Responsibilities

1) Autoclave use will be restricted to trained personnel.
2) Each lab should have at least two people that will be held responsible for training new group members on the equipment.
3) CLP will assign autoclaves and user codes to each lab.
4) Users are required to only operate the machine designated to their lab unless otherwise permitted due to special circumstances.
5) **All users must sign in before operating the equipment.**
6) All error messages or problems with the machine must be reported on the user log and an email sent to clp-info@northwestern.edu.
7) If a machine breaks and the repair is not covered by the preventative maintenance plan:
   a) The group that is responsible for the damage will be expected to cover all expenses (travel, service, parts, etc.) related to the repair.
   b) If blame cannot be assigned, repair costs will be divided equally among groups that use the machine.
**Autoclave**

**Pre-Use**
DO NOT autoclave Biohazard waste

Never Autoclave solvents or combustible, volatile, flammable, radioactive or corrosive materials.

Wear appropriate PPE – eye protection, lab coat, heat resistant gloves

Use only the foot lever to open/close the autoclave. Manually trying to push/pull the doors open can damage the door mechanism and cause downtown. This is also inappropriate use of the autoclave.

The drain screen needs to be cleaned periodically.

Complete the user login sheets.

Complete the machine’s online reservation.

**Loading**

Loosen lids to avoid dangerous pressure build-up

Place containers in a tray and load the tray. Do not place items directly on the autoclave chamber floor.

Empty glassware should be placed in a pan on its side or inverted.

Liquids should be placed in a pan upright.

Do not place liquid items above non-liquid items on an autoclave rack.

Do not let items touch the walls or ceiling of the autoclave chamber.

Allow spacing around all items for steam contact/penetration

**Please ensure the temperature probe is located in a location where it will not be damaged.**

**Unloading**

Wear appropriate PPE – eye protection, lab coat, heat resistant gloves

Open the autoclave only after the cycle has finished (Zero pressure in the chamber)

Use only the foot lever to open/close the autoclave. Manually trying to push/pull the doors open can damage the door mechanism and cause downtown. This is also inappropriate use of the autoclave.

Open door and allow steam to escape and be careful not to come in contact with steam

Place items on heat tolerant surfaces. Do not leave items until cooled. Cooling may take 15 minutes or up to an hour in some cases for liquids.

Slowly remove items from the autoclave. Be careful not to touch hot surfaces or spill hot liquids.
Most Common Autoclave Settings:

- **LIQ 30**: 121°C, ~500 mL/container with 30 min sterilization
- **LIQ 40**: 121°C, ~1000 mL/container with 40 min sterilization
- **GRAV 30**: 121°C, Wrapped (tips) with 30 min sterilization and 20 min dry time
- **GRAV 20**: 121°C, Unwrapped with 20 min sterilization and 15 min dry time
- **PVAC 10**: 132°C, Unwrapped with 10 min sterilization and 10 min dry time
- **PVAC 20**: 121°C, Unwrapped with 20 min sterilization and 15 min dry time
Glassware Washer

Pre-Use
Remember to rinse the glassware in the sink of any deposits.

Inspect all glassware for imperfections and discard faulty items. Cracks and deep scratches can cause glassware to break and capped containers to explode.

Check that chemical supply has both the level sensor and suction tube inserted into the detergent container. When new chemical supply is added, the pump may need to be primed (see section 4.3 of the operating manual).

Verify the debris screens in the chamber are clean and in place.

Loading
Only use the open/close buttons to operate the door.

Ensure no items stick out or hang out of the rack. Always use a rack designed to handle the appropriate type of items to be processed.

Glassware must always be placed in a spindle header for processing, never alone on a manifold rack.

Miscellaneous articles can be placed in a general purpose basket with or without a general purpose basket cover.

To see basket and accessory installation refer to the operating manual.

Beakers must be placed open end down. If lightweight plasticware or metalware is being washed, use a cover to prevent items from turning.

Post-Use
Remember to clean the glassware loading tray of glass shards and/or chemical deposits.
<table>
<thead>
<tr>
<th>Product Description</th>
<th>Typical pH</th>
<th>Available Injection Rate [oz/gal/mL/L]</th>
<th>Other Applicable Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaline Detergents</td>
<td>9.0 - 12.0</td>
<td>1/4 - 6 [2 - 50]</td>
<td>Liquid, non-foaming, high-chelating ability, free-rinsing.</td>
</tr>
<tr>
<td>Acidic Detergents</td>
<td>2.0 - 6.0</td>
<td>1/4 - 6 [2 - 50]</td>
<td>Liquid, non-foaming, high-chelating ability, free-rinsing.</td>
</tr>
<tr>
<td>Neutral Detergents</td>
<td>6.0 - 8.0</td>
<td>1/4 - 6 [2 - 50]</td>
<td>Liquid, non-foaming, high-chelating ability, free-rinsing.</td>
</tr>
<tr>
<td>Descalers</td>
<td>&lt; 2.5</td>
<td>2 [16]</td>
<td>Liquid, non-foaming, phosphoric acid based, free-rinsing.</td>
</tr>
</tbody>
</table>

To achieve maximum cleaning efficiency, select appropriate chemical cleaner to soil type being processed. STERIS recommends the following products:

- **LabKlenz 100® Alkaline Detergent** is a phosphate-free liquid, alkaline detergent. It contains corrosion inhibitors for enhanced substrate compatibility and is extremely free-rinsing to meet critical laboratory requirements.

- **LabKlenz 110® Alkaline Detergent** is a phosphate-free, liquid, alkaline detergent. It is extremely free-rinsing to meet critical laboratory requirements.

- **LabKlenz 120® Mild Alkaline Detergent** is a mild alkaline liquid detergent. It is compatible with a variety of substrates including stainless steel, mild steel, copper and aluminum. This product is extremely free-rinsing to meet critical laboratory requirements.

- **LabKlenz 200® Acid Detergent** is a phosphoric acid-based liquid detergent. It has been formulated for the removal of scale, particulate and inorganic soils.

- **LabKlenz 250® Acid Detergent** is a citric acid-based, liquid detergent. It is formulated for use as rinse aid, as well as for the removal of particulated scale and inorganic soils.

- **LabKlenz 300® Neutral pH detergent** is a surfactant-based neutral pH liquid detergent for use in manual cleaning or automated glassware washing applications.

- **ProKlenz 120® Alkaline Detergent** is a liquid detergent designed to meet the demands of the pharmaceutical, cosmetic, medical device, dietary supplement, food and beverage and other regulated industries. It is formulated with a blend of surfactants and other essential ingredients to utilize multiple cleaning mechanisms while enhancing substrate compatibility.

*NOTE: Certain products may not be available in your area. Contact STERIS for product availability and ordering information.*