally receive information regarding hazardous substances to which they may be exposed;
 2. For their physician or collective bargaining agent to receive such information;
 3. Against dismissal or other discrimination due to the employee's exercise of their rights afforded by this law.
 - c. Departments shall ensure employees are informed of:
 1. Requirements of the HCP;
 2. Any operations in their work area where hazardous substances are present;
 3. Location and availability of the written HCP.

- d. Departments shall ensure that employees are trained in:
1. Methods and observations that may be used to detect the presence or release of hazardous substances in the work area.
 2. Physical and health hazards of the substances in the work area and the measures they can take to protect themselves from these hazard; These measures shall include specific procedures the department has implemented to protect employees from exposure to hazardous substances.
 3. Details of the HCP including an explanation of the labeling system, the MSDS, and how employees can obtain and use the appropriate hazard information.

APPENDIX J

Material Safety Data Sheet

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration
MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME		EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code)		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS
CHEMICAL FAMILY	FORMULA	

SECTION II – HAZARDOUS INGREDIENTS

PAINTS, PERSERVATIVES & SOLVENTS	%	TLV (Units)	ALLOYS & METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III – PHYSICAL DATA

BOILING POINT (°F)		SPECIFIC GRAVITY (H2O=1)	
VAPOR PRESSURE (mm Hg)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER			
APPEARANCE AND ODOR			

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lat	Uei
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V – HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI – REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII – SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX – SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

Explanation and discussion of the terms and information normally contained in a Material Safety Data Sheet based on the OSHA Form 20:

SECTION I

Manufacturers Name and Address. Self-explanatory, however, if source of data is provided by other than that of the manufacturer of the substance or mixture, the actual source of the data should also be listed.

Emergency Telephone Numbers. Entries here include those telephone numbers which can be used in the event of an emergency, to obtain further information about the hazardous substance or mixture.

Chemical Name and Synonyms. Generally includes the name that the product is sold by.

Chemical Family. Listed will be the general class of compounds to which the hazardous substance or mixture belongs, i.e., ethers, acids, ketones, etc.

Formula. Entries here will generally include the chemical formula for single elements and compounds, not the formulation of a mixture; examples of chemical formulas are Sulfur Dioxide (SO₂), Sulfuric Acid - H₂SO₄, Formaldehyde HCHO, etc.

SECTION II HAZARDOUS INGREDIENTS

Hazardous Ingredients. By definition, a hazardous ingredient is a substance or form of a substance in a mixture, in sufficient concentration to produce a flammable vapor or gas, or to produce acute or chronic adverse effects in persons exposed to the product either in normal use or predictable misuse of it.

Paints, Preservatives and Solvents. The six categories under this heading are self-explanatory.

Note: TLV stands for threshold level value, a term used to express the highest airborne concentration of a substance to which nearly all persons (adults) can be repeatedly exposed, day after day without experiencing adverse effects. TLVs may be expressed in parts of material per million parts (PPM) of air by volume for gases and vapors, or as milligrams of material per cubic meter (mg/M³) of air for dust and mist, as well as gases and vapors.

The % (percent) column is intended to show the approximate percentage by weight or volume, each hazardous substance is present when compared to the total weight or volume of the product. Normally, percentages will be listed to the nearest whole number.

When a substance, normally considered to be hazardous, exists in its pure form as part of a solution or mixture, at levels constituting less than 1 percent, or exists as an impurity in a mixture at levels less than 2 percent, the substance will be so listed.

Alloys and Metallic Coatings. Entries under this general heading include coatings such as plating, cladding and metalizing. Filler metal is any metal added in making a brazed, soldered or welded joint. Filler metals will be considered with the ingredient of rod coatings and core fluxes as a single mixture.

TLV was covered above.

