MATERIAL HAZARDS

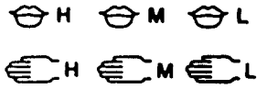
HAZARD SYMBOLS

HAZARDS

Eye 

Nose 

Mouth 

Hand 

Poisonous 

Explosive 

Corrosive 

Carcinogen 

Flammable 

Fatal 

Narcotic 

Allergies 

DO NOT USE 

Toxic Gas 

Death 

Medical 

Toxic 

Cuts 

Burns 

SAFETY PRACTICES

Wet Mop 

Ventilation 

Dustmask 

Gloves 

Wash hands 

Avoid Ingestion 

Proper Storage 

Goggles 

Avoid Flame 

STAINED GLASS

STAINED GLASS

Stained glass projects are enjoying incerasing popularity at the junior high and the high school levels. Work processes are relatively simple and skills readily acquired.

For the inexperienced beginner there is always a greater potential for physical injury to hands and eyes, and to the unaware there is the risk of long-term health problems.

Cutting glass looks incredibly easy when done by an expert, but potential splintering and slivers are a hazard to hands and eyes. Wearing gloves and goggles is crucial.

The main health hazards are linked to the fumes created in the soldering process and in the use of patinas which give a copper colour or a black coating to soldered frames.

Most solders contain lead which, at temperatures of 350 degrees F. produces lead fumes, a highly toxic carcinogen.

Soldering fluxes vaporize in the soldering process, producing dangerous fumes and gasses which are highly corrosive to the eyes, lungs and skin. Even repeated smaller doses, in home hobby situations can cause chronic bronchitis and asthma. Fluxes containing zinc chloride, must be strictly avoided.

Patinas create highly toxic acid fumes and, in combination with some strong acids, can form the highly poisonous gas selenium dioxide. Patinas containing silver nitrate can cause blindness when splashed into the eyes; others are highly corrosive to the respiratory system and the skin.

Any process linked to the creation of fumes especially in a class situation, with many soldering irons in operation simultaneously, must be carried out with sage local exhaust ventilation which collects fumes at the source and vents them directly to the outside. But do not solder under a canopy hood, since the fumes will be drawn up and directly past the student leaning over their work.

Airing the classroom by opening windows and doors is often not safe enough, since air currents will not necessarily draw fumes away from the student. Also, the new air supply may not dilute the contaminated air to a safe level.

Even more than students, the most critically affected person will be the teacher, who may be exposed to the toxic substance on a more regular and more prolonged basis.

STAINED GLASS

MATERIAL	SYMBOL	HAZARD
GLASS		
Flying glass chips		Eye injuries
Sharp edges		Cuts
GLASS COLORING AGENTS		
Glass dust **Iron oxides** **Metallic oxides**		Metal fume fever caused by fumes and vapors of metallic coloring agents
Silver nitrate	M M M	Corrosive to skin
KILN VAPORS	H	
Carbon monoxide		Toxic
Lead vapor **Other metal vapors**		Metal fume fever
ANTIQUING AGENTS		
Antimony sulfide	H H	Dermatitis
Selenium dioxide	H	Antimony poisoning
Copper sulfate	M	Ulceration of nasal septum
	H	Gastro intestional irritation, vomiting
	L	Dermatitis

STAINED GLASS

SYMBOL	SAFETY PRACTICE * CLEAN-UP	ALTERNATIVES
 	Wear goggles when cutting and grinding glass Wear gloves Use pliers when breaking glass Work on a smooth surface where glass slivers can be easily removed	
 	Use with exhaust ventilation Wear gloves	Use factory-stained glass
	Ventilate kilns directly to the outside	
  	Wear dust mask when handling powder Avoid ingestion Wear gloves	

STAINED GLASS

MATERIAL	SYMBOL	HAZARD
ETCHING FLUIDS		
Hydrofluoric acid	H	Severe respiratory irritant / toxic
	M	Pulmonary edema
	H	Severe skin ulcers and burns, especially under the fingernails
		Harmful to bones and teeth
STOP OUT MATERIALS		
Molten wax **Wax vapors** **hydrocarbons**		Respiratory irritant Fire hazard
SOLDER		
Lead and tin mixture **Lead fumes** **Metal fumes**	H	Chronic lead poisoning. Lead fumes are produced at temperatures of 350 degrees F or higher
FLUXES		
Zinc chloride		Corrosive to eyes and respiratory system
Organic acids		Corrosive to eyes and skin
Fumes **copper** **zinc**		Metal fume fever Pulmonary edema
Rosin		Chronic bronchitis from repeated smaller doses Asthma

STAINED GLASS

SYMBOL	SAFETY PRACTICE * CLEAN-UP	ALTERNATIVES
 	Use with exhaust fume hood or outdoors Always add ACID to WATER when diluting acid Wear natural rubber gloves and apron Check gloves for leakage Use plastic tongs to handle glass	
	Use with exhaust ventilation Avoid overheating wax	
AVOID solder with an acid core  	Use with proper ventilation, avoid a canopy hood Use appropriate respirator	
AVOID zinc chloride flux  	Use local exhaust ventilation, but not a canopy hood Use respirator with an acid gas cartridge and fume filter	

STAINED GLASS

MATERIAL	SYMBOL	HAZARD
PATINAS **COPPER SULFATE**	H H 	Perforation of nasal septum Highly toxic Dermatitis
SILVER NITRATE	H M M	May cause blindness Corrosive to respiratory system and skin
SELENIUM DIOXIDE **hydrogen selenide gas**	H 	Highly poisonous gas produced by selenium dioxide in combination with a strong acid Skin irritant

STAINED GLASS

SYMBOL	SAFETY PRACTICE * CLEAN-UP	ALTERNATIVES
 	Use with local exhaust ventilation AVOID ingestion Do not smoke or eat in studio Wear gloves	
 	Wear goggles to avoid splashing eyes Wear gloves	
 	Use with local exhaust ventilation, but not a canopy hood Wear gloves	