Working Safely with Glassware

The following precautions must be taken when working with glassware:

1. Never use force when working with glassware.

2. Inspect glassware before and after each use.

3. Discard or repair any cracked, broken, or damaged glassware.

4. Use adequate hand protection. Leather gloves, Mechanical gloves or Valeo gloves are available at the Ames Laboratory Storeroom.

5. Large glass containers are highly susceptible to thermal shock. Heat and cool large glass containers slowly. Use Pyrex or heat-treated glass for heating operations.

6. Use thick-walled, round-bottomed glassware for vacuum operations. Flat-bottomed glassware is not as strong as round-bottomed glassware.

7. When attaching stoppers, corks, or tubing, to glass tubing follow these guidelines:

   - Be sure the tip of the tube is fire-polished.

   - Most accidents occur because the glass snaps above the stopper from a sideways force (torque). Keeping your hand close to the stopper will help prevent exerting a force sideways on the glass.

   - Lubricate the glass with glycerol. If there is a concern of sample contamination, use water.

   - Grasp the glass no further than 1" from the end. Gently push and twist to insert glass into the tubing or stopper into the glass. As the glass begins to slide into the rubber, move the hand holding the glass back a little. Do Not Use Force.

8. Tubing should be cut from glassware instead of pulling the tubing from the glassware to remove it.

9. Never use a thermometer as a stirrer!

10. Always support a thermometer in a beaker or flask with a clamp.

11. If a mercury thermometer breaks, immediately contact ESH&A and restrict access to the area of contamination until cleanup can be arranged.

12. When glassware is assembled, care should be taken to use the minimum number of clamps for support, making sure:

    - The clamp is attached to a vertical support bar.

    - The clamp applies no torque.

    - Top-heavy apparatus is prevented from rotating and tipping.

    - Hanging pieces are clamped - grease will not hold them against the force of gravity!

    - Do not use a glass stopper to seal a hot container or you may never get it out again.

    - When possible, substitute plastic or metal connectors for glass connectors.

13. When handling cool flasks, grasp the neck with one hand and support the bottom with the other hand.

14. Lift cool beakers by grasping the sides just below the rim. For large beakers, use two hands: one on the side and one supporting the bottom.

15. Never carry bottles by their necks.

16. Don’t use beakers for drinking containers.

17. Follow these guidelines for handling and disposing of broken glass:

    - Do not pick up broken glass with bare or unprotected hands. Use a brush and dustpan to clean up broken glass. Remove broken glass in sinks by using tongs for large pieces and cotton held by tongs for small pieces and slivers.

    - Glass contaminated with biological, chemical, or radioactive materials must be decontaminated before disposal or be disposed of as hazardous waste.

18. The Ames Laboratory Storeroom has cardboard boxes intended for the accumulation and disposition of broken glass. Two different sizes are available to accommodate different sizes of glassware. The boxes are disposed of as regular trash.

Do not put broken glass in the regular trash.

19. For glass repairs go to the Chemistry Glass Shop at 551 Gilman Hall.

20. All injuries must be reported. At a minimum, group leaders or supervisors must be notified. Injures requiring medical attention must be reported to Occupational Medicine at G40 TASF.

Roles and Responsibilities

Program Directors shall ensure Group Leaders implement, maintain and document the ES&H program within each group.

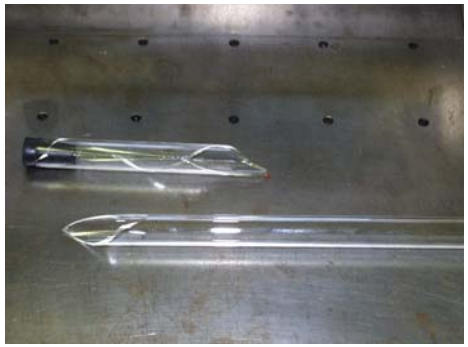
Group Leaders function as the first line managers for the day-to-day operational ES&H in their areas. Group leaders are responsible for the following:

- Completing Readiness Review for all activities.
- Ensuring employee receive institutional training.
- Providing job specific training (i.e., handling, assembly, cleaning and disposal of glassware).
- Ensuring the safety and health of their employees.

Environment, Safety, Health and Assurance is responsible for the institutional training such as Personal Protective Equipment, Chemical Hazard Communication Training, Hazardous Waste Generators Training, etc. ESH&A also serve as a resource to Directors, Group Leaders and employees to ensure compliance at the Laboratory.

AMES LABORATORY

WORKING SAFELY WITH GLASSWARE



NOTE
This guide provides information for the safe handling, use and disposal of glassware.

Additional information can be obtained from the Environment, Safety, Health and Assurance Office at G40 TASF or by calling 294-2153.

A copy of this guide is also available on the Ames Laboratory Site at http://www.external.ameslab.gov/is.

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