Percentage was covered above. Exception for mixtures such as filler metals and their coatings, and core fluxes, in which the hazardous substance constitutes a very small proportion of the mixture, the hazardous' substance shall be stated to the nearest 0.5 percent, and any ingredient constituting less than 0.5 percent should be indicated as such.

Hazardous Mixtures of Other Liquids, Solids, or Gases. Entries here will include such hazards as abrasive blasting materials and items not covered elsewhere in Section II.

SECTION III PHYSICAL DATA

Boiling Point. The temperature at which a liquid changes to a vapor state, at a given pressure; usually stated in degrees Fahrenheit (°F) at sea level pressure of 760 millimeters (mm) of mercury (Hg). For mixtures, the initial boiling point or the boiling range may be given.

Vapor Pressure. The pressure exerted by a saturated vapor above its own liquid in a closed container, usually stated in millimeters (mm) of mercury (Hg) at 68 degrees Fahrenheit (°F) or 20 degrees Celsius (°C).

Specific Gravity. The ratio of the weight of a volume of material to the weight of an equal volume of water at 39.2 degrees Fahrenheit (°F).

Percentage Volatile by Volume. The percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70 degrees Fahrenheit (°F).

Evaporation Rate. The rate at which a particular material will vaporize (evaporate) when compared to the rate of vaporization of a known material, usually butyl acetate. If another known material is used for comparison, that information shall be provided.

Appearance and Odor. A brief description of the material at normal room temperature and atmospheric conditions, such as viscous, colorless liquid with an aromatic hydrocarbon odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Rash Point and Method Used. The lowest temperature in degrees Fahrenheit (°F), at which a liquid will give off enough flammable vapor to ignite. Since flash points vary according to how they are obtained, the method used must be listed. The methods used most extensively include: Tag Closed Cup (TCC); Pensky - Martens Closed Cup (PMCC); and Setaflash (SETA).

Flammable or Explosive Limits. The range of concentrations over which a flammable vapor mixed with proper proportions of air will flash or explode if an ignition source is present.

The range extends between two points designated lower explosive limit (LEL) and the upper explosive limit (UEL) and are expressed in percent of volume of vapor in air.

Extinguishing Media. The firefighting substances determined to be suitable for use on the specific material that is burning. The firefighting substances should be indicated by its generic name such as water, fog, foam, alcohol foam, carbon dioxide (CO₂), dry chemical, etc.

Special Firefighting Procedures (and Precautions). When certain firefighting substances are determined to be unsuitable or unsafe if used to control a specific type of burning material, they should be listed. Special handling procedures and personal protective equipment should also be listed.

Unusual Fire and Explosive Hazards. Under this heading should be listed hazards which might occur as the result of overheating or burning of the specific material, including any chemical reactions or change in chemical form or composition. It should also include any special hazards which may need to be considered while extinguishing a fire with one of the available types of extinguishing substance.

SECTION V HEALTH HAZARD DATA

Threshold Limit Value. The most current figures of the American Conference of Governmental Industrial Hygienists (ACGIH) used to express airborne concentration of a material to which nearly all persons can be exposed day after day, without adverse effect. Threshold Limit Values (TLV) may be expressed in three ways, i.e., Time Weighted Average (TWA), based on an allowable concentration exposure averaged over a normal 8-hour work day or 40-hour work week, Short-term Exposure Limit (STEL) or maximum concentration for a continuous 15-minute exposure period (not to exceed 4 such exposures per day), and the Ceiling (C) Exposure Limit, that exposure concentration not to be exceeded under any circumstances.

Effects of Overexposure. List of most common sensations or symptoms a person could expect to experience from overexposure to a specific material or its components.

Emergency and First-aid Procedures. The instructions for treatment of a victim of acute inhalation, ingestion and skin or eye contact with a specific hazardous substance or its component. The listed items should be for emergency procedures only as the victim should be examined by a doctor as soon after exposure as possible.

