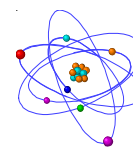


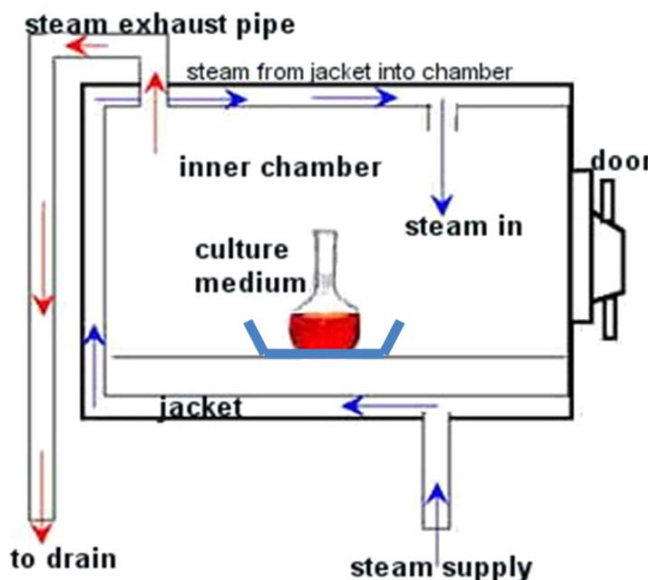
LABORATORY SAFETY FACT SHEET #16



Autoclaves

Mechanism of Autoclave Sterilization

Autoclaves provide a physical method for disinfection and sterilization. They work with a combination of steam, pressure and time. Steam must be in contact with the material being sterilized in order for the process to be effective. Autoclaves operate at elevated temperature and pressure in order to kill microorganisms. At 121°C (250°F), saturated steam destroys vegetative cells and endospores in a small volume (~100mL) within 10-12 min. Treatment continues for at least 30 minutes to provide a margin of safety.



The parameters required by the California Department of Public Health for the disinfection of medical waste are **30 minutes at 121-124°C (250-255°F) and 15 psi.**

Verify that materials to be autoclaved are compatible with steam sterilization parameters.

Autoclave compatible	Incompatible
Tissue culture flasks	Heat labile materials
Surgical Instruments	Acids, bases, organic solvents
Glassware	Chlorides, sulfates
Pipette tips	Seawater
Media solutions	Chlorine, hypo-chlorites, bleach
Animal food and bedding	Non-stainless steel
Waste	Polystyrene
Polypropylene	Some types of polyethylene, high density polyethylene
Stainless steel	

Autoclave Cycle Types

- Fast exhaust or gravity cycle – use for bagged tools (scalpels and scissors)
- Slow exhaust or liquid cycle – use for liquids and slow steam evacuation
- Dry cycle– use for dry goods such as glassware or plastics, e.g., pipet tips. This cycle is used for waste as well as items that must end up dry with minimal condensation. Twenty (20) minutes is the typical drying time.

Packaging Autoclave Loads

- (1) Use heat sensitive indicator tape to provide immediate identification of processed items
- (2) Always use a secondary container

