



Providing Sterilization & Laboratory Services for the world's most innovative healthcare companies.

From the Blog

Steam Sterilization Technology at Medistri

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Steam sterilization is one of the most widely used and dependable methods for achieving sterility in healthcare. It works by using saturated steam under pressure at high temperatures to inactivate microorganisms, ensuring medical devices are safe for later use.

At Medistri, our steam sterilization technology is built around modern autoclaves with advanced monitoring and control systems. This allows us to provide precise, reliable, and reproducible sterilization cycles tailored to the specific requirements of your medical devices.

The Science of Steam Sterilization

The principle behind steam sterilization is simple yet powerful: moist heat denatures and coagulates the proteins of microorganisms, leading to their inactivation. Because steam transfers heat more efficiently than dry air, sterilization can be achieved at lower temperatures and in shorter exposure times. This makes the method highly effective against bacteria, spores, fungi, unicellular eukaryotic organisms, and other biological agents.

The Phases of a Steam Sterilization Cycle

Every cycle follows a controlled sequence to ensure that steam reaches all surfaces of the load:

- **Pre-Conditioning:** During this phase, the air is removed from the chamber and the load is humidified by means of alternating vacuum and pressure pulses.
- **Exposure:** During this phase, the chamber temperature is raised to and held at the pre-validated sterilizing temperatures for the per-validated exposure duration.
- **Post-Conditioning:** During this phase, solid loads are cooled and dried or liquid loads are cooled. The chamber is brought to atmospheric levels.

Medistri's Infrastructure

Our steam sterilization infrastructure is fully certified according to ISO 17665. With a modern autoclave and advanced cycle control, we can design custom sterilization processes that match the thermal and material requirements of your products. By studying critical parameters, our team ensures sterility is achieved without compromising product integrity.

Learn more about Medistri's Steam Sterilization Technology on our website [here](#) or contact our team at contact@medistri.com.

— The Medistri Team

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Advantages from a Technological Perspective

From a technology standpoint, steam sterilization remains highly relevant:

1. **Efficient:** Rapid heat transfer leads to shorter exposure times.
2. **Reliable:** Mechanical systems ensure reproducibility of each cycle.
3. **Versatile:** Suitable for instruments, textiles, and certain heat- and moisture-resistant liquids or product types.

Technology Components

The precision of steam sterilization depends on the design and functionality of the equipment:

- **Autoclaves:** Pressure systems designed to maintain controlled conditions of temperature, pressure, and steam distribution.
- **Steam Generation:** Steam is produced to maximize heat transfer and eliminate cold spots.
- **Monitoring Systems:** Integrated sensors record and display temperature and pressure conditions in real time, ensuring consistency throughout the cycle.