

# Autoclaves

**Mindfulness Minute:** Incorporate safety into your workflow by considering the hazards associated with your equipment each time you use it.

*Autoclaves use steam at high pressures and temperatures to inactivate most microorganisms and biological material. Autoclaves can present physical, chemical, and biological hazards. Scalds and burns can occur by touching hot surfaces such as the autoclaved material and the interior of the autoclave, splashing of autoclaved liquids, or contact with steam. Autoclaved chemicals may become mixed with the steam, causing respiratory, eye, and skin contact with vaporized chemicals. Improperly autoclaved biohazardous material may still be infectious, and autoclaves may be ineffective in denaturing heat-stable toxins or prions.*

## Follow this list of dos and don'ts for safe autoclave use:

**Do** use only autoclavable material as primary and secondary containment. Regularly inspect your primary and secondary containment for signs of wear or damage, as deteriorating material may shatter or break during autoclaving.

**Do** use secondary containment that can hold at least 1.5 times the volume of liquid being autoclaved.

**Do** wear appropriate PPE to prevent burns or scalds while loading and unloading the autoclave such as heat resistant gloves and sleeves to protect from hot surfaces and possible splashes.

**Do** research whether the biological material you want to inactivate is resistant to autoclaving.

**Do** open the door slightly to allow steam to escape and autoclave contents to equalize for about 10 minutes before opening the door all the way **ONLY** when the cycle is finished (temperature is at or below 121 degrees Celsius and pressure is at 0 psi).

**Don't** open autoclaves during the exhaust phase.

**Don't** use an autoclave unsupervised if you have not been trained on the safe use of that specific device.

**Don't** autoclave volatile, hazardous, flammable, toxic, or corrosive chemicals. Never autoclave bleach or materials which have had bleach added to them.

**Don't** adjust the pre-programmable settings on the autoclave. Changing cycle settings inappropriately may result in unsafe conditions, ineffective sterilization, and damage to your equipment and the autoclave.



*Adjusting autoclave settings inappropriately can result in uncontrolled steam release during cycle and building evacuation.*

### Examples of Appropriate Autoclave Settings

Items	Biological Waste (Gravity Cycle)	Liquids (Liquid Cycle)	Dry Items (Gravity/Dry Cycle)	Glassware (Gravity/Dry Cycle)
Temperature	121°C	121°C	121°C	121°C
Treatment Time in Minutes	60-120 min. depending on load size and packing density	30 min. for <100mL; >40 min. for >100mL	30-60 min.	30-60 min.
Exhaust Cycle	Slow exhaust	Slow exhaust	Fast exhaust and dry	Dirty: Slow exhaust Clean: Fast exhaust/dry