



Medical Waste Treatment

Kevin Valdez, EHS



Content



Define treatment



Potential benefits of onsite treatment



Approved treatment methods



Steam sterilization (autoclave)



Treatment permit requirements

Treatment Defined

- “Treatment” means any method, technique or process designed to change or destroy the biological character or composition of any medical waste to eliminate its potential for causing disease or creating public or environmental harm. [HSC 117780](#)
- Medical waste treated according to the Medical Waste Management Act (MWMA) *is considered a solid waste no longer subject to regulation.* [HSC 117695](#)

Successful treatment leads to....

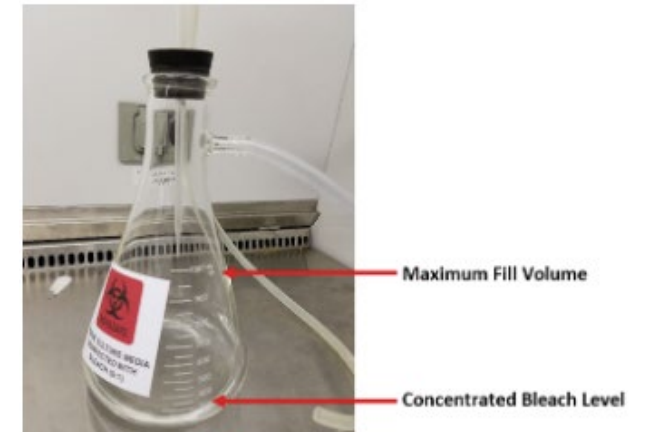


Treatment: Benefits

- Cost savings.
- Increased environmental safety and infection control.
- Destruction of pathogens/infectious waste via quick non-toxic sterilization cycles.
- Efficient waste management when standard operating procedures are implemented.
- Fewer medical waste tracking documents.
- Reduced footprint for waste accumulation areas.
- Treatment can be done by small and large quantity generators.

Treatment Methods: *Permit Not Required*

- **Chemical Disinfection** [HSC 118215 \(c\)](#)
 - Liquid or semiliquid biohazardous wastes; generator must complete proper waste determination.
- **Isolyzer or solidification device** [HSC 118225](#)
 - Sharps waste is solidified to hard mass which can then be managed as solid waste.
- **Pharmaceutical waste disposal via *Rx Destroyer* or *Cactus Sink*** [HSC 118222](#)
 - Used to safely and effectively dispose of unused or expired medications; generator must complete proper waste determination.



Treatment Methods: *Permit Required*

- **Incineration**

- Complete combustion of regulated **pathology/ trace chemotherapy / non-RCRA pharmaceutical waste** into carbonized or mineralized ash.



- **Steam Sterilization**

- Pressurized steam sterilizes regulated **sharps/red bag waste** which can then be managed as solid waste.



Steam Sterilization (Autoclave)



Exposes each item to direct steam contact.



Specific temperature must be reached and sustained.



Specific pressure must be reached and sustained.



Treatment must be conducted for specified amount of time.

Steam Sterilization (Autoclave)



Autoclave: SOPs

Standard written operating procedures shall be established for biological indicators and include the following for each steam sterilizer:

- Time, temperature, and pressure
- Type of waste and container
- Proper container closure and pattern of loading
- Proper water content
- Maximum load quantity

Autoclave: Treatment Cycle

Thermometers

- Ensure the attainment of **121° Centigrade (250° Fahrenheit) for at least 30 minutes**
 - Depending on the quantity and density of the load, to achieve sterilization of the entire load
- Shall be **checked for calibration annually**
- Records of the calibration checks shall be maintained for a minimum of two years (LQGs) or three years (SQGs)



Profile

Thermco

HiTemp 135 Autoclave Temperature Data-Logger

Email This Page Print Page

★★★★★

Description

The HiTemp 135 is a rugged, high precision, temperature data logger that is built for use in harsh environments e.g. autoclaves. This stainless steel device is submersible, can withstand temperatures up to 140°C (284°F) and has an accuracy of +/-0.1°C (0.18°F) over the entire operating range.

