**Instructions for the Management of Chemicals and Hazardous Materials at the University of Jordan**
Issued by the Deans Council in its decision No. (1457/2020) dated 5/10/2020

**Article (1):** These instructions shall be called (Instructions for the Management of Chemicals and Hazardous Materials at the University of Jordan).

**Article (2):** The following words, wherever mentioned in these instructions, shall have the meanings assigned to them below unless the context indicates otherwise:
University: University of Jordan
Laboratory employee: The person responsible for handling and/or using and/or possessing the chemical and hazardous materials used in laboratories.
Laboratory waste: Hazardous chemical and/or biological materials resulting from various laboratory activities, including:
A. Surplus or unused amounts of hazardous chemicals that will not be used again.
B. Expired chemicals.
C. Solid and liquid experimental waste.
D. Materials used to clean spilled substances.
E. Empty containers of hazardous chemicals.
Hazardous waste: Solid, liquid, or gaseous waste that is considered hazardous due to its components, concentration, chemical or mineral properties. It is considered hazardous if it is flammable, toxic, corrosive, or can react with other materials, potentially causing:
A. Increased mortality rates or contributes to the rise of incurable diseases or delays the recovery from some diseases.
B. Increased risks to human health due to environmental pollution if not handled properly in terms of storage, transport, or disposal.
Storage limits: The quantities allowed for each laboratory to retain, estimated at fifty liters of laboratory waste and one liter of hazardous waste.
Pollution prevention: Practices that lead to the reduction or elimination of pollutants, increasing the efficiency of the use of raw materials, energy, or water, and preserving natural resources by protecting them from pollutants.

**Article (3):** These instructions aim to preserve health and environmental safety in university laboratories to reduce the risk of chemical and toxic substances to workers and students who deal directly with these materials, which may have wider effects that could include the university campus or even areas beyond it.

**Article (4):** The university is committed through its environmental policy to the national legislations to reduce hazardous waste and to continuously improve its environmental management system through its responsible bodies, including the Public Safety Division, taking it upon itself to prevent hazardous materials and waste from leaking into the ground, air, or water. To achieve these goals, these instructions include the following entities dealing with chemicals and hazardous materials:
A. Chemical laboratories.
B. Physical and biological laboratories.
C. Medical laboratories.
D. All departments that deal with chemical substances in faculties, units, and departments of the university.

**Article (5):** The technical responsible bodies at the university shall identify waste and classify its risks through an identification label affixed to each waste container containing the following information:
A. The phrase in parentheses “Hazardous Waste”
B. The chemical name of all hazardous components.
C. Name of the laboratory, number and code of the site, and name of the responsible employee and administrative entity.
D. Date of reaching the allowed storage limit.
E. Determination of the hazards on each container in terms of flammability, corrosiveness, oxidizing properties, toxicity, and other risks.
F. Placing small containers that do not allow label attachment inside larger containers such as bags or flasks, and affixing the identification label on them.

**Article (6):** The entities covered by these instructions, upon reaching the storage limit for this waste (containers), shall transfer it from the laboratory within (30) days to the university’s main chemical waste collection location, called the temporary storage, provided the following is observed:
A. Using containers of appropriate sizes for regularly generated waste.
B. Using containers compatible with the properties of the chemicals to be stored.
C. Placing different hazardous chemical waste in separate special containers.
D. Using additional containers to contain accumulated waste and prevent spills and spreading.
E. Tightly sealing all containers at all times except when adding or transferring waste.
F. Under no circumstances should the collection system allow any laboratory waste to leak into the surrounding environment.

**Article (7):** The competent entities at the university shall transport chemicals and laboratory waste as follows:
A. Waste is transported from laboratories to the main collection site when it reaches storage limits or when the containers designated for that waste are full, or when a specific type of waste is no longer generated.
B. Waste is transported from laboratories to the main collection site or the so-called temporary warehouse in coordination between the university's Public Safety Division and laboratory supervisors and staff.
C. The following must be considered when transporting waste from laboratories:

1. Ensuring that the identification label per Article 5 of these instructions is affixed to the container before placing waste in it.
2. Reserving and designating a specific area in the laboratory for collecting waste when containers are full, clearly labeled as a designated laboratory waste collection area, and not to be used for any other purpose.
3. Inventorying the generated waste using the designated form called the Hazardous Waste Collection Form (Form 1, 2).
4. In all cases, coordination with the university’s Public Safety Division is required when transporting waste from laboratories.
D. Chemicals are transported and waste is moved in laboratories according to the following procedures:
5. Placing the chemical-containing vessels in unbreakable secondary containers when transporting from laboratories.
6. Using special trolleys for transporting chemicals when available.
7. Ensuring that container lids are tightly closed before transport.
8. Providing necessary means to contain any emergency situations.

