

## **BSL-01a Using Autoclave #1 in room 4-211**

### **1. Scope:**

This SOP applies to all those who will be using Autoclave #1 in room 4-211 to ensure that it is used safely and properly. This SOP relates only how to use the equipment not how to load it.

### **2. Responsibilities:**

Principal Investigators, Research Associates, students

**If you have never operated the autoclave you will be using, contact an experienced user in your laboratory for instruction on safe operation and review the appropriate SOP's.**

### **3. Materials:**

- Autoclave #1 (B-BSTER1-MM)
- Autoclavable safe trays, equipment
- Autoclave indicator tape\*
- Autoclave indicators\*
- SOP BSL-11 Autoclaving 101 (Refer to this SOP for loading tips)
- Required PPE: use of heat-insulating gloves, long pants, lab coat and closed-toe shoes when loading and unloading the autoclave

\*It is recommended that you use autoclave tape or indicators in every load to ensure that items have been successfully sterilized. Remember, this just indicates that the tape or indicator has been exposed to minimum sterilization temperature/times and may not reflect the status of the items you sterilized. To ensure your load is sterilized follow the safety precautions below.

### **4. Safety:**

- Autoclaves work using high temperatures (> 121°C ) and extreme pressure (> 15 PSI) to effectively kill microorganisms or render a bio hazardous material inactive.
- The potential risks of using an autoclave are heat and steam burns, hot fluid scalds, injuries to hands and arms from the door, or bodily injury in the event of an explosion. Additional injury or exposure to biohazardous material may be incurred if the contents of the biohazardous waste are packaged improperly.
- Before opening the door ensure that the cycle is completed and pressure in the autoclave is zero before opening the door at the end of a cycle.
- Make sure that no personnel, including you, are not directly in front of the door
- Crack the door open slowly at first to release any residual pressure/steam that may be in the chamber to prevent burns
- Turn off the autoclave to allow it to cool before cleaning up any spills. (Spills must be cleaned up immediately after the cycle has been run). You may need to contact facilities to have the autoclave shut off before cleaning.
- Never put volatile chemicals or solvents (alcohols, chloroform), or corrosive chemicals (bleach, acetic acid, formalin, fixed tissues etc.), or radioactive materials in an autoclave
- Use extreme caution when moving hot liquids, and glassware as these could easily shatter
- Do not autoclave sealed containers as they pose an explosion risk

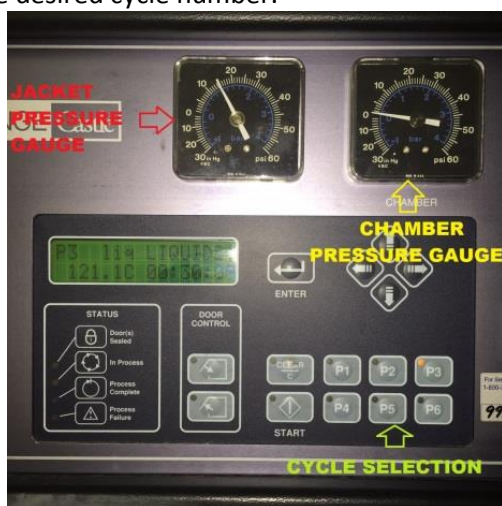
**5. Procedure:**

**CYCLES:**

Dry (Gravity) Cycles		Liquid Cycles	
Cycle Number	Cycle Parameters	Cycle Number	Cycle Parameters
P1	15 minute exposure	P3	30 minute liquid cycle
P2	45 minute exposure	P4	15 minute liquid cycle
		P5	45 minute liquid cycle

**RUNNING A CYCLE:**

1. Press CONTROLS ON/OFF (if necessary) to turn on the control.
  - a. Display lights up
2. Load the sterilizer.
  - a. Include a chemical indicator such as indicator tape or a biological indicator.
3. Manually lift the door up to the closed position.
4. Press the desired cycle number.



