

Possible Sterilization Failures

Improper loading and packaging – Always review the manufacturer’s loading instructions. Sterilizers generate a precise amount of steam, chemical vapor, or dry heat for a specific volume of instruments. Do not exceed the unit’s load capacity as listed in the manual. The steam or chemical vapor must be able to flow around and contact the surfaces of the instruments for sterilization to occur. If too many packages are placed into the unit, adequate contact time cannot be achieved.

Interrupting the cycle – If the sterilizer is opened or halted before completing its cycle, the unit should be re-started for a complete cycle.

Cold start – If the sterilizer is running from a “cold start”, run a cycle without any instruments first to pre-heat the sterilizer or refer to manufacturer’s operator manual for a “cold start”.

Maintenance and cleaning – Refer to operator manual for maintenance instructions and schedules.

Steam Sterilizers

Effective sterilization in steam sterilizers requires precise time, temperature, pressure, and drying time. **Always review your operator manual for specific operating procedures.**

Time – Steam sterilizers operate for various time periods based on many variables including capacity and temperature. Note: The time cycle begins when the unit reaches operating temperature and pressure, which may take several additional minutes. Also, some units must complete the drying cycle.

Temperature – Most steam sterilizers operate between 250°F-270°F. Temperatures lower than 250°F are unlikely to sterilize instruments. Temperatures above 290°F, however, are also unlikely to sterilize.

Pressure – Autoclaves require around 16-20 psi (pounds per square inch) for units that operate at 250°F and 30-32 psi for sterilizers operate at 270°F. A frequent reason for loss of pressure is an inadequate seal of the sterilizer door gasket or faulty pressure valve.

Chemical Vapor Sterilizers

Chemical sterilizers look similar to steam units. The difference is that a chemical (usually a formaldehyde mixture) is introduced into the sterilizer chamber through a metering valve and vaporized by heat. The chemical vapor (not the heat) kills the pathogens. **Always review your operator manual for specific operating procedures.**

Time – Most chemical vapor sterilizers require 20-minute cycle time. Note: The 20-minute cycle begins when the unit reaches the correct operating temperature.

Temperature – Most chemical vapor sterilizers operate at 270°F (132°C).

Chemical Solution – Chemical vapor sterilizers require a chemical solution. Check the chemical’s expiration date to verify that your solution has not expired.

Metering Valve – This valve meters the required amount of chemical solution at the appropriate time into the instrument chamber. If the valve is not maintained and cleaned regularly, sterilization failure will likely occur. The unit’s operator manual should describe how to properly service this valve.

Dry Heat Sterilizers

Factors involved with dry heat sterilizers are time and temperature. **Always review your operator manual for specific operating procedures.**

Time – Dry heat sterilizers usually require a much longer cycle, roughly 1-2 hours. Some newer units may have shorter cycle times- consult manufacturer’s instructions. Note: The cycle begins when the unit reaches operating temperature.

Temperature – Most dry heat sterilizers operate at 320°F (160°C).