Flameworking Health & Safety Guidelines

Like any craft or hobby, glassworking has some inherent risk of injury to the artist. As interest in lampworking has increased, it has become clear that some general information on potential health and safety risks would be useful to many people. The following information is intended to increase your enjoyment of lampworking, while adding to your awareness and helping you reduce your exposure to potential hazards. These suggestions have been prepared and reviewed by a group of experienced Flameworkers.

1. Eye Protection.

Eye protection is very important in lampworking, for two reasons. First of all, glass can sometimes shatter when placed directly in the flame, and you must protect your eyes from flying glass fragments. You must also protect your eyes from potentially damaging Ultraviolet and Infrared rays, which are emitted when you melt glass in a flame. For many years, the standard eye protection for Flameworkers has been "didymium" glasses, which have the additional feature of filtering out the distracting yellow glare given off by molten glass. In recent years, other types of protective eye wear have become available, some of which are superior to traditional didymium glasses. The type of protective eye wear that is right for you depends on the type of glasswork you will be doing. For instance, making beads would give off less radiation than working a large piece of borosilicate tubing, which in turn gives off less than melting fused quartz. Also, different people may have different sensitivity. Please protect your eyes! Check with your supplier and/or your optometrist for more information on choosing eye protection.

2. Respiratory Hazards.

Melting glass in a flame produces a number of gasses and vapors which can affect your health. It is important, therefore, to ventilate your work area. At the very least, you should provide "dilution ventilation", in which a steady stream of air flows across your work area, drawing any vapors or gasses away from your face and out of the room. Windows at opposite ends of your work area, one of which has an exhaust fan, can be an effective form of dilution ventilation. Some lampworking operations may require "local exhaust ventilation", such as a fume hood, to eliminate hazardous or irritating vapors and gasses. If you find that you feel slightly short of breath or that you have a headache at the end of a work session, then you can be certain your ventilation is inadequate.

An additional respiratory hazard is posed by dust particles you might encounter in your studio. These include powdered "bead release" compounds, the dust stirred up when you work with vermiculite, and loose particles of refractory materials such as brick or ceramic-fiber insulation inside your kiln. Take care not to inhale these irritating and potentially harmful dust particles. Wear a respirator if necessary to reduce your exposure. If you sandblast your finished pieces, follow all safety guidelines appropriate to sandblasting.

3. Cuts and Burns.

These can be avoided with common sense and care. The most common minor burns occur when someone picks up the end of a glass rod or tube, forgetting that it is hot. A simple system, such as always laying the hot end of a rod away from you, can help you remember which end to grab. Arrange your work area so that you never have to reach in front of your torch to get a tool or piece of glass. Choose your work clothes carefully, avoiding synthetic fibers, long loose sleeves, shirts with open pockets or pants with folded cuffs.

Burns can be treated with aloe vera sap, cold cider vinegar, or a variety of home remedies. Treat your injuries with respect; serious cuts or burns may require professional medical attention.

4. Tanks and Torch.

Potential hazards also exist any time you work with compressed gasses. Carefully follow any manufacturer's instructions that come with your regulators or gas tanks, and check with your suppliers for safe operating procedures.

Never move oxygen tanks without their protective cap in place. If the tank falls over, the valve stem can be sheared off by impacting against a table or other object. The pressure inside the tank may then be high enough to send the cylinder flying like a rocket, injuring you and damaging your building. Oxygen tanks should be either laid on their side and secured to prevent rolling, or chained securely to the wall so they don't fall down. Note also that oxygen regulators, hoses and fittings should never come into contact with grease, which can ignite spontaneously in the presence of pure 02.

Be sure to install check valves on your fuel gas and oxygen regulators, to prevent backwards flow of gasses-a major hazard in the event of a fire or torch malfunction. Make sure that your torch is secured to the work surface so that it doesn't move is a hose is yanked. Keep all flammable and combustible materials well away from your torch. At the end of each work (play) day, shut off your oxygen and gas tanks and bleed the pressure out of the lines by opening your torch valves.

[Perhaps an illustration of safe tank arrangement could go here]

5. Other Hazards.

These can include muscle strains or other injuries from maneuvering heavy oxygen tanks or repetitive movements (such as making hundreds of beads). Take frequent breaks and pay attention to your body's signals to minimize these types of injuries. Dehydration and heat exhaustion are other possible hazards to watch out for. Drink plenty of water, especially if you are working with a large flame. You may also consider applying a sunscreen to your skin to protect it from the radiation given off by the flame.

The following references may be useful in protecting yourself from the common hazards of lampworking:

Artist Beware, by Michael McCann, available from Center for Safety in the Arts, 5 Beekman St.., Ste. 280, New York, NY 1 0038

"Beads from the Beginning" by Brian Kerkvliet, Glass Art Magazine, November/December 1994, P.O. Box 260377, Highlands Ranch, CO 80126

Contemporary Lampworking: A Practical Guide to Shaping Glass in the Flame by Bandhu Scott Dunham, available from Salusa Glassworks, P.O. Box 2354, Prescott, AZ 86302

"F.Y. Eyes" by Lisa M. Malchow, Fusion Journal of the American Scientific Glassblowers Society, May 1993., 1507 Hagley Rd., Toledo, OH 43612

Glassblowing: An Introduction to Solid and Blown Glass Sculpturing by Homer L.Hoyt,Crafts&Arts Publishing Co. Inc., 626 Moss St., Golden CO 80401

"Glassmaking Health and Safety" by Monona Rossol, Glass Art Society Technical Journal,1989.National Institute of Occupational Safety and Health.

"Optical Radiation Hazards in Glassblowing," by Gary E. Myers, Fusion Journal of the American Scientific Glassblowers Society, August 1976.

Ventilation: A Practical Guide for Artists. Craftspeople, and Others in the Arts by Nancy Clark, Thomas Cutter and Jean Ann McGrane, available from Center for Safety in the Arts.

This information is offered as a starting point for your own safety research, and new information may affect the appropriateness of these recommendations. The suppliers of this information assume no liability for any injury or harm which may result from use or misuse of this information. Be sure to consult with your supplier, physician or other qualified expert regarding other safety questions.