

SOP-E034

Operation of the AMSCO Autoclave

Objective: This SOP describes basic operation of the AMSCO autoclave for steam sterilization of liquids, glassware, and plastics for laboratory use.

This autoclave is located in HANS room B021. Model # 20" VAC PWR SD. Purdue Property # 866598

For using a pre-programmed cycle:

Procedure:

1. At the main menu touch the **CYCLE SELECT** button.
2. This will advance to display the **CYCLE SELECT** screen. Press the button for the preprogrammed cycle you would like to use. The settings for each cycle are shown on a piece of paper attached to the front of the autoclave.
3. Pressing a cycle button advances to display a screen listing that cycle's parameters.
4. Pressing **START CYCLE** will initiate the cycle selected and advance the display to the first in-cycle status screen.

To change the preset cycle values:

Procedure:

1. Press **OPTIONS** on the main screen.
2. Press **CHANGE VALUES**.
3. Press **CYCLES** to select the cycle to be modified.
4. Press the cycle button corresponding to the cycle to be changed.
5. The next screen allows the operator to choose the type of cycle that will be assigned to the selected cycle button. The current cycle name and assigned cycle type are shown at the bottom of the display. Press the button for the type of cycle you wish to program.

NOTE: Some programmable values are different depending on which type of cycle is selected.

6. The next screen(s) will list the programmable values for the type of cycle selected. (There may be 1-3 screens of programmable values depending on the cycle type)
7. To change the value, select which value you wish to change by pressing it.
8. The next screen allows you to key in the value you wish. It may be a character screen or a numeric screen, but either way just key in the change. Use the arrow keys to move the cursor left or right. Press **RETURN** to save the changed value.
9. When you have made all the changes on the **CHANGE VALUES** screen you wish to change, press **NEXT** (if there is a next) and change those values as above.
10. After all cycle value changes have been made, press **CYCLE MENU**.
11. Remaining cycles may now be modified if desired as above.
12. Once all changes to the cycles and cycle values are completed, press **MAIN MENU**.

Discussion:

- (a) It is very important to keep the chamber door closed between cycles and when sterilizer is not in use.

- (b) After sterilization most goods should be stored for no longer than 30 days, depending on wrapping materials.
- © Put items to be autoclaved in a pan in case of meltdown.
- (d) Do not leave items in autoclave overnight, they may melt even if autoclavable.
- (e) When sterilizing liquids make sure to place the container in a pan with about two inches of water in it.
- (f) Recommended sterilization variables:

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**Recommended
 Sterilization
 Variables**
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» **Prevacuum Cycle**

Prevacuum cycle is recommended to process any goods, except liquids, which are capable of being sterilized with steam. This cycle can also be used to decontaminate wastes, including wastes containing liquids, provided the materials are properly contained.

Refer to Table 2-1 for recommended Prevacuum cycle parameters.

Table 2-1. Prevacuum Cycle Parameters

Temperature	Pressure Pulse psig (psia)	Minimum Recommended Sterilize Time* minutes
121°C (250°F)	12-14 (27-29)	15
132°C (270°F)	26-28 (40-42)	4

* Minimum sterilize times are based on obtaining a 10⁻⁶ Sterility Assurance Level (SAL) with standard test loads. Your specific loads may require different sterilize times to achieve this level of sterility, or you may require a different SAL.

- » **Gravity Cycle** Refer to Table 2-2 for the type of items which can be processed in a Gravity cycle and the recommended cycle parameters

Table 2-2. Gravity Cycle Parameters

Items	Minimum Recommended Sterilize Time at 121°C (250°F)	Minimum Recommended Sterilize Time at 132°C (270°F)	Dry Time
Glassware, empty, inverted without closures*	15 minutes	3 minutes	0 minutes**
Instruments, metal combined with culture, tubing or other porous materials (unwrapped)	20 minutes	10 minutes	0 minutes**
Hard Goods, unwrapped	15 minutes	3 minutes	0 minutes**
Hard Goods, wrapped in plastic or equivalent	30 minutes	15 minutes	30 minutes***

* If items which can trap air must be sterilized upright, they should be sterilized in a prevacuum cycle.

** Goods will be wet when removed from sterilizer.

*** Dry time can vary for wrapped goods depending on pack density, weight of goods, pack preparation technique including type of wrapping material used, and sterilizer loading procedures.

- » **Liquid Cycle** Refer to Table 2-3 for recommended Liquid cycle parameters. The recommended times indicated in Table 2-3 assume the use of vented bottles or Erlenmeyer flasks. The 'minimum sterilization time' includes the time required to bring the solution up to the sterilize temperature plus the time required to achieve sterilization.

⚠ WARNING - EXPLOSION HAZARD: This sterilizer is not designed to process flammable liquids.

⚠ WARNING - BURN HAZARD: When sterilizing liquids, you must observe the following procedures:

- Use LIQUID cycle only.
- Use only vented closures.
- Use only Type I borosilicate glass bottles.
- Do not allow hot bottles to be jolted.

NOTE: Load probes and F₀ option will allow you to optimize cycle times.

Table 2-3. Liquid Cycle Parameters - No Load Probes

Volume of Liquid in One Container	Minimum Recommended Sterilize Time* at 121°C (250°F) minutes
75 mL	25
250 mL	30
500 mL	40
1000 mL	45
1500 mL	50
2000 mL	55
> 2000 mL	55 - 10 min/L

* Minimum sterilize times are based on obtaining a 10⁶ Sterility Assurance Level (SAL) with standard test loads. Your specific loads may require different sterilize times to achieve this level of sterility, or you may require a different SAL.

