

Shobhit Institute of Engineering & Technology
(Deemed-to-be University), Meerut
(Declared by GOI under section 3 of UGC Act, 1956)

Shobhit Institutional Waste Management Committee

Guidelines

1. Objective:

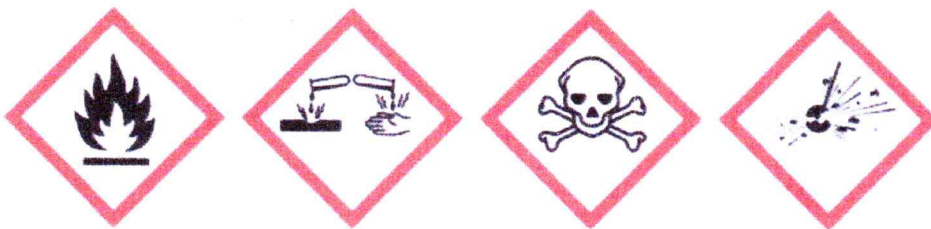
Shobhit Institute of Engineering and Technology, is responsible for the development and implementation of proper management practices for all aspects of the handling, storage, and disposal of chemical wastes that are generated at the Shobhit Institute of Engineering and Technology. Our goal is to manage chemical wastes in a safe and environmentally sound manner that complies with all applicable Central Government, state and local regulations.

2. Need of SIWMC

Hazardous waste is regulated from the moment it is generated inside the lab until it reaches its final destination for disposal or treatment at an offsite facility. A hazardous waste is a solid, liquid, or gaseous material that displays either a "Hazardous Characteristic" or is specifically "listed" by name as a hazardous waste. Characteristic wastes are not listed specifically by their chemical name but they are regulated as hazardous wastes because they exhibit one or more hazardous characteristics.

From the moment hazardous waste is generated inside the lab until it reaches its eventual destination for disposal or treatment at an outside facility, it is regulated. A hazardous waste is a solid, liquid, or gaseous item with a "Hazardous Characteristic" or that is officially "designated" as a hazardous waste by name. Despite the fact that characteristic wastes are not specified by their chemical name, they are controlled as hazardous wastes because they exhibit one or more harmful features.

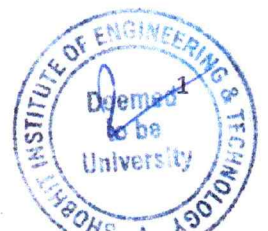
These four characteristics are Ignitability, Corrosivity, Reactivity, and Toxicity.



The **Ignitability** characteristic applies to wastes that are:

- ❖ Liquids with a flash point less than 140°F
- ❖ Solids capable of spontaneous combustion under normal temperature and pressure
- ❖ Oxidizing materials

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- ❖ Ignitable compressed gases o Examples include ethanol, sodium nitrate, hydrogen gas, xylene and acetone

The **Corrosivity** characteristic applies to wastes that are:

- ❖ Aqueous solutions with a pH less than or equal to 2 or greater than or equal to 12.5
- ❖ This does not apply to solid or non-aqueous materials; Examples include hydrochloric acid, nitric acid, and sodium hydroxide

The **Reactivity** characteristic applies to the following:

- ❖ Materials that react violently or generate toxic fumes when mixed with water
- ❖ Cyanide or sulfide bearing wastes which evolve toxic fumes when mixed with acids or bases
- o Materials that are normally unstable or explosive (Examples include sodium metal, reactive sulfides, potassium cyanide and picric acid)

The **Toxicity** Characteristic refers to wastes that, if illegally disposed of, have the potential to contaminate groundwater. Because of their potential to seep out certain dangerous compounds in a landfill, these materials are classified as hazardous waste.

3. Biohazardous and Infectious Waste


The Shobhit Institute of Engineering and Technology employs two methods to dispose of biohazardous waste: autoclaving on site or collection of waste to be processed by an outside contractor. The preferred method is autoclaving due to the high cost of offsite processing — ten times the cost of regular waste disposal.

