



3D Design Safety Manual

Poison Control: 1-800-222-1222

HACC Security/Emergency number: 780-2568

HACC Department of Environmental Health and Safety 221.1300
x:1567

If the emergency is life threatening call 911 or ask a professor or secretary to call.

Chemicals enter the body through the skin, inhalation and ingestion. Smoking increases the hazards of respiratory reactions.

Art materials may be:

Toxic, cause physical injury via breathing (inhalation), eating (ingestion), or by skin contact & absorption

Caustic, may burn you on contact

Irritant, cause skin, eye, mucous membrane inflammation or pain

Flammable, can ignite or be set on fire

Explosive, may explode when exposed to heat, pressure or shock

GENERAL PRECAUTIONS:

Do not eat or drink close to work area (to prevent accidental ingestion).

Familiarize yourself with substances that are hazardous.

Clean hands thoroughly after working using baby oil, soap and water, or a non-toxic hand cleaner such as GoJo.

Keep work area clean and organized.

Ask your doctor if you are taking medication or are pregnant about what precautions you should be taking.

Identify location of fire extinguishers, first aid box and eye wash stations (ask your professor if need be).

Notify your professor about any health condition or medication that may affect you in the classroom.

Material Safety Data Sheets (MSDS) are available at <https://myhacc.hacc.edu/cp/home/displaylogin> or contact the Department of Environmental Health and Safety at 221.1300 x:1567.

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3D Design

The 3D Design class uses various processes and materials which may include: plaster, clay, wire sculpture, aluminium casting, cardboard, PVC pipe and wood fabrication. Various adhesives, solvents, paints and power and hand tools are used.

Quick Overview of Hazards

Clay Dust - Silica

Solvents - Skin irritant, fumes may cause narcosis, ingestion may be fatal, flammable

Tools - Vibration, cuts, noise

GENERAL PRECAUTIONS

Locate first aid kits and fire extinguishers.

Get instruction on all tools and procedures before commencing, including use of the ventilation system for power tools.

Keep work area clean and organized.

Wear safety goggles when working with tools and materials that may cause particles to become airborne.

Clean hands after working.

Plaster

Plaster may be used for casting, modeling and carving. A common form of plaster is called Plaster of Paris, other types include molding plaster and Hyrocal. These are varieties of calcined gypsum, composed of calcium sulfate. Plaster is mixed by sifting it into water.

HAZARDS

Plaster dust may be slightly irritating to the eyes and respiratory system.

Certain additives to hasten the drying of plaster, not common practice at HACC, may be slightly toxic.

Benzene, used in many mold releases, is moderately toxic by skin contact and inhalation and is highly toxic by ingestion.

There are hazards with plaster heating to high temperatures when doing body casts.

Casting

Casting is done with aluminum at HACC. Fumes from heated aluminum are less problematic than other metals which can be highly toxic. Most hazards are from working with a molten, hot substance. Wear protective clothing, including goggles, when pouring the molten metal. Make sure that molds and crucibles are free of moisture. Only melt metals of known composition. Place molds in a sand pit with damp sand when pouring. Discuss all procedures before commencing the pour.

HAZARDS

Metal fumes, possibly and burns from hot metal

Polystyrene (Styrofoam) fumes from burnout in molds

Clay

Wet clay may be used for sculpting. Clay may contain silica when in the dry form. Take precautions not to inhale clay dust. Consult the Safety Manual in the clay studio for more information as needed.

HAZARDS

Silicosis, or lung scarring, occurs over time with the inhalation of various clay products. Symptoms of silicosis include: shortness of breath, dry cough, emphysema, and high susceptibility to lung infections such as tuberculosis. Silica dust exposure is not hazardous by skin contact or ingestion.

Chronic inhalation of kaolin is moderately hazardous, and can result in kaolinosis, a disease in which the lungs become mechanically clogged.

Asbestos is extremely toxic by inhalation and possibly by ingestion. Asbestos inhalation may cause asbestosis, lung cancer, mesothelioma, stomach cancer, and intestinal cancer.

Sand, perlite, grog, and vermiculite contain free silica and are, therefore, highly toxic by inhalation. Vermiculite is also frequently contaminated with asbestos.

Hypersensitivity, pneumonia, asthma, or other respiratory problems may occur with exposure to molds growing in wet clay that is being soured or aged in a damp place, in slips that stand for months, or with inhalation of dry aged clay. Molds can cause or exacerbate skin problems and change the workability of clay.

Hand contact with wet clay can result in abrasion and dryness of fingertips and hands. Moving parts of kickwheels can cause cuts and abrasions.

Glue and Miscellaneous

HAZARDS

Epoxy resins and the hardeners they are mixed with are moderately toxic skin and respiratory irritants. Some resins may be carcinogens. Epoxy resins may contain solvents of varying toxicity and flammability.

Rubber cement contains solvents that are hazardous by inhalation and ingestion.

Water based glues may contain small amounts of formaldehyde.

PVC - heating of PVC releases toxic fumes.

Polystyrene- cutting, heating and sawing releases odorless gas methyl chloride, in small amounts causes symptoms of drunkenness, in large amounts, dizziness, staggering and possibly death.

Wood Shop/Woodworking

Quick Overview of Hazards

Machining - Toxic wood dust, noise, fire, injuries

Glues - Formaldehyde, epoxy (may contain solvents)

Wood sap - Hardwoods more toxic than softwoods, saps may cause skin and respiratory irritation

Paints and Finishes - Mineral spirits, turpentine, polyurethanes

Preservatives - Chromated copper arsonate, pentachlorophenol, creosote (may be found in different types of wood)

Other Resources

The Artist's Complete Health and Safety Guide, Monona Rossol, Allworth Press, NY (available in the studio and the McCormick Library)

Artist Beware, Michael McCann, The Lyons Press, NY (Available in the studio and the McCormick Library)

Health Hazards Manual for Artists, Michael McCann, The Lyons Press, NY

(available in McCormick Library) and online at http://www.uic.edu/sph/glakes/harts/HARTS_library/index.htm

Making Art Safely, Merle Sanforfer, Deborah Curtiss and Jack Snyder, Van Nostrand Reinhold, NY (available in McCormick Library)

New Jersey Department of Health website provides organized lists on hazardous substances, similar to MSDS, possibly easier to understand - <http://nj.gov/health/eoh/rtkweb/index.shtml>