

Autoclave SOP

Safety As autoclave is very high steam pressure equipment, it may create serious health risks to operators and surrounding people if not handled properly; therefore, it becomes mandatory for all staff to understand important information including risk factors, safe operation, cleaning and maintenance etc.

1. Autoclaves should be installed away from the main working area as they are noisy and hot, release steam and may be a source of major hazards.
2. There should be proper fittings of water inlet and drain to boiler and water source
3. Autoclave door must away from main walking area
4. Never overload the trolley beyond the advised limit
5. Make sure that the rubber gasket is in its groove
6. Proper training must be given to operators and related staff
7. Do not let the unauthorized / untrained person to operate the autoclave

Operation

1. Before switching ON the autoclave machine, always check proper water level
2. Always use purified water (RO / DM water) to fill the boiler to avoid scaling in boiler and piping
3. Do not put multiple category items in the sterilization chamber
4. Keep waste to sterilize in autoclavable biohazard bags and put these bags to chamber shelf or container
5. Do not overload the chamber with items, there must be some enough space between items to sterilize
6. Use sterilization indicator tape to ensure proper sterilization process
7. If there is spill during sample placement in chamber, wipe it with clean and lint-free cloth
8. Close the door tightly and ensure door is properly closed

9. Ensure all release valves are closed
10. Switch ON the machine
11. Set temperature (121°C) and time using controller
12. When pressure reaches approx 20 psi in jacket shift lever to chamber (only for manual models)
13. Let the sterilization process complete until finishes set time
14. Turn off the machine
15. Release the chamber pressure using release valve (only for manual models)
16. Ensure chamber has 0 psi pressure and no hissing sound from the release valve
17. Open the door and remove the sterilized items
18. If required fill the results in log book
19. If water filling is required during operation, first switch off the machine and release pressure from chamber and gasket A

Validating Autoclave Performance:

- Each waste bag or container decontaminated by autoclaving should have a heat sensitive indicator such as autoclave tape or strip attached to the outside of the bag. These should be visualized before disposal of each bag and should remain with the bag.
 - At least once a month, autoclaves that are used to decontaminate waste or to render materials biologically inactive should be tested by using a biological indicator, such as endospores from the bacterium *Geobacillus stearothermophilus*.
 - Add vial containing spores to the bag of waste, burying it within the waste
 - Secure the waste bag and start the autoclave run.
 - Post autoclaving and once the bag has cooled, retrieve the vial.
 - For spore indicators: To activate the media, with gloves on hold the indicator in an upright position, gently squeeze to break the glass ampoule.
- o Follow incubation 55-60° for up to 48 hours to complete the test.
 - o Read the results of the indicator according to manufacturer instructions.
1. If after 24 hours the media is yellow this = a failed test (the endospores grew, they were not

killed).

2. If after 24 hours the media is still purple = presumptive pass, but continue to incubate until 48 hours.
3. If after 48 hours the media is still purple = passed test (all endospores were killed).

Understand the limits of testing:

- Testing with a temperature indicator (tape or strip) only lets you know if the autoclave reached the approximate desired/operating temperature, but will not tell you how long that temperature was maintained.
- Validating performance using a biological indicator is the only way to ensure complete inactivation/sterilization.

Autoclave cleaning & maintenance

In order to extend autoclave life and utilize maximum performance, periodic cleaning and maintenance of autoclave is necessary. Before carrying out cleaning work, visual inspection should be done to check if any sign of fault or contamination appears on surface and instruments. If found any critical problem, it is advised not to use the machine and contact the technician or manufacturer.

Always disconnect power supply from your autoclave before initiating cleaning process

1. Make sure there is no pressure inside jacket and chamber and machine is cool to room temperature
2. Never use steel wire brush or steel wool for cleaning door, chamber and other parts.
3. Always use lint-free cotton cloth or sponge for wiping and cleaning
4. Use mild detergent or suitable cleaning agent (70% IPA) to clean the surface
5. Never use chloride-based cleaners
6. Check that the door is opening and closing smoothly without any noise of friction
7. Put a few drops of oil on the door hinge and radial lock tightening bolts and shafts.
8. Check effectiveness of safety valves every week
9. Check pressure gauges if there is moisture inside, replace them immediately

10. Clean the gasket to keep it dust free

11. Calibrate temperature controller every 12 months

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