ENVIRONMENT, SAFETY & HEALTH DIVISION

Chapter 17: Hazardous Waste

Waste Determination and Characterization Guidelines

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1 Purpose

The purpose of these guidelines is to ensure potentially hazardous waste is properly identified. They cover identifying and characterizing hazardous waste. They apply to workers (as *hazardous waste generators*) and supervisors.

2 Guidelines

All waste that is classified as *hazardous* – because of its properties, regulatory status, or both – must be managed and disposed of following stringent requirements. The following guidelines describe how to determine if waste is hazardous and how to characterize it.

Note *Characterizing hazardous waste can be a complex process. For help identifying and categorizing potentially hazardous waste, contact Waste Management.*

2.1 Determining If the Material Is Waste

Hazardous material becomes waste when it is not appropriate for further use.

2.2 Determining If Waste Is Hazardous

Waste is considered hazardous if it has hazardous characteristics or is classified as hazardous by federal or state regulations.

2.2.1 Hazardous Waste Properties

A waste is considered hazardous if it has one or more of the following properties:

- **Corrosivity**. The ability to react dangerously with other waste, dissolve metal or other material, or burn the skin. Examples are waste from rust remover, acid or alkaline cleaning fluid, and battery acid.
- **Ignitability**. The ability to cause fires during transport, storage, or disposal. Examples are waste from paint, gasoline, diesel fuel, some degreasers, and some other solvents.
- **Reactivity**. The ability to become unstable or undergo a rapid or violent chemical reaction with water or other materials. Examples are waste from cyanide plating, bleach, and other oxidizers.

- **Toxicity**. The presence of toxic constituents above established regulatory levels. Examples are waste containing dissolved heavy metals, insecticides, and solvents.

To determine a material's properties, check the *safety data sheet (*SDS*)*, which includes a range of information such as hazardous ingredients and properties as well as health and safety information.

2.3 Determining the Hazardous Waste Category

Once a material has been identified as hazardous waste it will fall into one of the three categories below. Each category has specific accumulation time limits and management requirements.

1. *Hazardous.* A used material with properties that could pose a danger to human health or the environment and can no longer be reused acceptably in any SLAC activity or operation. (See Hazardous Waste: Management Requirements.)
2. *Universal.* A subset of hazardous waste generated through everyday activities, such as batteries, lamps, aerosol cans, and electronic equipment (e-waste, managed by Salvage), which poses a lower risk to people and the environment. Universal wastes can therefore be managed under less stringent handling rules if they are recycled through permitted recycling facilities. (See Hazardous Waste: Universal Waste Requirements.)
3. *Industrial.* Waste that exhibits a level of contamination not considered hazardous, but is required by California to be managed more strictly than Class III wastes. (See Hazardous Waste: Industrial Waste Requirements.)

Table 1 lists examples of hazardous wastes at SLAC.

Table 1 Typical Hazardous Wastes Generated at SLAC

Acid debris: rags, swipes, gloves, etc	Oil, oil/water, oil, and Freon
Acids, mixed	Oil-filled equipment, with and without PCBs
Aerosol cans	Oily and solvent solid debris: rags, swipes, gloves, etc
Alcohols: ethyl alcohol, methyl alcohol, isopropanol, etc	Polychlorinated biphenyl (PCB) light ballast
Alkali solutions, mixed	PCB-contaminated oil
Asbestos	PCB capacitors, small
Batteries (for all types of equipment, except lead acid)	Resins: EDM and epoxy
Beryllium-contaminated debris	Sludge with metals (non-RCRA)/trace PCBs
Cutting fluid/water	Soil contaminated with halogenated organic compounds
Cyanide filters/debris	Soil with lead/PCBs
Empty containers	Solvents: halogenated and non-halogenated
Latex paint	Spent carbon: solid
Mercury-contaminated equipment/debris	Wood, treated
Laboratory chemicals	Nanomaterials

3 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 17, "Hazardous Waste"
  - Hazardous Waste: Management Requirements (SLAC-I-750-0A08S-001)
  - Hazardous Waste: Universal Waste Requirements (SLAC-I-750-0A08S-002)
  - Hazardous Waste: Industrial Waste Requirements (SLAC-I-750-0A08S-003)
  - Hazardous Waste: Office Waste Requirements (SLAC-I-750-0A08S-008)
  - Hazardous Waste Management
- Chapter 16, "Spills"
- Chapter 40, "Chemical Lifecycle Management"
- Chapter 52, "Hazardous Materials and Waste Transportation"
- Chapter 53, "Chemical Safety"
- Chapter 58, "Laboratory Safety"

Other SLAC Documents

- Chemical Management Services (CMS)

Other Documents

- Lawrence Berkeley National Laboratory. Environment, Safety, and Health Manual (PUB-3000), Chapter 20, "Waste Management"
- Lawrence Berkeley National Laboratory. Guidelines for Generators to Meet HWHF Acceptance Requirements for Hazardous, Radioactive, and Mixed Wastes at Berkeley Lab (PUB-3092)