

# DAYANAND COLLEGE HISAR

Affiliated to Guru Jambheshwar University of Science & Technology, Hisar  
Under DAV College Managing Committee, New Delhi  
(Accredited with Grade 'A' by NAAC)



## POLICY DRAFT FOR HANDLING AND USE OF HAZARDOUS CHEMICAL AND RADIOACTIVE SUBSTANCE

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## POLICY DRAFT FOR HANDLING AND USE OF HAZARDOUS CHEMICAL AND RADIOACTIVE SUBSTANCE

### Scope

This Policy is applicable to all the laboratories of the Institute which involve use of chemicals and radioactive substances.

### Introduction

A wide range of chemicals are being used in Institute laboratories. The hazards associated with these chemicals vary depending on their properties and mode of handling and usage. A hazardous chemical safety policy is a set of guidelines, procedures, and regulations aimed at managing and mitigating the risks associated with hazardous chemicals in the workplace, community, and environment. The policy outlines the responsibilities of faculties, students and others in ensuring the safe handling, storage, transportation, and disposal of hazardous chemicals.

As per the guidelines of UGC, awareness and adherence to the guidelines for the disposal of radioactive and other hazardous materials/ chemicals is mandatory for all. Though the institution uses a meager amount of radioactive materials, still it follows all the UGC directives regarding handling of hazardous chemicals and radioactive materials and do's and do not's during an emergency in a chemical and Physics labs.

### Objectives of this policy are:

- The main aim is to safeguard the health and safety of student and staff who could come into contact with hazardous chemicals, radioactive materials and its waste.
- To prevent and minimize the environmental pollution caused by hazardous chemicals and radioactive substances.
- To ensure the safe handling, labeling, transporting and storage of hazardous chemicals and radioactive substances.
- To provide training and education to students and college staff for inculcating and enhancing responsible behavior.
- To address how to effectively respond to accidents.

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### Policy Adopted by the College:

The chemical and radioactive waste are one of the most hazardous and dangerous form of wastes which can cause extreme level, permanent and even genetic defects in the human beings. To effectively handle the hazardous chemical and radioactive waste, college established comprehensive policies that prioritize safety, environmental protection and compliance with relevant regulations. The policy framework that college adopts is:

- 1. Hazard Identification and Risk Assessment:** Colleges should conduct a thorough assessment of the chemical and radioactive waste generated on campus to identify potential hazards. Each chemical waste should be categorized based on its level of toxicity, flammability, reactivity and other relevant properties. A risk assessment should be carried out to understand the potential impact on human health and the environment.
- 2. Waste Minimization and Segregation:** College will implement waste minimization practices to reduce the generation of chemical and radioactive waste by using alternate non-hazardous chemicals and radioactive materials. Encourage segregation of chemical and radioactive waste at the source to prevent accidental mixing and reaction.
- 3. Storage and Labeling:** College will designate specific storage areas for different types of chemicals and radioactive materials and ensure that they are clearly labeled and secured to prevent unauthorized access and will provide guidelines on proper storage conditions, such as temperature and ventilation requirements, to mitigate risks.
- 4. Exhausting and Expelling of Hazardous Fumes and Volatile Chemicals:** The College has invested in installing fume hoods for experiments with volatile chemical to avoid harmful effects. All laboratories are equipped with exhaust fans for removal of harmful volatile fumes. The scope will be extended further.
- 5. Training and Awareness:** The College conducts regular training sessions for laboratory staff, faculty and students to raise awareness about the hazards of chemical and radioactive waste and safe handling practices. Ensure that all relevant personnel understand the proper procedures for handling, storing, and disposing of chemical and radioactive waste. Regular safety awareness programs can help maintain a culture of safety and compliance.
- 6. Personal Protective Equipment (PPE):** Mandate the use of appropriate personal protective equipment (PPE) when handling chemical and radioactive waste to reduce the

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risk of exposure. Provide necessary PPE, such as gloves, lab coats, goggles, and respirators, and ensure they are used correctly.