SECTION VI REACTIVITY DATA

Stability. The checked box will indicate whether the subject material is stable or unstable under any reasonably foreseeable conditions of storage, handling, use or misuse. If checked unstable, those conditions which could result in a dangerous reaction or decomposition should be listed including temperatures above 150°F, etc.

Incompatibility. A list (if any) of those common materials or contaminants, with which the specific material could reasonably be expected to come in contact with and produce a reaction or decomposition which would release large amounts of energy, flammable vapor or gas, or to produce toxic vapor or gas. Conditions to avoid, (if any) should also be listed, i.e., extreme temperatures, jarring, inappropriate storage, etc. If no common incompatible materials, contaminants or conditions are applicable, the boxes should indicate "none".

Hazardous Decomposition Products. A list (if any) of the hazardous materials that may be produced in dangerous amounts if the subject material is exposed to burning, oxidation, heating or allowed to react with other chemicals.

Hazardous Polymerization. Polymerization is a chemical reaction in which two or more molecules of a substance combine to form repeating structural units of the original molecule and resulting in an energy level change. A hazardous polymerization is a reaction, with an extremely high or uncontrolled release of energy. The box should indicate whether or not a hazardous polymerization can occur and, if so, the reasonable foreseeable conditions which could start the polymerization should be listed. The list should also include the expected time period in which the polymerization inhibitors in the product may be used up.

SECTION VI SPILL OR LEAK PROCEDURES

Steps to be Taken in Case the Material is Released or Spilled. List should include the methods to be used to control and clean up of spills and leaks. Applicable precautions such as: avoiding breathing of gases or vapors; contact with liquids and solids: removing sources of ignition, etc The list should also list the need (if any) for special equipment to be used for cleanup, such as glass or plastic scoops, etc

Waste Disposal Methods. Should describe the acceptable, as well as prohibited methods for disposing of spilled solids or liquids, such as flushing with water, returning to container, burning, etc Should also alert the user of any potential danger to the environment such as effects on general population crops, water supplies, etc.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection. Whenever respiratory protective devices may be needed during routine, or unusual conditions to protect persons from overexposure to a specific substance, the class of device acceptable for use and any special conditions of use or limitation, should be listed.

Ventilation. Whenever ventilation is needed to capture or contain contaminants at their source as a means of controlling personal exposure to a specific substance or to prevent the build-up of an explosive atmosphere, the appropriate type ventilation systems should be listed along with any applicable conditions of use or limitations.

Protective Gloves. Many solvents can easily penetrate through rubber or neoprene, so whenever gloves are necessary to prevent skin exposure while handling specific substance or material, special glove design, construction and material requirements should be listed, if appropriate.

Eye Protection. There are many types of eye and face protective devices on the market and for almost any type hazard encountered there is a suitable type available. When eye or face protection, beyond that of general use industrial safety glasses is necessary, while handling or otherwise exposed to the specific substance or mixture, such special protective devices should be listed along with any conditions of use or limitations.

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling or Storage. Any additional or special precautions not addressed elsewhere in the MSDS should be listed here. List may include such items as handling or storing to avoid reaction hazards, safe storage life of the product in relation to reactivity, special packaging requirements, temperature control, etc.

Other Precautions. A catch-all category for any other precautions not covered elsewhere in the MSDS.

Note: Although the Federal OSHA Form 20 does not provide a box for indicating the date the Material Safety Sheet was developed, California Law requires that each Material Safety Data Sheet include the month and year the information was compiled.

APPENDIX K

Training Documentation Form

TRAINING DOCUMENTATION FORM

Name of Trainer: _____ Date: _____
Department: _____
Subjects Covered: _____

Type of Training: ____ Initial ____ Refresher Total Time: _____ hours

Handouts Provided: _____

ATTENDEES

Print Name	Sign Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Notes: _____

APPENDIX L

Chemical Donation Procedure

CHEMICAL DONATION PROCEDURE

Due to regulatory requirements and escalating disposal costs this procedure on chemical donations applies to all Departments which accept donations regulated by Federal, State, and local agencies. The Environmental Health and Safety Department will assist in the donation process by providing information on legal requirements and estimates of potential costs associated with proposed donations.

