

DISPOSING OF BIOHAZARDOUS MATERIALS, INCLUDING RECOMBINANT NUCLEIC ACIDS

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

Scope

This SOP applies to all work at UNL that is subject to the **UNL Biosafety Guidelines**. The content of this SOP is based on requirements established by the following standards:

- *NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, National Institutes of Health
- *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, Centers for Disease Control and National Institutes of Health
- *Bloodborne Pathogens Standard, 29 CFR 1910.1030*, Occupational Safety and Health Administration

For the purposes of this SOP, the term “biohazard” applies to:

- Recombinant Nucleic Acids (rNA) in all forms, natural and synthetic
 - (e.g., DNA, RNA, shRNA, etc.)
- Any waste material that is potentially infectious to humans, plants, or animals
- Genetically-modified organisms, including animals, plants, microorganisms and arthropods

General guidance as well as classes of biohazardous materials and their associated appropriate methods of disposal are described below.

General Guidance

- Biohazardous waste that is managed through EHS for off-site treatment must be accumulated in specific containers. Contact EHS for additional information.
- Biohazardous waste that is autoclaved on-site to render it non-infectious or non-viable must have autoclave tape affixed to the container prior to treatment (select a lead-free autoclave tape); biohazard labels and markings must be obliterated following treatment and prior to disposal; red-bags must be placed in unmarked outer bags that are not see-through following autoclaving, and; all liquids must be absorbed onto a solid media prior to placement in refuse containers or they may

be disposed via the sanitary sewer. Sewer disposal is limited to nutrient medias that are otherwise non-hazardous (do not contain chemical constituents regulated under hazardous waste laws, such as heavy metals, solvents, etc.).

- Biohazardous waste containing RG 2 and above organisms or rDNA must be decontaminated in autoclaves that have been validated. See the EHS SOP **Autoclave Operation and Performance Testing** for guidance.
- Do not use red biohazard bags for any type of waste collection other than biohazardous waste (i.e., regular trash, radioactive materials not contaminated with biohazards).

Specific Waste Types

- **Human blood and other potentially infectious body fluids** and contaminated materials must be treated prior to disposal as solid waste refuse or managed through EHS. Generally this type of waste is collected by EHS and disposed via a vendor. On-site treatment can be accomplished by autoclaving. This material must not be incinerated on-site.
- **Laboratory waste from infectious agents** (i.e., culture plate and broths) must be autoclaved prior to disposal. Chemical disinfection is generally suitable for contaminated disposable and non-disposable laboratory equipment and consumables (i.e., pipette tips, glass, cuvettes, etc.). This material must not be incinerated on-site.
- **Recombinant nucleic acid-containing materials** (i.e. cultures, microbes, plasmids, animals, plants) must be decontaminated or inactivated before disposal. Chemical treatment with an appropriate disinfectant is an acceptable method of inactivation. Autoclaving of rNA-containing materials is also acceptable.
- **Research animal carcasses** and parts, contaminated bedding and feeds, excreta, etc. must be disposed via incineration or managed through EHS. Cages and other non-removable, non-porous surfaces can be treated by chemical disinfection.
- **Animal diagnostic specimen shipping containers**, if contaminated, must be treated by autoclaving or chemical treatment prior to disposal, incinerated, or managed through EHS for disposal.
- **Sharps** include glass, pipette tips, razor blades, needles, and other objects that can penetrate the skin. Sharps potentially contaminated with bloodborne pathogens contained in potentially infectious body fluids, must be accumulated in rigid, leak-proof, labeled, containers specifically designed for use with bloodborne pathogens and purchased from a commercial supplier. Full containers can be autoclaved or managed through EHS.

- **Sharps** contaminated with other biohazards must be autoclaved or chemically disinfected prior to disposal. If accumulated prior to treatment, these types of sharps are to be collected in rigid, leak-proof, labeled containers. The word “Sharps” must be visible on the container.

Note: For additional restrictions related to on-site incineration, refer to the EHS SOP, ***Pathological Waste Incinerators- Operating Permit Requirements***. In the context of this disposal regarding disposal of biohazardous materials, a major restriction on the incinerators is the amount of non-Type IV waste that can be combusted in any given calendar quarter.