

	Standard Operating Procedure Safe Handling of Glassware		Page 1 of 6
	Investigator: General Safety	Location: EHS	Revision: 1.0

1.0 PURPOSE:

Laboratory glassware is specifically designed for scientific work. However, by design, it is also fragile and can easily break and cause injuries in the process. There have been many lab accidents at LSU involving the handling of glassware in the lab.

2.0 Select Appropriate Glassware:

Glassware is designed for a specific purpose. It should only be used for that purpose. "Makeshift" apparatus may be unstable and could lead to accidents and injuries. When selecting glassware, determine the compatibility of the glassware with the chemicals or experimental process. Some chemicals react with glass or cause damage (etch) the glass. If your process involves temperature or pressure changes, ensure the glassware can withstand the changes.

Examples of chemical compatibility and glassware to keep in mind:

Heat causes the expansion of volatile materials. Confinement of expansion results in an explosion. The danger exists even if external heat is not applied.

Mixing sulfuric acid with water inside a glass cylinder causes an exothermic reaction to occur, resulting in the heat from the reaction breaking the bottom of the vessel. Never mix sulfuric acid inside a cylinder.

Hydrofluoric acid chemically attacks glass. Hot phosphoric acid and strong hot alkalis also attack the glass. Never use glass to contain these processes.

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3.0 Inspect Glassware Before Use

Before Use

Lubricate the hole and tube. Water, soapy water, or glycerin may be used as a lubricant. It is not advised to use oil or grease.

When possible, wear cut-resistant gloves.

Hold the glass material with a towel.

Position the glass material close to the insertion point.

Gently twist the glass material into place.

6.0 Vacuum and Pressure Operations

Some glassware and processes can present unusual safety risks. Before starting, be sure you have had the necessary training before working with specialized equipment or processes.

Vacuum or pressure operations can severely test the integrity of glassware. Container walls must be able to withstand pressure differences. If the container is not strong enough, the container may implode. Round-bottomed or thick-walled flasks must always be used. Glassware designed for vacuum or pressure operations is rated for specific pressure limits. NEVER place glassware under pressure that it is not designed to withstand.

Glassware that has been repaired or shows signs of defect, flaw, or damage cannot be used in a vacuum system. It is more apt to break through thermal shock. Checking for flaws or defects before use is very important.

When setting up a vacuum system, protective measures must be taken:

Place all vacuum apparatus behind a blast shield or inside a fume hood. (Remember to lower the sash of the fume hood).

Always wear appropriate personal protective equipment (safety goggles, face shield, and gloves).

Use PVC-coated glassware whenever possible. If not available, cover flasks, dewers, and desiccators with tape or mesh.

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