- **Biological Toxins** (Liquid waste and solid waste; low molecular weight toxins).
- **Biohazardous Waste** (Liquid mixed biohazardous and radioactive waste (including r/sNAs)
- **Microbial Waste** (Liquid /solid waste of Microbial culture).
- **Sharps, Non-Sharps, and Glass Contaminated and non-contaminated sharps, glass items, slides, cover slips, etc.**

4. Hazardous Waste Storage Requirements

The following hazardous waste storage requirements must be followed:

- All waste must be stored in containers. Usually, the original container of the main component of the waste can be used (i.e., 4-liter glass jar). Reusable containers such as 20-liter carboys can also be used to collect waste.
- Containers must be compatible with the waste they contain. For example, do not use metal containers for corrosive waste or glass containers for waste containing hydrofluoric acid. For liquid waste, only use a container designed for liquids; the container must seal and not leak (no liquids in bags). Food grade containers such as milk jugs should never be used for chemical storage.
- Containers must remain closed at all times except when adding or removing waste. Open waste containers are the most common hazardous waste violation cited at colleges and universities. Not only is this a violation, it is also unsafe.


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- Containers must be labeled with the following information: ◇ The words "Hazardous Waste" ◇ Description of the waste (i.e., Chloroform 80%, Water 20%) ◇ Description of the primary hazard present (i.e., Flammable) ◇ Date waste was first added to the container (start date)
- All liquid waste must be stored in secondary containment such as trays or buckets.
- All containers must be in good condition and not leaking.
- Containers must be stored at or near the point of generation and under the control of the generator of the waste. Waste must remain in the same room that it is generated in. Establish an area to accumulate hazardous waste. This area can be a bench top, fume hood that is being used for storage, or a cabinet.
- Containers must be segregated by chemical compatibility during storage. For example, acids should be stored away from bases. Segregation can be achieved by either physical distance or secondary containment. Avoid mixing waste streams such as acids and bases, or aqueous and organic solvents in the same waste container. Collect all highly toxic, reactive, mercury, and any exotic wastes (i.e., dioxin compounds, PCBs, controlled substances, pesticides) separately

5. Waste Recovery

Waste Recovery Services provides collection and disposal services for the Twin Cities Campus. Our mission is to recover material resources from the solid waste stream and prevent the disposal of hazardous materials.

Our programs and services include:

- **The Recycling Program:** Diversion of 40% of the University's municipal solid waste stream to be recycled or reused.
- **Organics Recycling:** Collection of organics materials from across campus to be recycled.
- **Debris Management:** Salvage of any recyclables, scrap metals, concrete, appliances, and furniture which can be sent to the ReUse program.
- **Infectious Waste Management:** Collection of potentially infectious materials generated from clinics, research laboratories, and hospital sources.
- **Hazardous Materials Program:** Removal, transportation, segregation, consolidation and storage of potentially hazardous materials and chemicals.

6. Managing Radioactive Waste

Radioactive waste requires the same security considerations given to other radioactive materials. All individuals who use radioactive materials are responsible for the safe, secure, and proper storage of any radioactive waste until it is removed. The Consent head will issue the appropriate waste containers and collect radioactive waste with no charge to the generator. The only exception to this may occur when radioactive material is combined with other chemically hazardous waste making disposal options limited and costly. Notably, an accurate, up-to-date inventory is required for all radioactive materials. This includes the radioactive waste. As with all safe handling and record keeping requirements, be sure to check with your lab manager or program director about specific radioactive waste policies and procedures used in your work area.

Not being used on Campus

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7. Hazardous Waste Disposal Procedures

1. Chemical waste must be placed in an appropriate container and kept closed at all times except when adding or removing waste. Liquid waste containers must be stored in secondary containment (e.g., tub, tray, bucket).
2. Chemical waste containers must be labeled with the words "Hazardous Waste," an accurate description of the waste, the primary hazard(s) associated with the waste, and a start date.

8. Composition of Institutional Waste management Committee:

SIWMC should be constituted in the following pattern:

- i)-A Chairperson,
- ii) A Member Secretary,
- iii) 5-15 members from different Departments / Specialties / disciplines or areas etc.

9. Membership requirements:

- a. The duration of appointment is initially for a period of 2-3 years
- b. At the end of 2-3 years, as the case may be, the committee is reconstituted, and 50% of the members will be replaced by a defined procedure.
- c. A member can be replaced in the event of death or long-term non availability or for any action not commensurate with the responsibilities laid down in the guidelines deemed unfit for a member.
- d. A member can tender resignation from the committee with proper reasons to do so.
- e. All members should maintain absolute confidentiality of all discussions during the meeting and sign a confidentiality form.

10. Independent consultants

SIWMC may call upon subject experts as independent consultants who may provide special review of waste management, if need be.

Dated: 10th January, 2019



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Approved

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