7. **Emergency Response and Contingency Planning:** College will develop a comprehensive emergency response plan to address accidental spills, leaks, or exposures to chemical and radioactive waste. Clearly outline procedures for reporting incidents, evacuations, and coordination with emergency services. The college ensures that the fire extinguishers mounted outside the laboratories are maintained in working condition, fully charged and ready for use in an eventuality.
8. **Waste collection and Transportation:** College has arranged appropriate waste collections services or establishes internal waste management protocols. College will follow the regulatory guidelines for Transporting hazardous chemical and radioactive waste and same will be carried out by the certified professionals. All broken glass apparatus is collected in clearly marked bins and sent to glass recyclers for recycling and recovery.
9. **Waste Disposal and Recycling:** College will establish partnerships with licensed and reputable waste management facilities to ensure the proper disposal or recycling of chemical and radioactive waste in compliance with local regulations by avoiding improper disposal methods, such as dumping in regular trash bins or down the drain.
10. **Monitoring and Auditing:** College will regularly monitor and audit chemical and radioactive waste management practices to ensure compliance with the established policies and identify areas for improvement. Keep records of waste generation, handling, and disposal for accountability and tracking purposes.
11. **Compliance with Regulatory Requirements:** All hazardous chemical and radioactive waste management practices should adhere to local, state, and federal regulations governing hazardous waste handling and disposal.
12. **Storage of Radioactive Materials:** Radioactive materials will be kept in the proper prescribed boxes so that it may not cause harm to the students and staff.

#### **General safety Instructions for students in the laboratories:**

1. Always enter the Chemical Laboratory wearing proper lab attire, including a lab coat, closed-toe shoes, and safety goggles.
2. Restrain loose clothing and lengthy hair. In the lab, you must always wear shoes.

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3. Wearing cotton clothes must be preferred rather than synthetics.
4. Follow all instructions given by your teacher or lab supervisor.
5. Use chemicals and equipment only as instructed and authorized.
6. Avoid tasting or smelling chemicals.
7. Label all containers clearly with the appropriate name and date.
8. If chemicals are splashed in the eyes, immediately flush them with water for a considerable amount of time (15 minutes) and seek medical help and keep the person hydrated.
9. Utilize just those chemicals for which the ventilation system is suitable for its quality.
10. Avoid eating, drinking, smoking, and using cosmetics inside laboratory.
11. Before leaving the lab, carefully wash any exposed skin.
12. To prevent damage, handle and preserve laboratory glassware carefully. Use only intact glasses.
13. It is not permitted to play practical jokes or engage in any behavior that could alarm, confuse, or distract another lab worker.
14. Avoid beginning a siphon or pipetting with mouth suction.
15. Maintain an organized, clutter-free workspace with all chemicals and tools appropriately labeled and stowed. When an operation is finished or at the conclusion of each day, clean up the work space.
16. Check gloves before each usage, wash them before removing them, and swap them out as needed.
17. Steer clear of doing any indoor solo work. If the processes being carried out in the lab are risky, never work by yourself there.
18. The grounding of all electrical connections is required. Service cords for electrical equipment should be in good shape. The repair of frayed cords or exposed wires must be done by professionals. Do not overload circuits.
19. Keep all organic solvents covered & away from open flames, heating devices, and electrical sparks.
20. Avoid lighting flammable vapours.
21. Do not mix chemicals without permission.

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22. Do not use equipment that is unfamiliar to you without proper training.
23. Do not ignore safety warnings or precautions.
24. Do not remove any equipment or chemicals from the lab without permission.
25. Report any accidents or spills immediately to your teacher or lab supervisor.

Implementing and enforcing these policies will not only protect the campus community and the environment but also cultivate a culture of safety and responsible waste management within the college.

#### **Committee for monitoring Safe laboratory practices:**

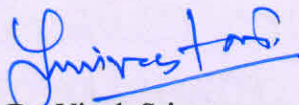
A committee is constituted by the principal of the college of One convener and two members for monitoring Safe laboratory practices. They give its input for better safety.

#### **Conclusion**

Ensuring safety in labs requires proper planning keeping in mind the hazards and possible deviations. Safety is team work and everyone working in the lab has the responsibility to perform his/her tasks in a manner to ensure not only his/her own safety but also of others who are working along with them. Familiarization with the lab activities must not make a person complacent towards the dangers involved in the activities. To avert mishaps in the lab everyone has to be constantly alert and take proactive effort in identifying the hazards and implementing preventive actions.



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