The following are the procedures to be followed:

- 1) Donations of hazardous chemicals must received clearance in advance by the Dean or Director, Department Chair or Manager, and the Environmental Health and Safety Officer (see attached form).
- 2) All chemicals accepted must be in sealed, unopened, undamaged, and properly labeled original containers (manufacturer's label is usually the best certification that the contents are accurately identified).
- 3) Material Safety Data Sheets (MSDS's) must be obtained for all donated materials before the materials are brought onto campus. The MSDS must be provided to the Environmental Health and Safety Department as part of the approval process.
- 4) Delivery of the donations must adhere to all DOT regulations relating to the transportation of hazardous materials (which include chemical materials). If the donation quantities are large amounts or if they are "extremely hazardous", radioactive, or FDA regulated substances special transportation, packaging, or labeling may be required. The EH&S Officer shall be contacted prior to pickup/delivery of any donated chemicals, without exception.
- 5) Complete inventories of all materials received shall be provided to the EH&S Department to insure campus inventory update requirements in accordance with Business Plan regulations (Chapter 6.95 CH&S Code). Inventories must be provided as part of the approval process in advance of taking possession of the donated materials.
- 6) Certain donated chemicals and regulated materials may be subject to special disposal requirements or limitations which may result in costly disposal fees.

Abbreviations to be Used When Completing Chemical Donation Form

<u>Unit</u>	<u>Container Type</u>	<u>Physical State</u>	<u>Hazard</u> (List all that apply)
l = liters	G = Glass	S = Solid	F = Fire
ml = milliliters	M = Metal	L = Liquid	R = Reactive
gal = gallons	F = Fiber/Wood	G = Gas	S = Sudden Release of Pressure
oz = ounce	P = Plastic	C = Cryogenic	
cf = cubic feet			CH = Chronic Health (long term affect)
g = grams			AH = Acute Health (immediate affect)
kg = kilograms			
lbs = pounds			

CHEMICAL DONATION NOTIFICATION FORM

Department: _____
 Telephone: _____

Name: _____
 Date: _____

Donor Name: _____
 Address: _____

Chemical Name	Purchase Date	Manufacturer	Qty.	Unit	Cont. Type	Phys. State	Hazards
---------------	------------------	--------------	------	------	---------------	----------------	---------

Proposed method of delivery: _____

Approve ____ Disapprove ____

Dean/Director _____

Approve ____ Disapprove ____

Department Chair/Manager _____

Approve ____ Disapprove ____

EHS Department _____

Comment: _____

APPENDIX M

Hazards of Art Techniques

Hazards of Art Techniques

Technique	Material/Process	Hazard
Airbrush	pigments solvents	lead, cadmium, manganese, cobalt, mercury, etc. mineral spirits, turpentine
Batik	Wax dyeing	fire, wax fumes dyes
Ceramics	clay dust glazes slip casting kiln firing	silica silica, lead, cadmium, and other toxic metals talc, asbestiform materials sulfur dioxide, carbon monoxide, fluorides, infrared radiation, etc.
Commercial art	rubber cement permanent markers spray adhesives airbrushing typography photostats, proofs	n-hexane, fire xylene, propyl alcohol n-hexane, 1,1,1-trichloroethane, fire see Airbrush see Photography alkali, propyl alcohol
Computer art	ergonomics video display terminals	carpel tunnel syndrome, poorly designed work stations glare
Drawing	spray fixatives	n-hexane, other solvents
Electroplating	gold, silver other metals	cyanide salts, hydrogen cyanide acids
Enameling	enamels kiln firing	lead, cadmium, arsenic, cobalt, etc. infrared radiation
Forging	hammering hot forge	noise carbon monoxide
Glassblowing	batch process furnaces coloring etching sandblasting	lead, silica, arsenic, etc. heat, infrared radiation metal fumes hydrofluoric acid, fluoride salts silica
Holography	lasers developing	nonionizing radiation, electrical hazards bromine, pyrogallol, see also Photography
Intaglio	acid etching solvents aquatint photoetching	hydrochloric and nitric acids, nitrogen dioxide, chlorine gas, potassium chlorate alcohol, mineral spirits, kerosene rosin dust, dust explosions glycol ethers, xylene
Jewelry	silver soldering pickling baths	cadmium fumes, fluoride fluxes acids, sulfur oxides

