

Standard Operating Procedure (SOP): Autoclaving or Sterilizer Machine Operating Procedures

This SOP details the **autoclaving or sterilizer machine operating procedures**, covering the preparation and loading of materials, setting appropriate sterilization parameters, monitoring the sterilization cycle, ensuring proper machine maintenance, safety precautions during operation, and documentation of sterilization records. It aims to guarantee effective sterilization of equipment and supplies while maintaining user safety and compliance with regulatory standards.

1. Purpose

To outline the standard procedures for safe and effective operation of autoclave or sterilizer machines for sterilizing laboratory, clinical, and research materials.

2. Scope

Applies to all personnel responsible for sterilizing equipment, instruments, and supplies in relevant facilities.

3. Responsibilities

- Operate autoclave/sterilizer according to instructions.
- Adhere to safety precautions and SOP requirements.
- Ensure completion of sterilization documentation.

4. Definitions

- **Autoclave:** Pressurized device using steam for sterilization.
- **Sterilization:** Process to destroy all forms of microbial life, including spores.

5. Materials and Equipment

- Autoclave/Sterilizer machine
- Sterilization indicator tape or strips
- Personal Protective Equipment (PPE): gloves, lab coat, face shield/goggles
- Material to be sterilized (in suitable containers/autoclave bags)
- Autoclave logbook or digital record system

6. Operating Procedure

1. Preparation:

- Inspect the autoclave and ensure it is in good working condition.
- Verify water level in the reservoir (if applicable).
- Wear appropriate PPE before handling materials or operating the machine.

2. Loading Materials:

- Arrange items in autoclave bags or trays, ensuring that steam can circulate freely.
- Apply sterilization indicator tape/strip to each pack/tray.
- Do not overload the chamber; leave space for steam penetration.

3. Setting Parameters:

- Close and lock the autoclave door securely.
- Select and set appropriate sterilization parameters (temperature, pressure, cycle time) according to material type:
 - Typical settings: 121°C at 15 psi for 15-30 minutes or as per SOP.

4. Running the Cycle:

- Start the autoclave and closely monitor for any error messages or alarms.
- Remain nearby during operation if required by policy.

5. Unloading:

- Wait for the pressure to normalize and temperature to decrease below 80°C before opening the door.
- Wear heat-resistant gloves and open door cautiously, allowing residual steam to vent.
- Check sterilization indicators; reprocess any loads showing incomplete sterilization.

6. Documentation:

- Record cycle date/time, load contents, cycle parameters, operator initials, and sterilization indicator results in the autoclave logbook or system.

7. Cleanup and Maintenance:

- Wipe chamber interior if necessary.
- Dispose of waste appropriately.
- Report any malfunction immediately; perform regular maintenance as scheduled.

7. Safety Precautions

- Always wear PPE when loading/unloading the autoclave.
- Never open the autoclave while it is pressurized.
- Beware of hot surfaces and steam; use heat-resistant gloves.
- Do not leave operating autoclave unattended unless auto-shutdown is enabled.
- Report and record any accidents or near misses.

8. Documentation and Recordkeeping

| Date/Time | Operator | Load Contents | Parameters (Temp/Time) | Indicators (Pass/Fail) | Comments |
|-----------|----------|---------------|------------------------|------------------------|----------|
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9. References

- Manufacturer's Operation Manual
- Local Institutional Biosafety Guidelines
- Regulatory Standards (e.g., CDC, OSHA, ISO 17665)