Standard Operating Procedure (SOP)
Glassware Selection and Handling Procedures

This SOP details the **glassware selection and handling procedures** to ensure proper use, maintenance, and safety. It covers criteria for choosing appropriate glassware based on experimental requirements, techniques for safe handling to prevent breakage and contamination, cleaning protocols to maintain glassware integrity, storage guidelines to avoid damage, and methods for inspecting glassware for defects. Adhering to these procedures minimizes risks, enhances experimental accuracy, and prolongs the lifespan of laboratory glassware.

1. Purpose

To establish standardized procedures for the selection, handling, cleaning, storage, and inspection of laboratory glassware to ensure safe and effective laboratory practices.

2. Scope

This SOP applies to all personnel involved in laboratory work utilizing glassware at the facility.

3. Responsibilities

- All laboratory staff must follow these procedures when selecting and handling glassware.
- Supervisors are responsible for ensuring adherence and providing necessary training.

4. Glassware Selection

1. Identify the experiment type and determine specific requirements (e.g., volume, temperature, chemical compatibility).
2. Choose glassware made from appropriate material (e.g., borosilicate for heat resistance, soda-lime for general use).
3. Select glassware of suitable size, shape, and calibration needed for the procedure.
4. Ensure selected glassware is free from defects, cracks, or scratches.

5. Safe Handling

1. Inspect glassware for chips or cracks before use. Do not use damaged items.
2. Handle glassware with dry, clean hands and avoid applying excessive force.
3. Support large or heavy vessels from the bottom; do not lift by rims or necks.
4. When inserting glass tubing or thermometers into stoppers, lubricate joints and use gentle, twisting motion.
5. Never heat glassware that is not designed for thermal applications.
6. Use appropriate personal protective equipment (lab coat, gloves, eye protection).

6. Cleaning Protocols

1. Rinse glassware immediately after use to prevent residue buildup.
2. Use appropriate cleaning agents (detergent, acids, solvents) as required by contaminants present.
3. Scrub gently with suitable brushes; avoid abrasive pads that could scratch surfaces.
4. Rinse thoroughly with tap water, followed by deionized or distilled water.
5. Dry glassware by air-drying, or using a drying oven or lint-free wipes.

7. Storage Guidelines

1. Store glassware in designated storage areas, preferably in cabinet or drawers lined with cushioning material.
2. Arrange items to prevent tipping, rolling, or falling.
3. Do not stack glassware unless specifically designed for nesting.
4. Store items inverted if possible to avoid dust accumulation inside.

8. Inspection and Maintenance

1. Regularly inspect all glassware for cracks, chips, etching, or residue.
2. Remove and discard defective glassware immediately following local safety guidelines.
3. Document inspection results as required.

9. References

- Manufacturer instructions for specific glassware.
- Laboratory safety guidelines and chemical compatibility charts.