SAFETY IN THE ARTS

It is the responsibility of personnel who use hazardous materials to become knowledgeable about the hazards of these materials and to implement precautionary measures before attempting to use them. Material Safety Data Sheets (MSDS) contain hazard and handling information and should be kept on hand for all hazardous materials. Personnel must also be trained in proper use of equipment, processes and procedures.

General Precautions

Materials used in the arts can be hazardous to human health and the environment. Adverse health effects can include: respiratory and skin irritation and allergies, cancer, acute and chronic poisoning, reproductive disorders and other problems. In general, use the least toxic materials possible. Many solvents, thinners, varnishes, lacquers, and resins are flammable and may be toxic by inhalation, ingestion, injection, and skin absorption.

Do not eat, drink, or smoke in work or chemical storage areas. Smoking can multiply the harmful effects of materials on the lungs and in some cases, can convert materials into more hazardous forms. For example, methylene chloride, used as a plastic and paint solvent, can be converted into poisonous phosgene gas by lighted cigarettes.

Wear protective clothing (gloves, goggles, barrier creams, aprons, etc.) in the studio and remove them when leaving your studio. Wash clothes frequently and separately from other clothing. Wash your hands carefully with soap and water after each class, before eating, and during breaks. Never use a solvent to clean your hands; if soap and water are not sufficient, use a waterless hand cleaner, then soap and water. In case of accidental contact with irritating chemicals, wash the affected area with lots of water. In case of eye contact, flush with water for at least 15 minutes. In each case, seek medical attention.

Label all containers clearly and completely as to their contents and special hazards. Keep containers closed, even when working, to prevent the escape of vapors into the air. Store hazardous materials in non-breakable chemically compatible containers at all times. Do not use coke bottles, coffee cans, milk cartons or other food and beverage containers. Separate stored chemicals by compatible hazard class (flammables, oxidizers, corrosives, reactives) in approved storage cabinets. Quantities of flammable and hazardous materials must be limited to the amount needed for immediate use. Larger quantities of chemicals should be stored in an EH&S approved stock room. Consult with EH&S to determine allowable quantities permitted by code. Hazardous Materials must not be poured down drains or placed in the trash. Individuals violating these laws may be personally liable for fines and other penalties.

If an accident involving hazardous materials occurs, which you know poses no immediate health concerns or danger of personal injury, try to keep the contaminant from spreading into the environment or entering drains by containing it with absorbent material. If the potential for personal danger does exist, secure and leave the area immediately, evacuate others from the dangerous area, and notify the CU Police Department by calling 911. Under no circumstances should a person re-enter the area where a hazardous spill has occurred, where the possibility of personal danger exists.

If liquids are stored in containers of 5 gallons or more, use a pump to dispense the liquid. Do not pour by tipping the container. When transferring flammable liquids from one container to another, bond the containers together with wire and ground them to prevent ignition by static electricity.

Make sure all electrical equipment in the area is in good repair and adequately grounded. Portable space heaters and appliances such as coffee pots and hot plates should not be permitted in work areas.

Clean up dry dusty materials using wet methods or high efficiency particulate (HEPA) vacuums and contact EH&S for disposal requirements. To prevent inhalation, handle powders in wet form whenever possible. Make up large batches rather than several small batches to keep dust exposure to a minimum. If the powder comes in a paper bag or sack, store the opened bag in a metal or plastic container which can be sealed. Personnel should be trained in proper operation and maintenance of ventilation equipment. Approved ventilation systems or other engineering controls should be used to control airborne contaminants in the studio. If dust levels cannot be controlled, contact EH&S.

Be sure that emergency shower and eyewash stations are available and are functioning properly Keep properly rated fire extinguishers at studio exits for emergency use.

Painting

Some paints can be toxic if absorbed into cuts or sores, or if the paint is accidentally ingested while pointing the brush with your lips, eating or smoking or failing to wash hands thoroughly after a painting session. Eventually these practices could result in chronic disease, poisoning, or disability, especially if gloves and other personal protective equipment are not worn on a regular basis. Use water-based (latex) paint products instead of oil-based (solvent) ones, wherever possible. Used solvent based paint products must be collected and disposed of as hazardous waste.

Many painters use spray guns, airbrushes, or spray paints in aerosol cans for painting, all of which contain organic solvents and propellants such as butane or carbon dioxide. Airborne paints are hazardous by inhalation. Keep in mind that after a few minutes, olfactory fatigue may occur and you will no longer smell the spray. High-pressure spray guns have caused serious accidents due to accidental injection of the high pressure

spray. In several cases this has resulted in injuries that have required amputation of affected body parts. Be sure to keep your fingers away from spray nozzles and wear appropriate personal protective equipment. Always spray in a filtered spray-booth.

Ceramics, Enameling, Sculpture

Clays, glazes, pigments and enamels may contain high concentrations of harmful substances such as silica, asbestos, lead, chromium, cadmium, other heavy metals and toxic vapors. It is important that persons using these materials are knowledgeable regarding their hazards, implement proper engineering controls, and use proper hygienic practices. Also, personnel should be properly trained in the use of mechanical equipment and tools.

Respiratory problems similar to pneumonia and asthma-type allergies can result from molds which grow when clay is soured or aged in a damp place or when clay slips stand for months. Clay can dry and become pulverized, producing an inhalation hazard due to the presence of free silica; use wet methods or HEPA vacuums, and clean up promptly.

Hazards involved in etching include inhalation of vapors, skin and eye contact with acids, and inhalation of highly toxic nitrogen oxide gases. Acids and some ceramic glazes, and require special storage and disposal procedures.

Photography

Collect used fixer solutions separately from developers, stop baths and other photographic chemical wastes; silver can be recovered from spent fixer solutions. Keep processing trays covered when they're not in use, and use tongs, not fingers for dipping photo paper. Make sure the ventilation system is operating properly - photo vapors are respiratory irritants.

Kilns

Kilns must be installed in compliance with mechanical, fire, electrical codes and University standards. Contact EH&S before installations and alterations.

It is the responsibility of fine arts personnel to make sure that individuals are properly trained for kiln operation. Operating and emergency procedures should be posted by each kiln. Chlorine, fluorine, sulfur dioxide, carbon monoxide, ozone, hydrogen chloride, infrared radiation, extreme heat, and metal fumes are some of the toxic and hazardous by-products of kiln firing operation. Therefore, all kilns, both electrical and fuel fired, should be vented directly to the outdoors by a local exhaust system. General ventilation is usually not sufficient. An overhead canopy hood is the best choice. If possible the kiln should be kept in a separate room to avoid excess heat problems in the working area. This also helps prevent injuries if inexperienced students are present.

Wear ANSI approved welding goggles or hand-held welding shields to protect your eyes when looking inside the kiln. Kiln facilities should be free of wood, fuel, and other combustibles. Such materials should only be kept in approved storage areas.