

⊕ Safety in the Kiln-glass Studio

GENERAL CONSIDERATIONS

Good housekeeping and common sense go a long way to insuring safety in the glassforming studio. Ventilate your studio well, keep dust levels to a minimum, and confine hazardous materials within a limited area.

Avoid eating and drinking in the studio area. Toxins and dusts are readily ingested when you handle food and kilnworking materials in the same space.

Wash your hands upon leaving the studio and, if you cannot change clothes after a day in the shop, wear a smock or apron while working. To avoid tracking dusts and toxins to other locations, consider dedicating a pair of shoes to studio use only.

Remember that one's physical condition and lifestyle choices can be factors when working with certain hazardous materials. For example, smoking has been proven to increase the rate at which many toxins are ingested. Pregnant women, children under twelve years of age, and persons on certain forms of medication may have increased susceptibility to some chemicals.

Some of the hazards specific to materials used in kilnforming glass are covered in the table on the following page. For a thorough introduction to hazards in the world of arts and crafts, see *The Artist's Complete Health and Safety Guide: Third Edition* by Monona Rossol (Watson-Guptill Publications, 2001).

SAFE KILN USE

Read the manual.

Operate kilns only in well-ventilated areas. Firings can release vapors and fumes from glazes and other materials.

Avoid burns by wearing protective clothing. Use heat-resistant gloves whenever opening a hot kiln.

Always turn off the power before reaching into a hot kiln (e.g., during glass combing or other manual forming).

Protect your eyes. Prolonged viewing into a hot kiln exposes them to potentially damaging infrared light. Excessive exposure can cause cataracts. Wear safety glasses with protective ANSI shade 1.7 lenses. Didymium glasses that are used for flameworking DO NOT provide protection from infrared light.

BASIC SAFETY EQUIPMENT

- Safety glasses
Make sure they have side shields.
- Respirator
NIOSH-approved for specific process: fume, vapor or dust-trapping.
- Heat-resistant gloves
Non-asbestos Zetex or Kevlar.
- Lightweight cotton gloves
Protect skin from irritating dusts or fibers.
- Bandages
Cuts while handling glass are inevitable, but are clean and rarely serious.

ADDITIONAL SAFETY RESOURCES

- National Institute of Occupational Safety and Health (NIOSH): www.cdc.gov/niosh
- U.S. Office of Health, Safety, and Security website for HEPA information: www.hss.energy.gov/csa/csp/hepa
- Your local safety supply store may be able to provide assistance in the proper fit of safety wear and additional advice on equipment purchase. In Portland, Sanderson Safety Supply (www.sandersonsafety.com) provides personal protective equipment, apparel, first aid supplies, and environmental protection.
- Greg Rawls is a glass artist, industrial hygienist, and certified safety professional who provides helpful information on his website relating to safety for the glass artist: www.gregorieglass.com/HS-MENU.htm
- Bullseye carries Monona Rossol's book and a number of the safety products mentioned in this article: www.bullseyeglass.com/products
- Obtain the Material Safety Data Sheets (MSDS) for new or unfamiliar materials either online or from the product suppliers or manufacturers.
- You may post questions about safety on the Bullseye Forum: www.bullseyeglass.com/forum

MATERIAL	HAZARD	PRECAUTION
Sheet glass Cullet Billets	Cuts, chips in the eyes during scoring and breaking; dusts created in grinding. If glass is ground extremely fine or to a powder, the hazard depends on the solubility of any toxic metals it contains. Powders may irritate the eyes, skin, and respiratory system.	a) Always wear eye protection. Safety glasses should have side shields. Goggles are recommended during grinding. b) Gloves provide some protection against cuts but often hamper dexterity. Glass cuts are generally clean. Wash with hydrogen peroxide and bandage. c) Wear gauntlets when handling sheets over eight square feet. d) Use water when grinding or polishing to keep tools and glass cool and to keep dust down. Clean up ground glass slag while it is still wet to prevent it from becoming airborne. When dealing with dry glass dusts and powders, wear a NIOSH-approved air purifying respirator designed to trap dusts, and change the replaceable filter cartridge regularly. Consider using local ventilation.
Glass frits	See above. Be cautious of frits from lead-bearing glasses. May be both irritating and toxic.	See d) above.
Shelf primer Kiln wash	Inhalation of (silica) dust can cause respiratory irritation. Long-term exposure may cause silicosis.	Wear a particulate-trapping respirator when mixing dry powder. Wear a respirator while scraping fired shelves clean and do so with local ventilation.
Ceramic fiber products	Irritation of eyes, skin, and respiratory system, particularly when fibers are cut or torn. After firing, fiber products readily release dusts that may be dangerous to breathe.	Avoid contact with skin. Wear a respirator designed to filter particulates. Clean the residual fibers from glass with running water. Dispose of used materials in a sealed plastic bag.
ThinFire Shelf Paper	Disintegrates into a dusty tissue on firing.	See above precautions for ceramic fiber products. Avoid breathing residual dust. Vacuum out kiln using a High Efficiency Particulate Air (HEPA) filter vacuum or remove from kiln shelf by saturating with water and collecting in a plastic bag.
Wax	Overheated and burning wax produces acrolein and aldehydes, which are respiratory irritants and suspected human carcinogens.	Avoid overheating wax and steam wax out of molds instead of burning it out. There is no approved respirator that filters out all of the hazardous components present in wax vapors.
Plaster	Skin, eye, and respiratory irritant. Contains mild alkalis and can produce burns.	Wear safety goggles and a particulate filter respirator while mixing investment and while divesting molds, and consider using local ventilation. Use a protective cream and/or gloves for skin and hands.
Silica	Irritates respiratory system. Long-term exposure may cause silicosis.	Wear a NIOSH-approved particulate respirator and consider using local ventilation.
Talc	Respiratory irritant. Dusts may irritate the eyes.	Wear safety goggles and a particulate filter respirator and consider using local ventilation.