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Policy for Laboratory Waste Management

Guru Ghasidas Vishwavidyalaya

Biommedical
Toxic chemical
Disposal Policy

FROM THE DESK OF VICE CHANCELLOR



Guru Ghasidas Vishwavidyalaya is a leading institution in Research and Development. Despite the fact that research and development is an essential component of our educational institution, laboratories can be risky places to work because of the myriad of possible dangers they provide not only to the people conducting the study but also to the surrounding community. The protection of students, faculty, and the surrounding community from potentially harmful laboratory byproducts is our first priority as responsible citizens. When it comes to advancing scientific inquiry, this policy marks a major turning point. I extend good wishes.


Policy for Laboratory Waste Management

- Research, teaching and clinical laboratories produce a variety of waste chemicals that may be subject to regulatory management standards.
- If improperly managed in the laboratory, waste chemicals could pose a risk to human health and the environment.
- Hazardous chemicals down the drain can lead to pollution of ground water, lakes, rivers, etc.
- Plants and animals will die if they are exposed to hazardous chemical waste.
- Serious health problems will become present in people if hazardous waste finds its way into drinking water.
- **It mandates a proper management of such wastes.**

(A) Waste Identification

(i) Solid Waste & Hazardous Waste

- Solid Waste: A solid, semi-solid, liquid, sludge, or contained gas, that is no longer needed, to be discarded, or has served its useful purpose.
- Hazardous Waste: A solid waste that is listed by the Pollution control board or exhibits one or more of four characteristics: Ignitable, Corrosive, Reactive and Toxic.
 - Hazardous Waste is only a small portion of the waste generated in the workplace, but by far the most harmful to the nature and the environment.
- Rechargeable batteries
- Spill cleanup materials: (PPE, absorbent pads, etc.)
- Silica gel, resin, zeolites etc.

A handwritten signature in blue ink, consisting of a stylized 'W' or 'V' shape followed by the name 'Faising' written in cursive.

(ii) **Liquid Wastes**

Solvents: (non-halogenated, halogenated, aqueous), Unknowns

Waste chemical mixtures: Aqueous, Acidic, Basic

Unused chemicals (surplus-able?)

Used oil

(B) **Collection of Waste Chemicals**

- Waste chemicals collected either during the operation of a process or otherwise accumulated in the laboratory must be placed into **containers** that are in good condition which should be provided by the Lab technician.
- Container must be compatible with the contents to be held without leaking.
- Every waste container needs to have the words Waste (name of chemical) marked on it. Containers must be marked or labeled at the time waste is first placed in the container.
- Containers must be placed at or near the point of generation.
- Containers must remain closed at all times except when adding waste.
- When the container becomes $\frac{3}{4}$ full it must be removed within three days.
- Incompatible wastes should never be mixed together.
- Containers must have an open date listed on the container label, and when full or no longer being filled, a fill date. The open date is the earliest date that waste is placed in the container whereas the fill date is the date that the container is filled and will no longer be used to accumulate waste.
- Unused, unwanted, or unopened chemicals that are to be discarded must be labeled with the words Waste (name of chemical) and the date that they were determined to be unwanted or unusable.
- Small or odd shaped containers that are difficult to place a label on must be placed in a larger sealed container and labeled on the outside (zip-lock bags, plastic containers, etc.).
- Containers holding chemicals that cannot be identified by chemical name, chemical constituents, or process generating the waste must be labeled as **Waste Unknown** with the date that they are considered to be no longer needed.
- Waste containers should be kept clean with no visible contamination on the outside of the container.
- Waste labels and markings must be readable and not defaced.

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- Chemicals identified by the laboratory as an unknown must be removed from the laboratory no later than 30 days after being designated as no longer needed.

(C) Container Management

- Areas where waste chemicals are accumulated must have secondary containment sufficient to collect any incidental spills from container failure.
- Waste containers should not be overfilled. Full containers must have at least a 10 headspace to allow for expansion.
- Filled waste containers must be stored in a secure area under the control of the operator.
- Containers used to collect waste chemicals on a frequent, routine basis must be closed when a procedure or experiment has been completed.

EXAMPLE: Containers used to collect acetone washes must be kept closed except when actively adding or removing wastes from the container.

- *Wastes collected during processes:* Wastes that are collected as part of a continuous process (such as HPLC wastes) must be collected via tubes that are fed through a cap or other container closure to ensure that the container is kept closed. This closure must be a positive closing lid. Parafilm and similar closures will not be acceptable.

Broken Glasses and Other Trash Waste Containers

- Only Glass in the glass waste container.
- All other trash in the correct place
- NOT IN THE SINKS!

The following container color code may be adopted for handling the laboratory wastes

| Code | Color | Waste Type |
|------|-------------|---|
| 1 | Orange | Inorganic Acids |
| 2 | Yellow | Organic Acids |
| 3 | Green | Bases |
| 4 | Blue | Oxidizing /Special Handling Inorganic Acids |
| 5 | Light Green | Oxidizers |
| 6 | Purple | Toxics |
| 7 | Red | Flammables |

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| | | |
|----|-------|-------------------------------|
| 8 | White | Solid Wastes Sharp Objects |
| 9 | Black | Other Solid Wastes |
| 10 | Pink | General Chemicals |

(D) Guidelines for Disposal

- As per the university policy, the waste generated and collected will be disposed as per the Environmental policy of Central Pollution Control Board (CPCB) as well as the Chhattisgarh State Environment Conservation Board (CECB). The detailed SOP for handling of the hazardous waste is available at

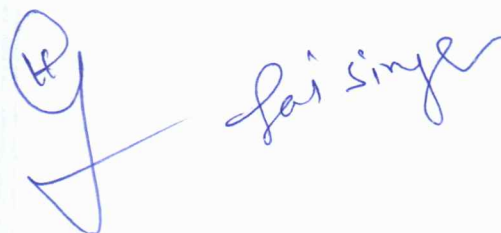
CPCB | Central Pollution Control Board (Annexure-I)

or

CECB | Chattisgarh State Environment Conservation Board (Annexure-II)

- The waste collection and safe disposal will be through the companies recognized by CECB or any such company recognized such board either through MoU with any of this company or as decided by the university from time to time as per SOP described by the university for the purpose.

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