Lithography	solvents acids talc photolithography	mineral spirits, isophorone, cyclohexanone, kerosene methylene chloride, etc. nitric, phosphoric, hydrofluoric, hydrochloric acids, etc. asbestiform materials dichromates, solvents
Lost wax casting	investment wax burnout crucible furnace metal pouring sandblasting	cristobalite (silica) wax fumes, carbon monoxide carbon monoxide, metal fumes metal fumes, infrared radiation, molten metal silica
Painting	pigments oil, alkyd acrylic	lead, cadmium, mercury, cobalt, manganese, etc. mineral spirits, turpentine trace amounts ammonia, formaldehyde
Pastels	pigment dusts	
Photography	developing bath stop bath fixing bath intensifier toning color processes platinum printing	hydroquinone, monomethyl-p-aminophenol sulfate, alkali acetic acid sulfur dioxide dichromates, hydrochloric acid selenium compounds, hydrogen sulfide, uranium nitrate, sulfur dioxide, gold salts formaldehyde, solvents, color developers platinum salts, lead, acids, oxalates
Relief printing	solvents	mineral spirits
Screen printing	pigments solvents photoemulsions	lead, cadmium, manganese, etc. mineral spirits, toluene, xylene, etc. ammonium dichromate
Sculpture, clay	see Ceramics	
Sculpture, laser	lasers	nonionizing radiation, electrical hazards
Sculpture, neon	neon tubes	mercury, electrical hazards, ultraviolet radiation
Sculpture, plastics	epoxy resin polyester resin polyurethane resins acrylic resins plastic fabrication	amines, diglycidyl ethers styrene, methyl methacrylate, methyl ethyl ketone peroxide isocyanates, organotin compounds, amines, solvents methyl methacrylate, benzoyl peroxide decomposition products (carbon monoxide, hydrogen chloride, hydrogen cyanide, etc)
Sculpture, stone	marble soapstone granite, sandstone pneumatic tools	nuisance dust silica, talc asbestiform materials silica vibration, noise

<i>Stained glass</i>	lead came soldering	lead lead, zinc chloride fumes
<i>Weaving</i>	loom dyeing	ergonomic problems dyes, acids, dichromates, etc.
<i>Welding</i>	oxyacetylene arc metal fumes	carbon monoxide ozone, nitrogen dioxide, ultraviolet and infrared radiation, electrical hazards copper, zinc, lead, nickel, etc
<i>Woodworking</i>	machining glues paint strippers paints & finishes preservatives	wood dust, noise, fire formaldehyde, epoxy methylene chloride, toluene, methyl alcohol, etc mineral spirits, toluene, turpentine, ethyl alcohol, etc. chromated copper arsenate, pentachlorophenol, creosote

APPENDIX N

General Inspection Checklist

GENERAL INSPECTION CHECKLIST

Inspector: _____

Date: _____

Dept: _____

Building: _____

Room: _____

GENERAL	SAFE/YES	N/A	UNSAFE
Evacuation procedure posted?			
Aisle clearance maintained at 36" or more?			
Corridors, hallways, exits, and aisles unobstructed?			
Cabinets and shelves above 48" anchored?			
Stored materials kept secure and limited in height to prevent collapse?			
Heavier materials kept close to floor?			
Emergency supply kit available?			
Earthquake restraints on storage shelves above 60"?			
Eating, drinking or smoking around chemicals prohibited?			
Is furniture in good condition?			
Phone and other cords located to prevent tripping hazards?			
Are required signs posted?			
Are required PPE (Personal Protective Equipment) available and maintained in good condition?			
Safety shower and eye wash maintained and inspected monthly?			
TRAINING	SAFE/YES	N/A	UNSAFE
Whenever a new assignment is given?			
Whenever new hazards are introduced?			

