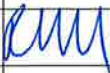



Chemical Disinfection of Biowaste

Environmental Health & Safety

SOP No. 6.4

	Print Name	Initial	Title	Date
Author	Rebecca Maloney		Sr. Safety Officer	26APR2019
Reviewed by	Jared Martin		Section Manager	29APR2019
Authorized by				

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PURPOSE

This SOP describes appropriate procedures for the chemical disinfection of certain types of biowaste at Texas Tech University.

Chemical disinfection of biowaste is an approved method by state law through the Texas Commission on Environmental Quality (TCEQ) so long as the following guidelines are met:

- The chemical agent(s) must be registered with the EPA and the Texas Department of Agriculture.
- The chemical agent shall be used according to the manufacturer's instructions. Off-label use of the disinfectant is not allowed; this includes solution preparation and contact time.
- Disinfectant should be made fresh the day of use.
- Clorox is the only EPA-registered brand of bleach; however, TCEQ allows for the use of any brand of household chlorine bleach (5.25%-6% Sodium hypochlorite by volume) diluted 1:10 (volume/volume) with water (EHS recommends DI/RO water) and a contact time of no less than 3 minutes is allowed. Free available chlorine concentration shall be at least 1,100 parts per million (ppm).
- Solid waste immersed in a liquid chemical agent must be thoroughly drained before disposal.
- All waste treatment must be logged, and the log maintained for no less than 3 years.
- Each chemical agent requires a separate SOP for preparation and use.

NOTES

Contact EHS if you have questions about chemical treatment of your biowaste at 806-742-3876. The rules outlined above are described in 25TAC §1.133 and 30 TAC Chapter 326.

Those who treat their own waste are required to maintain an on-site a written record documenting all waste treated that includes the follow information:

- the method/conditions of treatment;
- the name (printed) and initials of the person(s) performing treatment;
- the dates of treatment;
- the amounts of waste treated;
- written procedure for the operation and testing of any equipment used; and
- written procedure for the preparation of any chemicals used in the treatment.

Bleach solutions are rapidly inactivated by organic material. If you are using bleach, please consult with EHS regarding the recommended concentration to use for your specific waste.

PROTECTIVE EQUIPMENT

- safety glasses or splash goggles
- lab coat
- apron (if preferred)
- nitrile/latex gloves
- any additional PPE as required by your research

MATERIALS

- Leakproof container - beaker or other vessel that will accommodate 2 times the volume of waste to be treated.
- Household bleach or other EPA and Tx Dept of Ag-approved disinfectant
- Preferably DI or RO water for chemical agent dilution

PROCEDURE

1. Prepare the disinfectant the day of use.
 - Dilute the chemical agent according to manufacturer's directions, using DI/RO water when required.
 - i. Tap water may minimize activity of certain disinfectants.
 - For household bleach, a 1:10 (volume/volume) of bleach to water is the minimum required dilution.
 - i. Using DI/RO water will increase available free chlorine.
 - ii. You can also add distilled vinegar to adjust the pH of the solution between 5-7. This optimizes the available free chlorine and increases effectiveness.

2. Treat your waste.

- Follow the instructions on the container for the treatment of waste.
 - i. Solid waste
 - a) Submerge waste in disinfectant. Draw disinfectant into pipet tips, serological pipettors, tubes, etc. so that all surfaces are in contact with the disinfectant.
 - b) Allow contact time according to the manufacturer.
 - c) Drain all disinfectant from the waste.
 - Bleach solutions can be poured down the drain followed by copious amounts of water.
 - Other disinfectants may need to be collected and disposed of as chemical waste. Consult EHS if bleach is not used.
 - d) Dispose of solid materials as regular waste.
 - e) Record the treatment in the log.
 - ii. Liquid waste
 - a) Mix waste with disinfectant solution at the proportion outlined and allow to set as described by the manufacturer.
 - If the chemical agent is not bleach, the mixture may need to be collected and disposed of as chemical waste. Consult EHS if bleach is not used.
 - b) For use of household bleach solution, mix with liquid waste 1:1 (volume/volume).
 - Let treated waste sit for no less than 10 minutes.
 - Pour down the sink and flush with ample amounts of water.
 - c) Record the treatment in the log.

REFERENCES

Texas Administration Code, sections 25TAC §1.133 and 30 TAC Chapter 326.

See the “Treating Medical Waste On-site” section of this TCEQ webpage for a summary explanation of the regulations:

https://www.tceq.texas.gov/permitting/waste_permits/msw_permits/mw_disposal.html#treatonsite