**FIGURE A**

5. Confirm the correct cycle is selected. (desired length of time and temperature settings are appropriate for your load materials)
6. Ensure the 'Jacket Pressure Gauge' is >20 PSI (Figure A). If autoclave was turned on in step 1, you may have to wait 10-15 minutes. **If after 15 minutes the is "0" Pressure contact the Shift Engineer.**
7. Press the "START" button (Figure B).
  - a. The door automatically seals when starting the cycle.
  - b. During the cycle, the "In Process" LED lights
8. At the end of the cycle he "Process complete" LED lights up (Figure B).

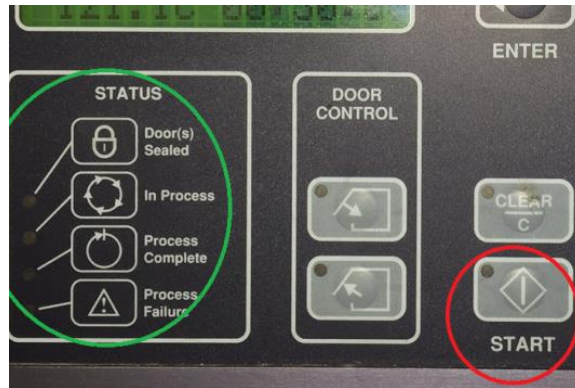


FIGURE B

9. At the end of the cycle the “Process Complete” LED lights and the buzzer sounds.
  - a. At the end of the cycle the door should automatically unseal.
  - b. If the door does not open, confirm the Chamber Pressure gauge is “0” (see Figure D). If the gauge reads “0” press the “Open Door” button to unseal the door.
  - c. IF the gauge is reading above “0” **DO NOT** attempt to unseal the door. If pressure remains in the chamber Contact the Shift Engineer.
10. Manually open the door by pulling down the door. **CAUTION:** The autoclave and load will be hot.
  - a. Allow a few minutes or the autoclave and load to cool off. Liquids should be left to cool for a minimum of 15 minutes.
  - b. Extreme **CAUTION** should be used moving liquids. Try not to agitate liquids, as this may cause flasks to crack or burst.
11. Remove the load wearing appropriate PPE.
12. RECORD your use on Sign in Sheet #1.
13. Turn off the Autoclave, if you turned it on in step 1.

#### FAILED CYCLES:

If at the end of a cycle the “Process failure” LED lights - the load should not be considered sterile and needs to be re-run.

- a. A diagnostic message/error code should be displayed.
- b. Press the “clear alarm” button, to clear the message and silence the alarm.
- c. If the alarm clears you can try running the cycle again.
- d. If the error message/error code continues, Contact the Shift Engineer at 250-961-2844 to report the failure.
- e. A TMA needs to be completed by you or your supervisor.

#### TO ABORT/CANCEL A CYCLE:

1. Press “CLEAR/C” and the current Cycle Select switch at the same time.
2. ABORT-MANUAL will be displayed on the screen.
3. Press CLEAR/C.
  - a. The sterilizer ceases all processing activity and begins an exhaust phase.
4. Once completely exhausted the “Process complete” LED lights
5. The “Process Failure” LED lights
6. Ensure the chamber gauge reads “0”
  - a. If “0” press the open door button to unseal the door (Figure C).



FIGURE C

- b. IF the gauge is reading above “0” **DO NOT** attempt to unseal the door. If pressure remains in the chamber contact the Shift Engineer.
7. Wait approximately on (1) minute for the steam to vent before opening the door.
8. Open the door about an inch for 10 seconds to allow residual steam vapours to escape.
9. For liquid loads, wait 15 minutes before removing the load from the chamber.
10. Remove the load from chamber.

**6. Records:**

Each autoclave load ran must be recorded on the appropriate log sheet. When you use the autoclave record the date, your name, what time you started and ended the load and what cycle you used.

The Biosafety Officer runs monthly safety checks using indicators on the autoclave to ensure they are functioning properly. These indicators are also run after any repairs have been done.

**7. List of attachments:**

None

**8. History:**

Created by Lydia Troc on Oct 19, 2016

**9. Approval:**