

Handling Lead Safely

The primary hazard from handling lead is ingestion via mouth. Secondary hazard is absorption through skin. Amateur stained glass workers are at greatest risk from transfer of the material via their hands to their mouth. The following guidelines address that hazard.

- 1) Do not eat or bring food into your workspace. Never, under any conditions. Eating and working are two separate activities.
- 2) When working with lead came channel, be mindful of not touching your face, especially mouth and nostril areas. If you absolutely need to scratch an itch, use the back of your hand if your fingers are contaminated.
- 3) Regard hands as contaminated while working. As when handling art pigments or pottery glazes, clean hands thoroughly after working with lead, and especially before eating. Use waterless hand cleaner available from auto parts suppliers and paper towels; use two applications or until towels come away clean. Then wash with soap and water, using a fingernail brush.
- 4) Have a set of “art” clothes and/or a shop apron. Use these to work with lead came and solder. Shower and change clothes after extended working sessions before resuming other activities.
- 5) Keep work area cleaned up. Collect and recycle all scrap pieces of lead and beads of solder in a can. Your local scrap metal dealer may buy this material, or you can return it to your stained glass supplier for addition to his/her waste recycling program.
- 6) Lead came and lead solders are intended for windows and other craft objects, and are not recommended for making wearable or jewelry type items.

Handling Soldering Operations Safely

Most soldering fluxes contain Zinc Ammonium Chloride, a strong chemical which is a reducing (de-oxidizing) agent activated by heat. Some so-called “safety” fluxes do not. Either kind becomes a vapor under the soldering iron and the vapor must be vented or absorbed by a charcoal filter system.

- 1) The best system for a small workshop is a four-inch hose (clothes dryer hose is useful, metal kind is better than plastic) driven by a fan to vent fumes outdoors. For short runs (under ten feet) the fan may be at either end. For longer runs, a fan at both ends is recommended. Four inch computer-electronic type fans work well for this purpose. These fans are also available from wood stove supply stores. Using either sheet metal or duct tape and cardboard, suitable baffles for collecting fumes can be arranged. A finger-guard made of ¼” mesh hardware cloth is a good idea to keep fingers, paper towels, and other things out of the fan.
- 2) Second best is a charcoal cartridge type recirculating fan. Such systems are made by Hakko and by Inland Craft corporations, available from stained glass suppliers. Assure that an adequate supply of replacement filters is available and change filters according to manufacturer’s directions.

The effectiveness of either system depends on using it, which means moving it to where it is needed and will do the most good, right next to the soldering operation. Protection is adequate within one foot of such devices, manufacturer claims notwithstanding.

Solder fluxes generally react with bar or lotion type soaps to create a waxy, greasy byproduct. Hands and finished craft products should be washed with detergent rather than soap; hand dishwashing detergents are adequate.

Patinas for Metal

Both Copper Patina (Copper sulfate in a 1 percent Hydrochloric acid solution) and Black Patina (Selenous Oxide in a 2 percent Nitric Acid solution) are hazards to the skin, and gloves should be worn when working with these chemicals. Black patina gives off fumes which should be treated like flux fumes and ventilated or absorbed. Both solutions may be cleaned up with detergent and plenty of water.