The HiTemp135 can store up to 32,700 readings, and features a 2" rigid external probe capable of measuring extended temperatures, up to 260°C (500°F). Also the device records date and time stamped readings, and has non-volatile solid state memory that will retain data even if the battery becomes discharged.



Autoclave: Treatment Cycle

Heat Sensitive Tape

- Shall be used on *each biohazard bag or sharps container*.
- Heat tape indicates if waste went through adequate heat treatment.
- Only needs to be placed on outer bag, if waste is double bagged.

Before:



After:



Autoclave: Treatment Cycle

Biological Indicators

- The biological indicator **Geobacillus stearothermophilus** or **similar indicator approved by CDPH** shall be placed at the center of a load processed under standard operating conditions **at least monthly**.
- Confirm the attainment of adequate sterilization conditions.



Plans

Medical Waste Management Plan

- Document completed by generator of medical waste that describes how medical waste is handled, stored, treated or sent for offsite shipment.

Training Plan

- Initial and annual training for each treatment operator and records maintained for two years
- Shall comply with applicable OSHA regulations

Emergency Action Plan

- Proper disposal of medical waste in the event of equipment breakdowns, natural disasters, or other occurrences.

Closure Plan

- A plan for closure of the facility using, at minimum, a decontamination method described in the Medical Waste Management Act, thereby rendering the property to an acceptable sanitary condition following the ending of treatment services at the site.

Autoclave: Validation Process



New or repaired equipment requires a validation process to ensure equipment will adequately sterilize waste.



Validation process includes two validation cycles using non-biohazardous waste during Phase I and regulated medical waste during Phase II.



Validation process, including validations and communication with HMD will take **approximately 90 days**.

Autoclave: Records

Maintain on site for review during inspection:

- MWMP
- SOPs
- Annual Thermometer Calibration records
 - Monthly Biological Indicator (Spore Test) Records
- Treatment logs
- Annual Training records
- Plans



Treatment Permit



Treatment permits are valid for 5 years.



Treatment Application must be submitted at least 90 days in advance due to equipment validation protocols.



Compliance history will be reviewed prior to issuing permit.



[Treatment Application](#)
[CLICK HERE](#)

Treatment: General Guidance

- Facilities must treat regulated medical waste within accumulation time limits, as dictated by medical waste type. [HSC 118280](#)

Amount of medical waste stored at room temperature unless otherwise specified	BIOHAZARDOUS WASTE	SHARPS WASTE READY FOR DISPOSAL OR FULL	NON-RCRA PHARMACEUTICAL WASTE READY FOR DISPOSAL OR FULL	PATHOLOGY WASTE	TRACE CHEMOTHERAPY WASTE
<20 lbs./month	30 days	30 days	-	30 days	Manage s sharps or biohazardous waste according to the type of container used for storage and the type of waste.
≥20 lbs./month	7 days	30 days	-	7 days	
≥200 lbs./month	7 days	30 days	-	7 days	
Stored below 0° C (32° F)	90 days	90 days	-	90 days	
Any amount of non-RCRA pharmaceutical waste	-	-	90 days once ready for disposal, or at least once per year	-	-

- Facilities that treat medical waste via an approved method and subsequently ship the treated waste via a registered medical waste hauler *do not require a treatment permit*.
- Facilities must continue reporting routinely generated medical waste streams in the California Environmental Reporting System (CERS), regardless of treatment. [SDCC 68.904](#)

Medical Waste Technical Leads

- **Primary Technical Lead**

Dana Barkil, Supervising EHS

Dana.Barkil@sdcounty.ca.gov

(619) 249-8704

- **Secondary Technical Lead**

Kevin Valdez, EHS III

Kevin.Valdez@sdcounty.ca.gov

(858) 935-0599

Resources

- **Medical Waste Management Act**

- <https://www.cdph.ca.gov/Programs/CEH/DRSEM/CDPH%20Document%20Library/EMB/MedicalWaste/MedicalWasteManagementAct.pdf>

- **County of San Diego, Hazardous Materials Division Medical Waste Program**

- https://www.sandiegocounty.gov/content/sdc/deh/hazmat/med_waste.html