PERSONAL PROTECTIVE AND SAFETY EQUIPMENT:

Maintaining a safe laboratory environment is the responsibility of the P.I., but all employees play a role in observing safety guidelines. Personal protective devices and safety equipment must be provided to all employees under the appropriate circumstances and employees have the responsibility of properly using such equipment.
The SDS will provide some information on the personal protective equipment and safety procedures recommended for a given chemical, though the SDS may not provide sufficient information concerning the specific type of safety equipment required (for example, it may say "use gloves" but not list the best glove to use).
MIOSHA has adopted the American National Standards Institute (ANSI) consensus standards for eye protection and emergency shower and eyewash facilities.

5.3.1 Personal Protective Equipment

Eye and Face Protection. Eye protection must be made available to all employees or visitors to laboratories where chemicals are used and stored. Protective eye and face equipment must be used where there is a reasonable probability of injury from hazardous chemicals that can be prevented from such equipment. The minimum acceptable requirements are for hardened glass or plastic safety spectacles. **The P.I. or laboratory supervisor should establish the level of eye protection needed per laboratory activity based on the guidelines below.**

Eye and Face Protection: General Description

All eye protective devices must be stamped with "Z87" by the manufacturer if they meet ANSI standards. If the eye protection is not marked, it may not be the most effective protection available.

1. Safety glasses with side shields offer minimal protection against flying fragments, chips, particles, sand and dirt. When a splash hazard exists, other protective eye equipment should be worn.
2. Safety goggles (impact goggles) offer adequate protection against flying particles. These should be worn when working with glassware under reduced or elevated pressure or with drill presses or other similar conditions.
3. Chemical splash goggles (acid goggles) have indirect venting for splash proof sides, which provide adequate protection against splashes. **Chemical splash goggles offer the best eye protection from chemical splashes. Impact goggles should not be worn when danger of a splash exists.** 31

4. Face shields protect the face and neck from flying particles and splashes. Always wear additional eye protection under face shields. Ultra-violet light face shields should be worn when working over UV light sources.

5.3.2 Selecting Appropriate Eye and Face Protection in Laboratories

Safety Glasses

Required when: An impact hazard exists or when working with low hazard chemicals, or when a low probability of splash exists.

Examples:

- Pipetting
- Handling closed bottle of injurious chemical
- Mixing solutions
- Opening centrifuge tubes

Chemical Splash Goggles

Required when: Working with smaller amounts of corrosive or injurious chemicals and a reasonable probability of splash exists

Examples:

- Pouring acid out of a 1 pint bottle
- Pouring methylene chloride from a 1 liter bottle
- Working with liquids under pressure

Face Shield and Chemical Splash Goggles

Required when: Working with larger quantities of corrosive chemicals and / or a high probability of eye and face injury exists.

Examples:

- Working with an acid bath
- Pouring 4 liters of acid into a container
- Handling highly reactive chemicals that may spatter

Note: Ordinary prescription glasses do not provide adequate protection against eye injury. Eye protection equipment must be ANSI Z87 approved.

Protection of Skin and Body: Skin and body protection involves the use of protective clothing to protect individuals from chemical exposure. Determine clothing needed for the chemical being used, as protective garments are not equally effective for every hazardous chemical. Some chemicals will permeate a garment in a very short time, whereas others will not.
The basic and most effective forms of protection are gloves and lab coats. 32

Employees working with hazardous chemicals in laboratories must wear closed-toe shoes, long pants or skirt which fully covers the legs, and a lab coat.
Even when there is minimal danger of skin contact with an extremely hazardous substance, lab coats, coveralls, aprons, or protective suits should be utilized. **These garments should not leave the work site.**
Exposures to strong acids and acid gases, organic chemicals and strong oxidizing agents, carcinogens, and mutagens require the use of specialized protective equipment that prevents skin contamination. Impervious protective equipment must be utilized. Examples include: rubber gloves, aprons, boots and protective suits.

SOURCE: MSU Chemical Hygiene Plan
Link : https://ehs.msu.edu/_assets/docs/chem/msu-chem-hygiene-plan.pdf