Whenever the supervisor is made aware of a hazard?			
ELECTRICAL EQUIPMENT	SAFE/YES	N/A	UNSAFE
Use of extension cords is minimized and used properly?			
Electric cords are insulated and free from damage / fraying?			
Electrical equipment properly grounded / double insulated?			
Power strips UL approved with overload protection? (not acceptable for hazardous machinery that draws large current)			
Circuit breaker panels are free of combustibile materials?			
Circuit breakers identified?			
Materials not stored in electrical rooms?			
Is at least 30" clearance kept in front of electrical panels/breaker boxes?			
Use of extension cords is minimized and used properly?			
EQUIPMENT/MACHINERY	SAFE/YES	N/A	UNSAFE
Is damaged / malfunctioning equipment tagged "OUT OF SERVICE" ?			
All work areas kept clean and free of clutter?			
Are vacuum lines equipped with traps?			
Are all belts and moving parts adequately protected by guard or housing?			
All moving parts (blades, gears, pinch points) and guards correctly in place?			
Extension cords are not used as permanent wiring?			
High voltage equipment is labeled, grounded and insulated?			
COMPRESSED GASES	SAFE/YES	N/A	UNSAFE
Are cylinders secured properly?			

Are cylinders protected from external heat sources?			
Are cylinders stored only with compatible substances?			
Are the cylinders' protection caps in place?			
Are valves labeled open or closed when the cap is not in position?			
Are cylinder's contents adequately labeled and easily seen?			
HAZARDOUS MATERIAL	SAFE/YES	N/A	UNSAFE
Inventory list is complete, current and readily accessible?			
MSDS are on file in department and readily accessible?			
Are employees and students familiar with MSDS and aware of location?			
Are all hazardous materials containers segregated and labeled properly?			
Are hazardous materials clean and free from evidence of spills?			
Are hazardous materials in good condition and stored with compatible materials?			
Are flammable materials clearly marked and stored in approved metal cabinets?			
Are designated areas established for the use of regulated carcinogens?			
Are hazardous materials disposed within the suggested expiration dates?			
Are secondary containments provided for quantities > 55 gallons, 500 lbs or 200 cubic feet?			
Are all containers capped and sealed?			
HAZARDOUS WASTE	SAFE/YES	N/A	UNSAFE
Are hazardous waste containers sturdy and clean?			
Are hazardous waste containers routinely inspected and compatible with the waste?			
Are hazardous waste containers kept closed at all times?			
Are hazardous waste containers segregated into compatible waste?			

Are hazardous waste containers labeled with the hazardous waste and initial date of accumulation?			
Are hazardous waste tags available and used on all hazardous waste containers?			
Is biohazardous waste contained in red bags that are labeled as biohazardous waste?			
Are syringes / needles and other sharps disposed of in sharps containers?			
FIRE SAFETY	SAFE/YES	N/A	UNSAFE
Are all door self-closures operable?			
Are all door wedges and blocks removed?			
Are appropriate fire extinguishers available within 75 feet and inspected regularly?			
Are fire extinguisher mounted, unobstructed and clearly visible?			
Are fire pulls unobstructed and clearly visible?			
Is there 18" of vertical clearance maintained for sprinkler heads?			
Are sprinkler heads painted over or otherwise damaged?			
Are exits, exit ways, and exit signs illuminated?			
Do exit signs make direction of exit clear?			
COMMENTS			

