Autoclave Operation Quick Reference Guide

- **Training:** ALL users MUST undergo documented training for operation of the autoclave.
- **Record** each use of the autoclave in a log: Date, User ID, cycle type and nature of material in load
- **Personal Protective Equipment (PPE) needed:**
  - Wear eye protection, lab coat, gloves along with heat resistant gloves. Rubberized apron, sleeve guards and face shield are recommended when autoclave is hot or splash risk is present.

**Hints and Precautions**

- Become familiar with the manufacturer’s operations manual of your autoclave model(s).
- Plastics used for autoclaving MUST be labeled as autoclavable – otherwise the plastic will melt.
- Waste bags to be autoclaved must be loosely packed and not more than 2/3 filled. Steam must be able to penetrate to all contents of the bag.
- Sharps or pointed hard objects should not be placed directly into an autoclave bag; a thicker or rigid container must be used (such as a sharps container).
- Avoid overfilling an autoclave with loads or allowing a load to contact the chamber walls.
- Transferring waste contents from an overfilled bag to another bag should be avoided! This practice can lead to injury and/or exposure to contaminants.
- Do not leave an autoclave operating unattended for long periods of time; operation should be monitored periodically during a cycle in case of failure.
- Never autoclave solvents, combustible, volatile, flammable, radioactive or corrosive materials (e.g. ethanol, methanol, acids, bases, phenol)
- Remove extraneous items and combustible materials from around the autoclave exterior.

**Loading**

- Follow manufacturer’s loading instructions for your autoclave model
- Transport loads on a cart and in secondary containers to reduce spills
- Clean item/container sterilization
  - Loosen caps or lids to avoid dangerous pressure build-up during cycle
  - Place containers in a tray and load the tray into the autoclave – this is easier to load and unload and will catch spills. Do not place items directly on the autoclave chamber floor.
  - To improve heat distribution around the containers, add 1-2 cm of water to the tray
  - Refrain from placing liquid items above non-liquid items on an autoclave rack – this will reduce cross contamination due to spills.
- Contaminated waste materials
  - Always handle waste bags from the top – never from the bottom
  - Load bags of waste into a secondary tray; do not load directly onto a rack or the autoclave chamber floor
  - Loosen bag tops; add water to bags if needed to assist steam generation

**Cycles** (general settings for large autoclaves)

<table>
<thead>
<tr>
<th>Load type</th>
<th>Temperature</th>
<th>Pressure</th>
<th>Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterilization of clean materials or liquids</td>
<td>≥ 121°C (249°F)</td>
<td>~ 30 psi</td>
<td>15 - 20</td>
</tr>
<tr>
<td>Decontamination of Waste</td>
<td>≥ 121°C (249°F)</td>
<td>~ 30 psi</td>
<td>45 - 60</td>
</tr>
</tbody>
</table>
Unloading the Autoclave

- Put on the appropriate PPE before opening the autoclave door.
- Open the autoclave door ONLY after the cycle is finished.
- Open door a few inches to allow steam to vent for a few minutes before fully opening the autoclave. Keep hands and face away from escaping steam.
- Slowly remove cart and/or trays of items from the autoclave; take care to not touch hot surfaces or spill liquid from pans or containers.
- Place items on a heat tolerant surface and allow to air-cool for 15 minutes (liquids may take up to an hour to cool).
- Put up a sign or notify others in area to avoid touching hot items.

Spills and accidental breakage

- Notify a supervisor or department safety officer and follow departmental procedures for a spill or exposure event or injury incident.
- For liquid spills
  - Clean up immediately with appropriate absorbent and disinfectant/cleanser for material. Take care if material is hot from autoclave.
  - If inside a hot autoclave, allow autoclave to cool sufficiently prior to clean up.
  - Post signs warning others in area of spill during clean up, or while allowing area to cool prior to clean up.
- For solid material spill or breakage
  - Clean up immediately using appropriate means for material and disinfectant if necessary
  - Do not pick up broken glass with hands; use dustbin or cut resistant gloves and dispose in proper receptacle.
  - Allow autoclaved items to cool sufficiently prior to clean up.
  - Post signs warning others in area of spill during clean up, or while allowing area to cool prior to clean up.

INJURY RESPONSE

- First degree burn on small area of arm or hands: see immediate first aid
- Second or third degree burns, cuts, abrasions, eye injury, splash or facial burn or large area burn of any degree: This is a medical emergency! Seek immediate treatment at a hospital or call 911.
- Always notify a supervisor or area safety officer when injury or accident occurs.
- If biological exposure or release of contaminated materials occurs as a result of the incident a First Report of Biological Exposure or Release Event should be completed.

Maintenance - Follow the manufacturer's instructions or contact OBS for information.

QC Check - Autoclave efficacy must be tested using a biological or chemical indicator on a regularly scheduled basis.

- The test date, result and related information must be recorded.
- Test schedule is determined by responsible lab-department-group using autoclave;
- Indicators can be ordered through laboratory supply companies or contact OBS for assistance.