EHS Guidance
Acute Hazardous Waste:
Management of Empty Containers

Purpose

This guidance document provides a consistent procedure for managing empty containers of hazardous waste that are identified by the U.S. Environmental Protection Agency (EPA) as "acute hazardous waste."

Background

When the EPA first published the federal hazardous waste rules, it identified the criteria for listing acute hazardous waste as a substance "… found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD_{50} toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC_{50} toxicity (rat) of less than 2 milligrams per liter, or a dermal LD_{50} toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness." Subsequently, EPA published a list of chemicals that are designated as acute hazardous waste when they are discarded or intended to be discarded. This list is sometimes referred to as the "P-List" (see Resources below). *The listing also applies to dilutions where the chemical is the sole active ingredient.*

> **Note:** EPA identified several dioxin-containing wastes as acute hazardous wastes when discarded. These are listed separately from the P-List and include unused formulations containing trichlorophenol, tetrachlorophenol and pentachlorophenol.

Many acute hazardous wastes are pesticides. All the acute hazardous wastes satisfy the listing criteria defined above, though a few have a primary hazard of reactivity (e.g. aluminum phosphide, ammonium picrate, mercury fulminate and nitroglycerine).

Examples of Acute Hazardous Wastes

1. Stock bottles and dilutions of stock materials that contain unused laboratory chemicals that meet the listing criteria described above and are the sole active ingredient, such as allyl alcohol, ammonium vanadate, arsenic oxide, carbon disulfide, osmium tetroxide, potassium cyanide, sodium azide, sodium cyanide, thallium sulfate, vanadium pentoxide, and zinc cyanide.
2. Unused insect killing jars with cyanide as the killing agent. Even though covered by a layer of plaster of Paris, the potassium cyanide or sodium cyanide is the sole active ingredient.
3. An unused 1% aqueous solution of sodium azide. Sodium azide is the sole active ingredient in the dilution.

4. Unused nicotine dermal patches for cigarette smoking cessation. Nicotine is the sole active ingredient in the patches.
5. Residues from rinsing acute hazardous waste containers.
6. Debris from the cleanup of a spill of any acute hazardous waste.

Options to Achieve Compliance

A container that is used to hold an acute hazardous waste listed in 40 CFR 261.31 (see F020-F023, F026 and F027) or 40 CFR 261.33(e) is empty if one of these three conditions has been met:

- It has been triple-rinsed using a solvent capable of removing the hazardous waste.
- It has been cleaned by another method that has been shown to achieve the equivalent removal of triple-rinse.
- In the case of a container, the inner liner that prevented contact of the hazardous waste has been removed.

Note: If the waste is a compressed gas, regardless of the waste type, the container is empty when the pressure in the container approaches atmospheric pressure. Examples of acute hazardous waste gases include cyanogen, fluorine, hydrogen cyanide, phosgene, and phosphine.

If these conditions are not met, the container remains a hazardous waste, even if there is no apparent product remaining in the container. You cannot dispose the container in the regular trash, nor can you leave it opened in a fume hood or on the lab bench.

Each of the above compliance methods generates a hazardous waste and requires active measures to ensure the container is empty by regulatory definition. Furthermore, these methods create uncertainty if, for example, a container is found in the regular trash.

Laboratory Procedure

To simplify and standardize the process for managing containers of acute hazardous waste, follow these procedures:

1. Review the list of acute hazardous waste.
2. If the chemical is on the list and you wish to dispose of the container, submit the container via the online Chemical Waste Collection Request system, even if the container appears empty.
3. Submit containers as a solid in the “Physical State” field.
4. Estimate the gross weight of the container in kilograms and enter this amount under “Total Quantity” in the online system.
5. When prompted in the online system, print the label and attach to the container.
6. Place the container in your satellite accumulation area for collection by EHS.

Resources

1. List of Acute Hazardous Waste (the P-List): [40 CFR 261.33(e)].