6. Toxic sludge

Sludge refers to a mixture of liquid and solid waste. Dried sludge can be disposed of as solids. However, sludge may contain toxic substances. For this reason, the Environmental Safety Center collects all the sludge as toxic sludge, and disposal is undertaken by a specialized contractor.

Toxic sludge is collected twice a year concurrently with unnecessary chemicals.

7. Mercury-containing apparatuses

The University discharges both mercury-based waste liquids and waste to which mercury adheres. By taking toxicity of mercury into account, the Environmental Safety Center collects all such waste, and disposal is undertaken by a specialized contractor.

Mercury-containing apparatuses are collected once a year.

8. Experiment waste

At the University, waste derived from direct usage in experiments is regarded as experiment waste. However, plastics and glass apparatuses, etc. used for experiments are also included in experiment waste even if they are unused. Waste discharged from education and research activities, etc. at the university must be disposed of as “industrial waste” as specified in the Waste Management and Public Cleaning Act.

The Environmental Safety Center undertakes collection of experiment waste in the Kurokami and Oe districts. Experiment waste is collected twice a month. In the Honjo district, only empty reagent bottles, etc. are collected. Since October 2018, syringes and ethidium bromide-containing solids used for chemical analysis have been defined and collected as “noninfectious waste.” For details, refer to “How to discharge noninfectious waste” at the end of this document.

○ Precautions when discharging experiment waste

Principle

- Observe the discharge rules (refer to “How to Separate and Dispose of Experiment-related Waste” at the end of this document).
- When discharging waste, make arrangements so that the waste does not leak out easily.

(1) Number of polyethylene bags

The following waste poses a high risk of leakage. Put the experiment waste in two or more polyethylene bags.

- Waste that contains a small quantity of liquids (Remove liquids if they are present in large quantity.)
- Waste whose particle size is 1 cm or less (Discharge powdery waste when “unnecessary chemicals” are collected.)
- Plastics, glass, etc. with sharp edges (e.g., pipette tips in particular)
- Waste that emits bad odor (Make arrangements to prevent such odor.)

(2) Weight and size of a waste package

The following rules must be observed for the weight and size of a waste package to prevent breakage of polyethylene bags or damage to cardboard boxes and to ensure safety in collection and transport work.

- The capacity of a polyethylene bag in which experiment waste is put must be 45 L or less.
- The weight of a cardboard box that contains incombustibles must be less than 20 kg (reference), and the long side of a box must be up to about 50 cm.
- The volume of plastics, glass, etc. with sharp edges must be less than 80% of the capacity of a sealed polyethylene bag (reference). (Avoid overloading.)
- When disposing of glass tubes, etc. which are too long to fit in a cardboard box, implement measures to protect the sharp parts using newspaper, etc. and prevent scattering when they are broken.

(3) Biological waste

Pretreat biological waste (e.g., plants, fungi) before discharge. Note that infectious waste (e.g., waste which are likely to be infectious, waste related to human organs and blood or animal experiments) are outside the scope of the experiment waste.

- Pretreat waste in an autoclave. (Remove liquids whenever possible.)
- If inactivation is required, treat waste in an appropriate method to ensure inactivation.

Table 6-2 Classification of experiment waste

Classification	Examples
Experiment-related combustibles	Disposable plastics (e.g., pipetter tips, pipettes), gels, paper (e.g., filter paper, medicine wrapping paper), gloves, aluminum foil, etc.
Experiment-related incombustibles	Glass beakers, pipettes, sample bottles, chemical bottles and crucibles whose capacity is less than 500 mL, etc. Metallic spatula (Injection needles are outside the scope.)
Used chemical bottles	Used chemical bottles whose capacity is 500 mL to 3 L
Used chemical cans	Used 18-liter metal cans and small drums for chemicals (200 L drums are outside the scope.)
Noninfectious waste	Ethidium bromide-containing gels, paper, gloves, etc. to which ethidium bromide adheres Syringes for chemical analysis (Those used for humans and animals, etc. are outside the scope.)