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Laboratory Safety Guidelines

Safety and health considerations are very important in the chemistry laboratory. Laboratory safety rules are put into place not only to protect yourself but also others around you and the equipment. It is vital to know the guidelines on how to properly work with chemicals, hazardous items, and laboratory equipment. By engaging in a review of these lab safety procedures, the researcher enhances their awareness of the dangers prevalent in the laboratory setting as well as the diverse approaches to addressing possible issues. Knowledge of PPE requirements, emergency responses, and waste chemical handling will allow for a safe and effective laboratory work environment.

When working in a lab it is important to wear proper attire and accessories, especially when doing an experiment where chemicals are involved. Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses that may occur from contact with, but are not limited to, chemical, radiological, electrical, and mechanical hazards (Rioux and Elliott). Personal protective equipment may include items such as gloves, safety glasses/face shields and shoes, earplugs, respirators, and full-body suits. When first entering the laboratory, minimum PPE must be worn, that is a long sleeve shirt, long pants, closed-toed shoes, safety glasses, and a button-up lab coat (Rioux and Elliott). Hair must also be tied back so it does not interfere or come in

contact with the working area and no loose jewelry is allowed. Specialized PPE is required when working with items that are riskier, such as items that might splash, cause an explosion, and even ignite sparks. For hand protection, gloves are a necessity. However, there are specific gloves for each chemical resistance. By consulting a chemical compatibility chart, the researcher is able to pick the fittest glove for the experiment. These may include, latex, nitrile, neoprene, polyethylene, polyvinyl chloride, cryogenic, cotton, nitrile rubber, kevlar, and leather gloves (Rioux and Elliott). Face and ear safety protect your skin, sight and hearing. This includes goggles, respirators, face shields, and earmuffs. Safety during an experiment is extremely important and by following PPE measures, incidents are prevented from happening.

Science laboratories can be dangerous place as it holds many toxic chemicals and corrosive acids. Hazards such as explosions, burns, and spills are always possible during an experiment. It is critical to know how to deal with situations where emergencies occur. All laboratories should contain first aid kits to aid cuts and burns. A lab should have more than one or two exits, it is crucial to know where they all are for fast evacuation when needed. In case of splashes and contaminations on the skin, laboratories should have water fountains and shower stations to flush away chemicals that contact the eye and skin, respectively. Before working in a laboratory these areas must be cleared from any obstructions. In case of emergency, the researcher should reach the stations within 10 seconds, where the affected area should be rinsed for at least 15 minutes (Rioux). Eyewash and shower stations should be inspected weekly by lab technicians to ensure their proper functioning and should be inspected yearly by an environmental health and safety officer (Rioux). Fire emergencies may also happen in a lab, the researcher must know the evacuation route and procedures, as well as the location of the nearest

fire alarm, fire extinguisher, and fire blanket. Lastly, Public Safety such as ambulances and firefighters are always available whenever there is an emergency.

Proper disposal of chemical waste is also critical for laboratory safety. A waste disposal plan should be followed in laboratories since they may be ignitable, toxic, reactive and corrosive. Waste should be disposed into their proper containers where conditions are good and contents are compatible (White). Containers as such should be labelled in each laboratory. Proper disposal of chemical waste is also crucial for the safety of the environment. Inappropriate disposal practices have significant consequences on our environment, such as pollution of water and poisoning wildlife. Safety in laboratories has a greater impact than just the experiment, therefore, proper safety is indisputable.

Laboratory safety is a significant concern. In order to conduct safe experiments, it's important to follow the laboratory safety rules. These safety rules also prevent the researcher from getting injured and protect the fragile equipment. Following the personal protective equipment requirements, knowing emergency responses, and proper waste chemical handling, the researcher will conduct harmless and effective experiments. All personnel and students must be educated on proper laboratory guidelines so that they are able to successfully finish their work without being a risk to the environment and others' safety, and all scientific materials are well maintained.

Works Cited

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