E. Chemical and hazardous waste is transported from the main collection site in the university by the Public Safety Division to the Ministry of Environment based on the Environmental Protection Law, and the competent authorities at the Ministry of Environment handle and dispose of it permanently.

**Article (8):** One of the essential tasks of managing the environmental system at the university is monitoring the chemical stock in laboratories, reducing these quantities, limiting them to actual needs, recycling unused and unexpired surplus materials, and supplying other laboratories that need them. To achieve this goal, the following shall be done:
A. Informing other laboratories within the university about the availability of usable surplus chemicals so that needs are identified, and transport is carried out according to these instructions.
B. If no need exists for these materials in any university laboratory, the surplus is inventoried using the Hazardous Waste Collection Form and transported to the main collection site in coordination with the university's Public Safety Division.
C. The Public Safety Division keeps a list of highly flammable or flammable chemicals and circulates it to researchers and laboratory supervisors in the university for their benefit.
D. These materials remain usable at the main chemical waste collection site until their expiration date.

**Article (9):** One of the important means of maintaining health and environmental safety is the safe handling of laboratory waste by controlling physical and chemical risks through the following:
A. Using engineering control methods such as fume hoods.
B. Using personal protective equipment and tools.
C. Following proper health practices.
D. Preparing emergency plans to contain spill and leakage incidents resulting from equipment failure, container rupture, or failure of control systems, causing uncontrolled spills or leaks of hazardous chemicals into the environment. In such cases, laboratory employees must do the following:
A. Providing spill control equipment and tools in all laboratories and investigating every case of waste spillage, exposure to chemicals, or any accidents occurring in the laboratory.
B. Informing the concerned authorities of any spill and immediately and in writing informing the Public Safety Division of any spill or leak of substances exceeding 4 liters, while small quantities can be reported by phone within 24 hours. The Public Safety Division shall write reports about the leak incidents to the concerned authorities.
C. Taking necessary measures to prevent future spills or leaks and circulating these measures to laboratory supervisors for adherence.
D. Evacuating individuals from the leak area if it threatens their health and safety, carried out according to emergency plans. The evacuation is based on a risk assessment and may involve a single floor, several floors, the entire building, or multiple buildings. In major leaks, local official authorities must be consulted.
E. Determining exit routes for individuals during emergencies and marking these routes inside laboratories.
F. Informing the relevant university authorities immediately upon discovering any chemical leak or fire, especially the Public Safety Division.

**Article (10):** One of the essential aspects of maintaining and preserving environmental safety is pollution prevention, by reducing the amount of laboratory waste generated or lowering its toxicity. This leads to minimizing the risks of such waste and contributes to providing a healthy and clean environment. The cooperation of the scientific departments in the university and the Public Safety Division in this field will have a significant impact on pollution prevention and risk reduction. Moreover, cooperation with hazardous chemical waste treatment entities will help determine appropriate methods to prevent pollution by inspecting the waste generated in laboratories. Any of the following methods may be used for this purpose:

A. Transferring unused chemicals that are not needed by the laboratory to other laboratories, applying the principle of material recycling.
B. Continuing the experiment until the point at which the toxicity of the material is at its minimum, which means using neutralization methods that convert hazardous materials into less hazardous ones.
C. Disposing of various gas cylinders and promoting the rental of gas cylinders instead of purchasing them whenever possible, and requiring distributors to retrieve them after use.
D. Keeping small quantities of chemicals in laboratories to reduce the amount of waste, using chemicals before their expiration, and maintaining a written inventory of chemicals in the lab to determine the actual need for purchasing. Accurate inventory helps reduce waste, minimize required storage space, lower costs, and reduce risks of spillage and leakage.
E. Using micro-scale techniques or reducing the use of chemicals in teaching and research to decrease the amount of waste generated.
F. Substituting hazardous materials with less hazardous alternatives.
G. Separating hazardous chemicals from non-hazardous ones to reduce storage costs and risks, as mixing them turns all contents into hazardous chemical waste.
H. Continuous training of laboratory staff on methods for reducing waste generation.

**Article (11):** Laboratory staff are responsible for explaining the risks that students may face when handling chemicals and equipment inside laboratories. These instructions must be clearly posted inside the laboratories.

**Article (12):** Laboratory staff, warehouse custodians, and the Public Safety Division at the university are responsible for the implementation of these instructions.